

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**IN THE MATTER OF THE ADJUSTMENT  
OF THE ELECTRIC RATES OF DUKE ENERGY KENTUCKY, INC.**

**CASE NO. 2019-00271**

**FILING REQUIREMENTS**

**VOLUME 16**

**Duke Energy Kentucky, Inc.**  
**Case No. 2019-00271**  
**Forecasted Test Period Filing Requirements**  
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1	1	KRS 278.180	30 days' notice of rates to PSC.	Amy B. Spiller
1	2	807 KAR 5:001 Section 7(1)	The original and 10 copies of application plus copy for anyone named as interested party.	Amy B. Spiller
1	3	807 KAR 5:001 Section 12(2)	<p>(a) Amount and kinds of stock authorized.</p> <p>(b) Amount and kinds of stock issued and outstanding.</p> <p>(c) Terms of preference of preferred stock whether cumulative or participating, or on dividends or assets or otherwise.</p> <p>(d) Brief description of each mortgage on property of applicant, giving date of execution, name of mortgagor, name of mortgagee, or trustee, amount of indebtedness authorized to be secured thereby, and the amount of indebtedness actually secured, together with any sinking fund provisions.</p> <p>(e) Amount of bonds authorized, and amount issued, giving the name of the public utility which issued the same, describing each class separately, and giving date of issue, face value, rate of interest, date of maturity and how secured, together with amount of interest paid thereon during the last fiscal year.</p> <p>(f) Each note outstanding, giving date of issue, amount, date of maturity, rate of interest, in whose favor, together with amount of interest paid thereon during the last fiscal year.</p> <p>(g) Other indebtedness, giving same by classes and describing security, if any, with a brief statement of the devolution or assumption of any portion of such indebtedness upon or by person or corporation if the original liability has been transferred, together with amount of interest paid thereon during the last fiscal year.</p> <p>(h) Rate and amount of dividends paid during the five (5) previous fiscal years, and the amount of capital stock on which dividends were paid each year.</p> <p>(i) Detailed income statement and balance sheet.</p>	Christopher M. Jacobi Danielle L. Weatherston
1	4	807 KAR 5:001 Section 14(1)	Full name, mailing address, and electronic mail address of applicant and reference to the particular provision of law requiring PSC approval.	Amy B. Spiller
1	5	807 KAR 5:001 Section 14(2)	If a corporation, the applicant shall identify in the application the state in which it is incorporated and the date of its incorporation, attest that it is currently in good standing in the state in which it is incorporated, and, if it is not a Kentucky corporation, state if it is authorized to transact business in Kentucky.	Amy B. Spiller

1	6	807 KAR 5:001 Section 14(3)	If a limited liability company, the applicant shall identify in the application the state in which it is organized and the date on which it was organized, attest that it is in good standing in the state in which it is organized, and, if it is not a Kentucky limited liability company, state if it is authorized to transact business in Kentucky.	Amy B. Spiller
1	7	807 KAR 5:001 Section 14(4)	If the applicant is a limited partnership, a certified copy of its limited partnership agreement and all amendments, if any, shall be annexed to the application, or a written statement attesting that its partnership agreement and all amendments have been filed with the commission in a prior proceeding and referencing the case number of the prior proceeding.	Amy B. Spiller
1	8	807 KAR 5:001 Section 16 (1)(b)(1)	Reason adjustment is required.	Amy B. Spiller William Don Wathen, Jr.
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1	10	807 KAR 5:001 Section 16 (1)(b)(3)	New or revised tariff sheets, if applicable in a format that complies with 807 KAR 5:011 with an effective date not less than thirty (30) days from the date the application is filed	Jeff L. Kern
1	11	807 KAR 5:001 Section 16 (1)(b)(4)	Proposed tariff changes shown by present and proposed tariffs in comparative form or by indicating additions in italics or by underscoring and striking over deletions in current tariff.	Jeff L. Kern
1	12	807 KAR 5:001 Section 16 (1)(b)(5)	A statement that notice has been given in compliance with Section 17 of this administrative regulation with a copy of the notice.	Amy B. Spiller
1	13	807 KAR 5:001 Section 16(2)	If gross annual revenues exceed \$5,000,000, written notice of intent filed at least 30 days, but not more than 60 days prior to application. Notice shall state whether application will be supported by historical or fully forecasted test period.	Amy B. Spiller
1	14	807 KAR 5:001 Section 16(3)	Notice given pursuant to Section 17 of this administrative regulation shall satisfy the requirements of 807 KAR 5:051, Section 2.	Amy B. Spiller
1	15	807 KAR 5:001 Section 16(6)(a)	The financial data for the forecasted period shall be presented in the form of pro forma adjustments to the base period.	Christopher M. Jacobi
1	16	807 KAR 5:001 Section 16(6)(b)	Forecasted adjustments shall be limited to the twelve (12) months immediately following the suspension period.	Sarah E. Lawler Melissa B. Abernathy Christopher M. Jacobi
1	17	807 KAR 5:001 Section 16(6)(c)	Capitalization and net investment rate base shall be based on a thirteen (13) month average for the forecasted period.	Sarah E. Lawler
1	18	807 KAR 5:001 Section 16(6)(d)	After an application based on a forecasted test period is filed, there shall be no revisions to the forecast, except for the correction of mathematical errors, unless the revisions reflect statutory or regulatory enactments that could not, with reasonable diligence, have been included in the forecast on the date it was filed. There shall be no revisions filed within thirty (30) days of a scheduled hearing on the rate application.	Christopher M. Jacobi

1	19	807 KAR 5:001 Section 16(6)(e)	The commission may require the utility to prepare an alternative forecast based on a reasonable number of changes in the variables, assumptions, and other factors used as the basis for the utility's forecast.	Christopher M. Jacobi
1	20	807 KAR 5:001 Section 16(6)(f)	The utility shall provide a reconciliation of the rate base and capital used to determine its revenue requirements.	Sarah E. Lawler
1	21	807 KAR 5:001 Section 16(7)(a)	Prepared testimony of each witness supporting its application including testimony from chief officer in charge of Kentucky operations on the existing programs to achieve improvements in efficiency and productivity, including an explanation of the purpose of the program.	All Witnesses
1	22	807 KAR 5:001 Section 16(7)(b)	Most recent capital construction budget containing at minimum 3 year forecast of construction expenditures.	Christopher M. Jacobi James Michael Mosley Ash M. Norton
1	23	807 KAR 5:001 Section 16(7)(c)	Complete description, which may be in prefiled testimony form, of all factors used to prepare forecast period. All econometric models, variables, assumptions, escalation factors, contingency provisions, and changes in activity levels shall be quantified, explained, and properly supported.	Christopher M. Jacobi
1	24	807 KAR 5:001 Section 16(7)(d)	Annual and monthly budget for the 12 months preceding filing date, base period and forecasted period.	Christopher M. Jacobi
1	25	807 KAR 5:001 Section 16(7)(e)	Attestation signed by utility's chief officer in charge of Kentucky operations providing: 1. That forecast is reasonable, reliable, made in good faith and that all basic assumptions used have been identified and justified; and 2. That forecast contains same assumptions and methodologies used in forecast prepared for use by management, or an identification and explanation for any differences; and 3. That productivity and efficiency gains are included in the forecast.	Amy B. Spiller
1	26	807 KAR 5:001 Section 16(7)(f)	For each major construction project constituting 5% or more of annual construction budget within 3 year forecast, following information shall be filed: 1. Date project began or estimated starting date; 2. Estimated completion date; 3. Total estimated cost of construction by year exclusive and inclusive of Allowance for Funds Used During construction ("AFUDC") or Interest During construction Credit; and 4. Most recent available total costs incurred exclusive and inclusive of AFUDC or Interest During Construction Credit.	Christopher M. Jacobi James Michael Mosley Ash M. Norton
1	27	807 KAR 5:001 Section 16(7)(g)	For all construction projects constituting less than 5% of annual construction budget within 3 year forecast, file aggregate of information requested in paragraph (f) 3 and 4 of this subsection.	Christopher M. Jacobi James Michael Mosley Ash M. Norton

1	28	807 KAR 5:001 Section 16(7)(h)	Financial forecast for each of 3 forecasted years included in capital construction budget supported by underlying assumptions made in projecting results of operations and including the following information: 1. Operating income statement (exclusive of dividends per share or earnings per share); 2. Balance sheet; 3. Statement of cash flows; 4. Revenue requirements necessary to support the forecasted rate of return; 5. Load forecast including energy and demand (electric); 6. Access line forecast (telephone); 7. Mix of generation (electric); 8. Mix of gas supply (gas); 9. Employee level; 10. Labor cost changes; 11. Capital structure requirements; 12. Rate base; 13. Gallons of water projected to be sold (water); 14. Customer forecast (gas, water); 15. MCF sales forecasts (gas); 16. Toll and access forecast of number of calls and number of minutes (telephone); and 17. A detailed explanation of any other information provided.	Christopher M. Jacobi John A. Verderame Benjamin W. B. Passty
1	29	807 KAR 5:001 Section 16(7)(i)	Most recent FERC or FCC audit reports.	Danielle L. Weatherston
1	30	807 KAR 5:001 Section 16(7)(j)	Prospectuses of most recent stock or bond offerings.	Christopher M. Jacobi
1	31	807 KAR 5:001 Section 16(7)(k)	Most recent FERC Form 1 (electric), FERC Form 2 (gas), or PSC Form T (telephone).	Danielle L. Weatherston
2	32	807 KAR 5:001 Section 16(7)(l)	Annual report to shareholders or members and statistical supplements for the most recent 2 years prior to application filing date.	Christopher M. Jacobi
3	33	807 KAR 5:001 Section 16(7)(m)	Current chart of accounts if more detailed than Uniform System of Accounts charts.	Danielle L. Weatherston
3	34	807 KAR 5:001 Section 16(7)(n)	Latest 12 months of the monthly managerial reports providing financial results of operations in comparison to forecast.	Danielle L. Weatherston
3	35	807 KAR 5:001 Section 16(7)(o)	Complete monthly budget variance reports, with narrative explanations, for the 12 months prior to base period, each month of base period, and subsequent months, as available.	Danielle L. Weatherston Christopher M. Jacobi
3-9	36	807 KAR 5:001 Section 16(7)(p)	SEC's annual report for most recent 2 years, Form 10-Ks and any Form 8-Ks issued during prior 2 years and any Form 10-Qs issued during past 6 quarters.	Danielle L. Weatherston
9	37	807 KAR 5:001 Section 16(7)(q)	Independent auditor's annual opinion report, with any written communication which indicates the existence of a material weakness in internal controls.	Danielle L. Weatherston
9	38	807 KAR 5:001 Section 16(7)(r)	Quarterly reports to the stockholders for the most recent 5 quarters.	Christopher M. Jacobi

10	39	807 KAR 5:001 Section 16(7)(s)	Summary of latest depreciation study with schedules itemized by major plant accounts, except that telecommunications utilities adopting PSC's average depreciation rates shall identify current and base period depreciation rates used by major plant accounts. If information has been filed in another PSC case, refer to that case's number and style.	John J. Spanos
10	40	807 KAR 5:001 Section 16(7)(t)	List all commercial or in-house computer software, programs, and models used to develop schedules and work papers associated with application. Include each software, program, or model; its use; identify the supplier of each; briefly describe software, program, or model; specifications for computer hardware and operating system required to run program	Sarah E. Lawler
10	41	807 KAR 5:001 Section 16(7)(u)	If utility had any amounts charged or allocated to it by affiliate or general or home office or paid any monies to affiliate or general or home office during the base period or during previous 3 calendar years, file: 1. Detailed description of method of calculation and amounts allocated or charged to utility by affiliate or general or home office for each allocation or payment; 2. method and amounts allocated during base period and method and estimated amounts to be allocated during forecasted test period; 3. Explain how allocator for both base and forecasted test period was determined; and 4. All facts relied upon, including other regulatory approval, to demonstrate that each amount charged, allocated or paid during base period is reasonable.	Jeffrey R. Setser
10	42	807 KAR 5:001 Section 16(7)(v)	If gas, electric or water utility with annual gross revenues greater than \$5,000,000, cost of service study based on methodology generally accepted in industry and based on current and reliable data from single time period.	James E. Ziolkowski
10	43	807 KAR 5:001 Section 16(7)(w)	Local exchange carriers with fewer than 50,000 access lines need not file cost of service studies, except as specifically directed by PSC. Local exchange carriers with more than 50,000 access lines shall file: 1. Jurisdictional separations study consistent with Part 36 of the FCC's rules and regulations; and 2. Service specific cost studies supporting pricing of services generating annual revenue greater than \$1,000,000 except local exchange access: a. Based on current and reliable data from single time period; and b. Using generally recognized fully allocated, embedded, or incremental cost principles.	N/A
10	44	807 KAR 5:001 Section 16(8)(a)	Jurisdictional financial summary for both base and forecasted periods detailing how utility derived amount of requested revenue increase.	Sarah E. Lawler

10	45	807 KAR 5:001 Section 16(8)(b)	Jurisdictional rate base summary for both base and forecasted periods with supporting schedules which include detailed analyses of each component of the rate base.	Sarah E. Lawler Melissa B. Abernathy Christopher M. Jacobi John R. Panizza James E. Ziolkowski Danielle L. Weatherston
10	46	807 KAR 5:001 Section 16(8)(c)	Jurisdictional operating income summary for both base and forecasted periods with supporting schedules which provide breakdowns by major account group and by individual account.	Sarah E. Lawler
10	47	807 KAR 5:001 Section 16(8)(d)	Summary of jurisdictional adjustments to operating income by major account with supporting schedules for individual adjustments and jurisdictional factors.	Sarah E. Lawler Melissa B. Abernathy Christopher M. Jacobi James E. Ziolkowski
10	48	807 KAR 5:001 Section 16(8)(e)	Jurisdictional federal and state income tax summary for both base and forecasted periods with all supporting schedules of the various components of jurisdictional income taxes.	John R. Panizza
10	49	807 KAR 5:001 Section 16(8)(f)	Summary schedules for both base and forecasted periods (utility may also provide summary segregating items it proposes to recover in rates) of organization membership dues; initiation fees; expenditures for country club; charitable contributions; marketing, sales, and advertising; professional services; civic and political activities; employee parties and outings; employee gifts; and rate cases.	Sarah E. Lawler
10	50	807 KAR 5:001 Section 16(8)(g)	Analyses of payroll costs including schedules for wages and salaries, employee benefits, payroll taxes, straight time and overtime hours, and executive compensation by title.	Sarah E. Lawler Renee H. Metzler
10	51	807 KAR 5:001 Section 16(8)(h)	Computation of gross revenue conversion factor for forecasted period.	Sarah E. Lawler
10	52	807 KAR 5:001 Section 16(8)(i)	Comparative income statements (exclusive of dividends per share or earnings per share), revenue statistics and sales statistics for 5 calendar years prior to application filing date, base period, forecasted period, and 2 calendar years beyond forecast period.	Danielle L. Weatherston Christopher M. Jacobi
10	53	807 KAR 5:001 Section 16(8)(j)	Cost of capital summary for both base and forecasted periods with supporting schedules providing details on each component of the capital structure.	Christopher M. Jacobi
10	54	807 KAR 5:001 Section 16(8)(k)	Comparative financial data and earnings measures for the 10 most recent calendar years, base period, and forecast period.	Melissa B. Abernathy Christopher M. Jacobi Danielle L. Weatherston
10	55	807 KAR 5:001 Section 16(8)(l)	Narrative description and explanation of all proposed tariff changes.	Jeff L. Kern
10	56	807 KAR 5:001 Section 16(8)(m)	Revenue summary for both base and forecasted periods with supporting schedules which provide detailed billing analyses for all customer classes.	Jeff L. Kern
10	57	807 KAR 5:001 Section 16(8)(n)	Typical bill comparison under present and proposed rates for all customer classes.	Jeff L. Kern
10	58	807 KAR 5:001 Section 16(9)	The commission shall notify the applicant of any deficiencies in the application within thirty (30) days of the application's submission. An application shall not be accepted for filing until the utility has cured all noted deficiencies.	William Don Wathen, Jr.

10	59	807 KAR 5:001 Section 16(10)	Request for waivers from the requirements of this section shall include the specific reasons for the request. The commission shall grant the request upon good cause shown by the utility.	Legal
10	60	807 KAR 5:001 Section (17)(1)	<p>(1) Public postings.</p> <p>(a) A utility shall post at its place of business a copy of the notice no later than the date the application is submitted to the commission.</p> <p>(b) A utility that maintains a Web site shall, within five (5) business days of the date the application is submitted to the commission, post on its Web sites:</p> <ol style="list-style-type: none"> <li>1. A copy of the public notice; and</li> <li>2. A hyperlink to the location on the commission's Web site where the case documents are available.</li> </ol> <p>(c) The information required in paragraphs (a) and (b) of this subsection shall not be removed until the commission issues a final decision on the application.</p>	Amy B. Spiller
10	61	807 KAR 5:001 Section 17(2)	<p>(2) Customer Notice.</p> <p>(a) If a utility has twenty (20) or fewer customers, the utility shall mail a written notice to each customer no later than the date on which the application is submitted to the commission.</p> <p>(b) If a utility has more than twenty (20) customers, it shall provide notice by:</p> <ol style="list-style-type: none"> <li>1. Including notice with customer bills mailed no later than the date the application is submitted to the commission;</li> <li>2. Mailing a written notice to each customer no later than the date the application is submitted to the commission;</li> <li>3. Publishing notice once a week for three (3) consecutive weeks in a prominent manner in a newspaper of general circulation in the utility's service area, the first publication to be made no later than the date the application is submitted to the commission; or</li> <li>4. Publishing notice in a trade publication or newsletter delivered to all customers no later than the date the application is submitted to the commission.</li> </ol> <p>(c) A utility that provides service in more than one (1) county may use a combination of the notice methods listed in paragraph (b) of this subsection.</p>	Amy B. Spiller



10	62	807 KAR 5:001 Section 17(3)	<p>(3) Proof of Notice. A utility shall file with the commission no later than forty-five (45) days from the date the application was initially submitted to the commission:</p> <p>(a) If notice is mailed to its customers, an affidavit from an authorized representative of the utility verifying the contents of the notice, that notice was mailed to all customers, and the date of the mailing;</p> <p>(b) If notice is published in a newspaper of general circulation in the utility's service area, an affidavit from the publisher verifying the contents of the notice, that the notice was published, and the dates of the notice's publication; or</p> <p>(c) If notice is published in a trade publication or newsletter delivered to all customers, an affidavit from an authorized representative of the utility verifying the contents of the notice, the mailing of the trade publication or newsletter, that notice was included in the publication or newsletter, and the date of mailing.</p>	Amy B. Spiller
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10	63	807 KAR 5:001 Section 17(4)	<p>(4) Notice Content. Each notice issued in accordance with this section shall contain:</p> <p>(a) The proposed effective date and the date the proposed rates are expected to be filed with the commission;</p> <p>(b) The present rates and proposed rates for each customer classification to which the proposed rates will apply;</p> <p>(c) The amount of the change requested in both dollar amounts and percentage change for each customer classification to which the proposed rates will apply;</p> <p>(d) The amount of the average usage and the effect upon the average bill for each customer classification to which the proposed rates will apply, except for local exchange companies, which shall include the effect upon the average bill for each customer classification for the proposed rate change in basic local service;</p> <p>(e) A statement that a person may examine this application at the offices of (utility name) located at (utility address);</p> <p>(f) A statement that a person may examine this application at the commission's offices located at 211 Sower Boulevard, Frankfort, Kentucky, Monday through Friday, 8:00 a.m. to 4:30 p.m., or through the commission's Web site at <a href="http://psc.ky.gov">http://psc.ky.gov</a>;</p> <p>(g) A statement that comments regarding the application may be submitted to the Public Service Commission through its Web site or by mail to Public Service Commission, Post Office Box 615, Frankfort, Kentucky 40602;</p> <p>(h) A statement that the rates contained in this notice are the rates proposed by (utility name) but that the Public Service Commission may order rates to be charged that differ from the proposed rates contained in this notice;</p> <p>(i) A statement that a person may submit a timely written request for intervention to the Public Service Commission, Post Office Box 615, Frankfort, Kentucky 40602, establishing the grounds for the request including the status and interest of the party; and</p> <p>(j) A statement that if the commission does not receive a written request for intervention within thirty (30) days of initial publication or mailing of the notice, the commission may take final action on the application.</p>	Jeff L. Kern
10	64	807 KAR 5:001 Section 17(5)	(5) Abbreviated form of notice. Upon written request, the commission may grant a utility permission to use an abbreviated form of published notice of the proposed rates, provided the notice includes a coupon that may be used to obtain all the required information.	N/A

11	-	807 KAR 5:001 Section 16(8)(a) through (k)	Schedule Book (Schedules A-K)	Various
12	-	807 KAR 5:001 Section 16(8)(l) through (n)	Schedule Book (Schedules L-N)	Jeff L. Kern
13	-	-	Work Papers	Various
14	-	807 KAR 5:001 Section 16(7)(a)	Testimony (Volume 1 of 4)	Various
15	-	807 KAR 5:001 Section 16(7)(a)	Testimony (Volume 2 of 4)	Various
16	-	807 KAR 5:001 Section 16(7)(a)	Testimony (Volume 3 of 4)	Various
17	-	807 KAR 5:001 Section 16(7)(a)	Testimony (Volume 4 of 4)	Various
18-19	-	KRS 278.2205(6)	Cost Allocation Manual	Legal

**DIRECT TESTIMONY OF  
RENEE H. METZLER  
CONTINUED FROM VOLUME 15**

# Towers Watson Data Services

## 2014 Long-Term Incentives Policies and Practices Survey Report – U.S.





## Data Services Terms and Conditions

Towers Watson's surveys and the results of such surveys, including participation materials and related reports (collectively, "surveys") are made available by local Towers Watson affiliated companies which are directly or indirectly controlled by Towers Watson & Co. (collectively referred to as "Towers Watson" or the "Towers Watson group") on the following terms and conditions.

**Service Quality.** Towers Watson will collect relevant data and conduct the surveys with reasonable care. While Towers Watson cannot be responsible for verifying the accuracy and completeness of each data submission, a Towers Watson associate will review each data submission for overall reasonableness. Towers Watson provides the surveys on an "as is" basis and does not provide a warranty or guarantee of any kind as to the accuracy or completeness of the surveys or the data or information contained therein. Survey results will be available only if there are sufficient participants in the applicable survey.

**Intellectual Property Rights.** Towers Watson retains all intellectual property rights in the surveys. Unauthorized use or duplication without prior permission from Towers Watson is prohibited. You shall not refer to us or include any of our work product (including, without limitation, the surveys and the information they contain) in any shareholder communication or in any offering materials (or fairness opinion provided by your professional advisers) prepared in connection with the public offering or private placement of any security, unless otherwise agreed in writing.

**Use of Surveys.** You may use the surveys only within your own organization for internal human resources planning and may not modify, sell or transfer such surveys. Surveys may not be reproduced in employee newsletters or posted on your company's intranet. If you desire to share the surveys (in whole or in part) with a third party (including any entity controlling, controlled by, or under common control with your company, Towers Watson's competitors and/or independent contractors working solely for your company), you must first obtain the written consent of Towers Watson. Any use of the information contained in the surveys is not a substitute for seeking expert legal, consulting or other advice on the reasonableness or appropriateness of compensation and/or benefits levels and practices.

**Limitation of Liability.** The aggregate liability of Towers Watson and its employees, directors, officers, agents and subcontractors (the "related persons") whether in contract, tort (including negligence), breach of statutory duty or otherwise for any losses relating to the surveys provided hereunder shall not exceed in aggregate the greater of (a) \$25,000 USD or (b) the total fees paid to Towers Watson for the particular survey(s) and/or custom report(s) related to such survey(s), unless otherwise agreed in writing. Nothing in these terms shall exclude or limit the liability of Towers Watson or our related persons in the case of: (a) death or personal injury resulting from Towers Watson's or Towers Watson's related person's negligence; (b) willful misconduct; (c) fraud; or (d) other liability to the extent that the same may not be excluded or limited as a matter of law. In no event shall Towers Watson or any of our related persons be liable for any incidental, special, punitive, or consequential damages of any kind (including, without limitation, loss of income, loss of profits, or other pecuniary loss).

**General.** The validity and interpretation of these terms will be governed by the laws of the State of New York, United States of America, excluding its conflict of law rules. The parties submit to the exclusive jurisdiction of the State of New York, United States of America Courts to resolve any dispute between them, provided that Towers Watson shall have the right to initiate proceedings in any court of competent jurisdiction in the event of breach of Towers Watson's proprietary rights. The parties hereby waive any right they may have to demand a jury trial. These terms will apply to purchase orders generated by your company for survey results provided hereunder. In the event of a conflict or inconsistency between the terms and conditions of such purchase orders and these terms, these terms will prevail. Separate terms and conditions apply to use and access of online tools. You shall not assign or otherwise transfer any rights or obligations under these terms without Towers Watson's prior written consent.

## Participation Terms

By participating in Towers Watson's surveys, you will be deemed to have agreed to the following participation terms on behalf of your company and you represent that you have authority to submit data. As a participant in this survey, your company's name will be included on survey participant lists. Survey participants must submit data on a timely basis and provide an accurate and complete data submission, including, if relevant, long-term incentive information and responses to the policies and practices questions. If your company's data submission is late or does not meet the requirements for a particular survey, Towers Watson may, at its discretion, limit/deny access to such survey results. For select surveys, participants must submit executive data to purchase executive products, middle management, professional and support data to purchase non-executive products and industry-specific functions/disciplines/positions to purchase associated industry-specific survey products.

**Confidentiality and Use of Data.** Participant data submitted to the surveys will be held in confidence. Towers Watson takes reasonable security precautions, including the same precautions Towers Watson takes to protect our own confidential information, to prevent unauthorized access. Participant data will be used by Towers Watson for purposes of creating aggregated survey results which are presented in a manner that protects individual company confidentiality. Towers Watson reserves the right to use participant data in multiple surveys, where relevant, which may be available to participants and non-participants. Participant data and survey results may be used by Towers Watson for training, quality assurance, research and development, compensation and/or benefits consulting services (e.g., market/job pricing) and general promotional activities such as trends analysis that are provided to survey participants and other selected clients of Towers Watson.

**Data Protection.** Towers Watson may pass participant data, which may include individually identifiable information within its global network of offices and affiliates (including the Towers Watson Global Resource Centre) and to subcontractors and providers of IT outsourcing who will be subject to appropriate data protection standards. The Global Resource Centre is located in Manila, The Philippines, and will be used to analyze such data in connection with the surveys. The Manila corporate entity is a wholly owned subsidiary in the Towers Watson group, and it is governed by the same information security policies and internal controls that govern the Towers Watson group as a whole. Towers Watson confirms that, acting as data processor, Towers Watson will take appropriate technical, physical and organizational/administrative measures to protect such data against accidental or unlawful destruction or accidental loss or unauthorized alteration, disclosure or access. Towers Watson will use such data only for the purposes described above or for other reasonable purposes which are related to the surveys and services, unless a participant instructs Towers Watson otherwise. Participant and Towers Watson shall each comply with applicable data privacy legislation and regulations.

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## Introduction

Towers Watson is pleased to present the **2014 Long-Term Incentives Policies and Practices Survey Report - U.S.**

The survey was developed jointly by Towers Watson compensation consultants and Towers Watson Data Services to provide information on long-term practices for use by participating organizations in their individual compensation planning.

The results are based on the responses of 903 organizations. Refer to the Overview of Survey Participants section for more information including a complete list of the participating organizations.

The Towers Watson Long-Term Incentives Policies and Practices Survey is a unique summary of current design and administration aspects of long-term plans in the U.S. In addition, the survey includes grants by salary level.

The following are individual sections of the report:

- Methodology
- Overview of Survey Participants
- Executive Summary
- LTI Prevalence
- LTI Grants
- Grant Process
- LTI Plan Design
- Stock Ownership and Restrictive Covenants

## Contact Us

If you have any questions or comments regarding this report or any of our other products, contact us at +1 800 645 5771 or at [twusdata@towerswatson.com](mailto:twusdata@towerswatson.com).

In addition, participants in this U.S. Long-Term Incentives, Policies and Practices study may also be interested in participating in our 2014 International Long-Term Incentives Survey. This report provides detailed information on international LTI policies and grant values.

CONFIDENTIAL

## Methodology

In accordance with our objective to publish only the most accurate and representative information possible, each questionnaire was thoroughly reviewed by survey associates as well as our proprietary data diagnostic programs before it was included in the results. The data was further reviewed using statistical modeling techniques. Survey respondents were contacted to discuss and clarify specific policy and practice responses.

All grants were collected during 2014. For the majority of the organizations, the grants were awarded in calendar year 2014. There is a limited number of organizations with the most recent grants reported from 2013 or prior.

Our publishing guidelines require not only the statistical minimum number of responses, but also a sufficient sample to provide meaningful analysis. Therefore, not all questions are summarized.

As with all the survey references, the confidentiality of individual participant's data is maintained, and individual participant data are never revealed or identifiable.

### LTI Grant Values - Valuation Methodology

The LTI grant values in this report represent the LTI award opportunity. Specifically, the values represent the annualized present value of LTI awards at grant date. In the case of equity awards, the values reflect each organization's equity valuations under ASC 718 or IFRS(2). Equity awards include stock options, restricted stocks/units, performance shares and stock appreciation rights (SARs). Long-term cash performance plans are valued at target.



# Overview of Survey Participants

## Overview of Survey Participants

The findings in this report are based on the responses of 903 organizations. The industry sectors and revenue size of the participants are shown below.

INDUSTRY SECTORS PARTICIPANTS REPRESENT		
	# of Organizations	% of Organizations
<b>Total Sample</b>	903	100.0%
Energy Services	109	12.1%
Financial Services	158	17.5%
High Tech*	164	18.2%
Manufacturing	387	42.9%
Media/Entertainment*	25	2.7%
Pharmaceutical/Biotechnology*	53	5.9%
Retail/Wholesale Trade	64	7.1%
Services	165	18.3%
Health Care	20	2.2%

\* Companies included in these industries are also included in Manufacturing or Services as appropriate.

REVENUE (\$MILLIONS)					
	25th	Median	75th	Average	# of Organizations
<b>Total Sample</b>	\$2,104.7	\$5,657.3	\$16,050.10	\$19,308.0	903
<b>Industry Sector</b>					
Energy Services	\$1,293.0	\$3,886.3	\$11,930.0	\$10,338.5	109
Financial Services	\$1,194.2	\$6,023.3	\$19,358.3	\$18,954.0	158
High Tech	\$2,508.7	\$4,874.7	\$17,485.2	\$17,859.1	164
Manufacturing	\$2,612.2	\$5,702.8	\$17,663.0	\$21,843.3	387
Media/Entertainment	\$1,457.7	\$2,800.0	\$9,945.7	\$8,053.0	25
Pharmaceutical/Biotechnology	\$2,509.6	\$6,909.1	\$19,552.0	\$17,152.6	53
Retail/Wholesale Trade	\$2,383.6	\$7,968.5	\$22,093.4	\$23,577.5	64
Services	\$1,895.5	\$5,441.0	\$15,146.5	\$16,714.9	165
Health Care	\$4,921.1	\$9,864.0	\$38,345.7	\$29,662.7	20

REVENUE SIZE OF PARTICIPANTS		
Revenue	# of Organizations	% of Organizations
Under \$500 Million	41	4.5%
\$500 Million - \$1 Billion	52	5.8%
\$1 Billion - \$3 Billion	207	22.9%
\$3 Billion - \$6 Billion	169	18.7%
\$6 Billion - \$10 Billion	95	10.5%
\$10 Billion - \$20 Billion	145	16.1%
\$20 Billion or More	194	21.5%

A complete list of the participants follows.

## Overview of Survey Participants

### Participant List

3M	American Electric Power	AXA Group
7-Eleven	American Express	Axiall Corporation
AH Belo	American Family Insurance	Axis Capital Holdings
AO Smith	American Greetings	Babcock & Wilcox
ABB	American Sugar Refining	BAE Systems
AbbVie	American Water Works	Ball
ABM Industries	Americas Styrenics	Bank of America
Accellent LLC	AmeriHealth Caritas	Bank of Montreal
Accenture	Ameriprise Financial	Bank of the West
Access Midstream Partners	AmerisourceBergen	Banner Health
ACE Limited	AMETEK	Bard (CR Bard)
ACES Power Marketing	Amgen	Barrick Gold of North America
ACH Food	AMSTED Industries	Baxter
Acorda Therapeutics	Amway	Bayer Business & Technology Services
Actavis	Anadarko Petroleum	Bayer CropScience
Adecco	Andersons	Bayer Healthcare
Aditya Birla Management Corporation	Anheuser-Busch	Bayer MaterialScience
Aera Energy	ANN, INC.	BB&T
Aeropostale	Ansell	BBA Aviation
AES Corporation	Apache	BBVA
Aetna	Apple	BD (Becton Dickinson)
AFLAC	Appvion	Beam Suntory
AGCO	AptarGroup	bebe stores
Agilent Technologies	ARAMARK	Bechtel Systems & Infrastructure
AGL Resources	Archer Daniels Midland	Beckman Coulter
Agrium	Areva	Belk
AIG	Arkema	Best Buy
Aimia	Armstrong World Industries	BG US Services
Air Products and Chemicals	Arrow Electronics	Big Heart Pet Brands
AK Steel Holding	Arthur J Gallagher & Company	Big Lots
Alcoa	Ashland	Biogen Idec
Alexander & Baldwin	ASM International	BioMarin Pharmaceutical
Alexion Pharmaceuticals	Aspen Specialty	Black Hills
Allegion	Associated Banc-Corp	BlueCross BlueShield of Arizona
Allergan	Astellas Pharma	BlueCross BlueShield of Florida
ALLETE	Astoria Bank	BlueCross BlueShield of Tennessee
Alliance Pipeline	AstraZeneca	Blue Ridge Electric Membership Corporation
Alliant Energy	AT&T	BlueShield of California
Alliant Techsystems	ATC Management	BMC Software
Allianz Life Insurance	Atmos Energy	Bob Evans Farms
Allstate	Aurora Healthcare	Boehringer Ingelheim
Ally Financial	Auto Club Group	Boeing
Altria Group	Automatic Data Processing	Boeing Employees Credit Union
Amazon.com	Avis Budget Group	Boise Cascade
AMC Networks	Avista	BOK Financial
Ameren	Avnet	Booz Allen Hamilton
American Century Services	Avon Products	

**Overview of Survey Participants****Participant List (continued)**

BorgWarner	Chemtura	CSL Limited
Boston Scientific	Cheniere Energy	CST Brands
BP	Chesapeake Utilities	CSX
Brembo	Chevron	CTI BioPharma
Bremer Financial	Chevron Phillips Chemical	Cubic
Bristol-Myers Squibb	Chicago Board Options Exchange	Cullen Frost Bankers
Broadridge Financial Solutions	Chico's FAS	CUNA Mutual
Brown-Forman	Children's Place	Curtiss-Wright
Brunswick	Chiquita Brands	CVS Caremark
BT Global Services	CHS	Cytec
Bunge	Chubb	Daiichi Sankyo Inc.
Burberry	Cigna	Dana
Burger King	Cintas	Danaher
Burlington Northern Santa Fe	Cisco Systems	Dannon
C & J Clarks	Citrix Systems	Darden Restaurants
Cablevision Systems	City National Bank	DCP Midstream
Cabot	Clear Channel Communications	De Lage Landen
Calgon Carbon	Clearwater Paper Corporation	Dean Foods
California Independent System Operator	Cleco	Deckers Outdoor
Calpine	Cliffs Natural Resources	Deere & Company
Campbell Soup	CMS Energy	Delhaize America
Canadian National Railway	CNA	Dell
Canandaigua National Bank	CNO Financial	Delta Air Lines
Capital One Financial	Coach	Delta Dental Plan of Michigan
Capital Power	Coca-Cola	Deluxe
Cardinal Health	Coca-Cola Enterprises	Dentsply
Cargill	Colfax Corporation	Devon Energy
Carlson	Columbia Sportswear	Dex Media
CarMax	Comcast	Diageo North America
Carmeuse North America Group	Commerce Bancshares	Dick's Sporting Goods
Carnival	Commercial Metals	Dignity Health
Catamaran	Compass	Direct Energy
Caterpillar Financial Services	ConAgra Foods	DIRECTV Group
CBRE Group	ConocoPhillips	Discovery Communications
CDI	Consolidated Edison	Dollar Financial Group
CEC Educational Services	Constellation Brands	Dominion Resources
Celanese	Continental Automotive Systems	Domino's Pizza
Celestica	Cooper Standard Automotive	Domtar
Celgene	Corning	Donaldson
Centene	Cott Corporation	Dow Chemical
CenterPoint Energy	Covance	Dow Corning
Cepheid	Covidien	Dr Pepper Snapple
CF Industries	Cox Enterprises	DST Systems
CGI Technologies and Solutions	Cracker Barrel Old Country Stores	DSW
CH Energy Group	Crate & Barrel	DTE Energy
CH2M Hill	Crown Castle	Duke Energy
Charter Communications	CSAA Insurance Group	DuPont
	CSC	Dynegy



## Overview of Survey Participants

### Participant List (continued)

EW Scripps	Federal Home Loan Bank of San Francisco	Graco
East West Bank	FedEx	Graham Holdings
Eastern Bank	Ferrovial	Granite Construction
Eastman Chemical	Fidelity Investments (FMR)	Great-West Financial
Eastman Kodak	Fifth Third Bancorp	Green Plains Renewable Energy, Inc.
Eaton	Fireman's Fund Insurance	GROWMARK
ebay	First Data	GTECH
Ecolab	First Financial Bancorp	Guardian Life
EDF Renewable Energy	First Horizon National	H&R Block
Edison International	First National of Nebraska	HB Fuller
Education Management	First Solar	Halcon Resources
Edwards Lifesciences	FirstEnergy	Hanesbrands
Eisai	Flowers Foods	Harley-Davidson
El Paso Electric	Fluor	Harman
Eli Lilly	Follett Corporation	Harsco
Emblem Health	Ford	Hartford Financial Services Group
EMC	Forest Laboratories	Hasbro
EMD Millipore	Fortune Brands Home & Security	HBO
Emerson Electric	Franklin Resources	HCA Healthcare
Employers Mutual Casualty Company	Fred's	HD Supply
Encana Services Company Limited	Freeport-McMoRan Oil & Gas	Health Net
Encompass Digital Media	Frito-Lay North America	HealthSouth Corporation
Encore Capital	Frontier Communications	Helmerich & Payne
Endo	Fujitsu	Henry Ford Health Systems
Energen	Fulton Financial	Henry Schein
Energy Northwest	G&K Services	Hercules Offshore
Energy Transfer Partners	GAF Materials	Herman Miller
EnLink Midstream	Gannett	Hershey
Entergy	Gap	Hertz
Enterprise Products Partners	GATX	Hess
EP Energy	Gavilon	Hexcel
Equifax	GDF SUEZ Energy North America	Hillshire Brands Company
Erie Insurance	GE Capital	Hilton
Essilor of America	GE Energy	Hiscox
Estée Lauder	GE Healthcare	Hitachi Data Systems
Esterline Technologies	General Dynamics	HNI
Evraz North America	General Electric	HNTB
Exelis	General Mills	Hoffmann-La Roche
Exelon	Gentiva Health Services	HollyFrontier Corporation
Expedia	Genworth Financial	Home Depot
Experian Americas	Gibson Energy	HomeServe USA
Express Scripts	Gilead Sciences	Honeywell
Exterran	Glatfelter	Horizon BlueCross BlueShield of New Jersey
ExxonMobil	GlaxoSmithKline	Hormel Foods
Family Dollar Stores	Godiva Chocolatier	Horsehead
Farm Credit Foundations	Google	Hospira
Farmers Group		

**Overview of Survey Participants****Participant List (continued)**

HTC Corporation	K. Hovnanian Companies	Lonza
Hubbell	Kaiser Foundation Health Plan	L'Oréal
Hudson City Savings Bank	Kao Brands	Lorillard Tobacco
Humana	Kate Spade & Company	LPL Financial
Hunt Consolidated	KB Home	Lululemon Athletica
Huntington Bancshares	KBR	Luxottica Group
Huntsman	Kellogg	LyondellBasell
Husky Energy	Kelly Services	M&T Bank
Iberdrola USA	Kennametal	Macy's
Iberia Bank	Keurig Green Mountain	Magellan Health Services
IBM	Kewaunee Scientific Corporation	Magellan Midstream Partners
Icon Clinical Research	KeyCorp	Mallinckrodt
Idaho Power	Keystone Foods	Manulife Financial
IDEXX Laboratories	Kimberly-Clark	MAPFRE USA
IMS Health	Kinder Morgan	Marathon Oil
Independence Blue Cross	Kindred Healthcare	Marathon Petroleum
Indianapolis Power & Light Company	Kinross Gold	Markit
Infineum USA	Knowles	Marquette Financial Companies
Ingenico	Kodak Alaris	Marriott International
Ingersoll Rand	Kohl's	Mars North America
Ingram Industries	Kraft Foods	Marsh & McLennan
Inland Bancorp	Kroger	Mary Kay
Integrus Energy Group	LL Bean	Masco Corporation
Intel	L-3 Communications	Massachusetts Mutual
Intercontinental	Laclede Group	MasterCard
International Flavors & Fragrances	Lafarge North America	Mattel
International Game Technology	Land O'Lakes	MB Financial
International Paper	Lands' End	McCain Foods USA
Intuit	Laureate Education	McClatchy
ION Geophysical	Lawson Products	McCormick
ISO New England	LBrands	McDonald's
ITC Holdings	Leggett and Platt	McGraw-Hill Financial
ITT Corporation	Lehigh Hanson	McKesson
J. Crew	Leidos	MDU Resources
JC Penney Company	Leprino Foods	Mead Johnson Nutrition
JM Smucker	Level 3	MeadWestvaco
Jack in the Box	Levi Strauss	Medtronic
Jackson National Life	LG&E and KU Energy	Mercedes-Benz Financial Services
Jacobs Engineering	Liberty Bank	Merck & Co
Janus Capital Group	Liberty Global	Meredith
JetBlue Airways	Liberty Mutual	Meritor
JM Family Enterprises	Lifetouch	MetLife
John Hancock	Lincoln Financial	Micron Technology
John Wiley & Sons	Linde Group	Microsoft
Johns Manville	LinkedIn	Midwest Independent Transmission
Johnson & Johnson	Littelfuse	System Operator
Johnson Controls	Loews	MillerCoors
Jostens	London Stock Exchange Group	Molson Coors Brewing

**Overview of Survey Participants****Participant List (continued)**

Momentive Specialty Chemicals	NuStar Energy	Plexus
Mondelez	NuVasive	PNM Resources
Monsanto	NW Natural	Polaris Industries
Moody's	Occidental Chemical	Polymer Group
Morton Salt	Occidental Petroleum	PolyOne
Mosaic	Office Depot	Popular
MTS Systems	OGE Energy	Portfolio Recovery Associates
Munich Re Group	Ohio National Financial Services	Portland General Electric
Murphy Oil	Oil-Dri Corporation of America	Post Holdings
Mutual of Omaha	OM Group	Potash
Mylan	Omnicare	PPL
Nationwide	Oncor Electric Delivery	Praxair
Navient	ONE Gas	Principal Financial Group
Navigant Consulting	OneAmerica Financial Partners	PrivateBancorp
Navistar International	OneBeacon Insurance	Progressive
Navy Federal Credit Union	ONEOK	Protective Life
NCCI Holdings	Osram Sylvania	Prudential Financial
NCR	Outerwall	Public Service Enterprise Group
Nestle Purina PetCare	Owens Corning	Puget Energy
Nestle USA	Oxford Industries	PulteGroup
New Jersey Resources	Oxford Instruments America	Purdue Pharma
New York Independent System Operator	PF Chang's China Bistro	Quad/Graphics
New York Life	Pacific Gas & Electric	Quaker Oats
New York Times	Pacific Life	Qualcomm
Newell Rubbermaid	Pall Corporation	Quest Diagnostics
Newmont Mining	PANDORA	Questar
Newport News Shipbuilding	PAREXEL	Quintiles
NextEra Energy Inc.	Parker Hannifin	QVC
Nike	Parsons Corporation	RR Donnelley
NiSource	Peets Coffee & Tea	Rackspace
Nissan North America	Penn Mutual Life	Radian Group
Nobel Biocare	People's Bank	RadioShack
Noble Corporation	Peoples Natural Gas	Ralph Lauren
Noble Energy	Pepco Holdings	Rayonier
Nokia Corporation	PepsiCo	Realogy
Norfolk Southern	Perrigo	Recreational Equipment
Nortek	PetSmart	Reed Business Information
Northeast Utilities	Pfizer	Regal-Beloit
Northrop Grumman	PHH	Regency Centers
NorthWestern Energy	Phillips 66	Regeneron Pharmaceuticals
Northwestern Mutual	Phillips-Van Heusen	Regions Financial
NOVA Chemicals	Phoenix Companies	Republic Services
Novartis	Pier 1 Imports	Revlon
Novo Nordisk Pharmaceuticals	Pinnacle West Capital	Reynolds American
NRG Energy	Pitney Bowes	RGA Reinsurance Group of America
Nu Skin Enterprises	PJM Interconnection	Rich Products
	PlainsCapital	Ricoh Americas

## Overview of Survey Participants

### Participant List (continued)

Ritchie Brothers Auctioneers	Southwest Airlines	Textron
RLI	Southwest Gas	Thermo Fisher Scientific
Rockland Trust Company	Southwestern Energy	Thomson Reuters
Rockwell Automation	SpartanNash	Thrivent Financial for Lutherans
Rockwell Collins	Spectra Energy	TIAA-CREF
Rollins	Spirit AeroSystems	Tiffany & Co.
Rolls-Royce North America	Spirit Airlines	Time Warner
Rowan Companies	Sprint Nextel	TJX Companies
Royal Bank of Canada	SPX	T-Mobile USA
Royal Caribbean Cruises	SSAB	TMX Group Limited
Royal DSM	St. Jude Medical	TomTom
RTI International	Stage Stores	Toro
Ryder System	Stanley Black & Decker	Total Petrochemicals USA
SC Johnson & Son	Staples	Total System Service (TSYS)
Safeway	Starbucks Coffee	TransAlta Corporation
SAIC	Starwood Hotels & Resorts	Transamerica
Saint Gobain	State Farm Insurance	TransCanada
Samson	State Street	Transocean
Sanderson Farms	Statoil	Travelers
Sanofi	Steelcase	Travelport
Saputo Cheese USA	STP Nuclear Operating	Tribune
Saudi Aramco	Stryker	Trinity Industries
SCANA	Sun Life Financial	Tronox
Schlumberger	Sun National Bank	TRW Automotive
Schreiber Foods	SunCoke Energy	Tupperware Brands
Schwan Food Company	Suncor Energy	Tyson Foods
Scripps Networks Interactive	SunGard Data Systems	US Bancorp
Seagate Technology	SuperValu Stores	UBM
Sealed Air	SWIFT	UGI
Sears	Syngenta Crop Protection	UIL Holdings
Securian Financial Group	Synovus Financial Corporation	ULTA Salon, Cosmetics & Fragrances
Sempra Energy	Takeda Pharmaceuticals	UMB Financial Corporation
Sensata Technologies	Target	Under Armour
ServiceMaster Company	Taubman Centers	Underwriters Laboratories
ShawCor	TD Ameritrade	Unilever United States
Shell Oil	TE Connectivity Limited	uniQure
Sherwin-Williams	Tech Data	Unisys
Shire Pharmaceuticals	TECO Energy	United American Insurance
Siemens AG	Tektronix	United Launch Alliance
Sigma-Aldrich	Tenet Healthcare	United Rentals
Sinclair Broadcast Group	Tennant Company	United States Cellular
Smith & Nephew	Tennessee Valley Authority	United States Steel
Snap-on	Teradata	United Technologies
SNC-Lavalin	Terex	United Water
Sonoco Products	Tervita	UnitedHealth Group
Sony	Tesoro	Unitil
Southern Company Services	Teva Pharmaceutical	Universal Studios Orlando

## Overview of Survey Participants

### Participant List (continued)

University of Texas - MD Anderson Cancer Center	Volkswagen Group of America Inc	Whirlpool
UNS Energy	Voya Financial Services	WhiteWave Foods
Unum	Vulcan Materials	Whole Foods Market
UPS	WR Grace	Williams Companies
URENCO USA	Walmart	Willis North America
URS	Walt Disney	Wisconsin Energy
USAA	Waste Management	Wm. Wrigley Jr.
USG Corporation	Webster Bank	Wolf Creek Nuclear
UTi Worldwide	Wellcare Health Plans	Wolters Kluwer
Utica National Insurance	Wellpoint	Worthington Industries
Valero Energy	Wells' Dairy	WPX Energy
Vectren	Wells Fargo	Xcel Energy
Ventura Foods	Wendy's Group	Xerox
VeriSign	West Pharmaceutical Services	XO Communications
Verizon	Westar Energy	Xylem
Vertex Pharmaceuticals	Western Union	Zales
Viacom	Westinghouse Electric	Zoetis
Visa	Westlake Chemical	Zurich North America
VistaPrint	WEX	
	Weyerhaeuser	

## Overview of Survey Participants

### Participant List by Revenue

#### UNDER \$500 MILLION

AH Belo	Encompass Digital Media	Oil-Dri Corporation of America
ACES Power Marketing	Farm Credit Foundations	Peets Coffee & Tea
Acorda Therapeutics	First Financial Bancorp	PJM Interconnection
Alexander & Baldwin	Horsehead	Ritchie Brothers Auctioneers
Alliance Pipeline	Inland Bancorp	Rockland Trust Company
bebe stores	ISO New England	STP Nuclear Operating
Blue Ridge Electric	Kewaunee Scientific Corporation	Sun National Bank
Membership Corporation	Lawson Products	Travelport
Bremer Financial	Liberty Bank	uniQure
California Independent	Marquette Financial Companies	Unitil
System Operator	MB Financial	Utica National Insurance
Canandaigua National Bank	Midwest Independent Transmission	
Cepheid	System Operator	
Cheniere Energy	NCCI Holdings	
Chesapeake Utilities	New York Independent	
CTI BioPharma	System Operator	
Eastern Bank	Ohio National Financial Services	

**Overview of Survey Participants**

**Participant List by Revenue (continued)**

**\$500 MILLION TO \$1 BILLION**

Accellent LLC	Halcon Resources	Portfolio Recovery Associates
Appvion	Hercules Offshore	PrivateBancorp
ASM International	HNTB	Radian Group
Associated Banc-Corp	HomeServe USA	Regency Centers
Astoria Bank	Iberia Bank	RLI
ATC Management	ION Geophysical	RTI International
BioMarin Pharmaceutical	ITC Holdings	Samson
Boeing Employees Credit Union	Janus Capital Group	SWIFT
Calgon Carbon	Littelfuse	Taubman Centers
Chicago Board Options Exchange	Markit	Tennant Company
Cullen Frost Bankers	MTS Systems	TMX Group Limited
EW Scripps	Navigant Consulting	UMB Financial Corporation
East West Bank	Nobel Biocare	VeriSign
El Paso Electric	NuVasive	Webster Bank
Encore Capital	NW Natural	WEX
Energy Northwest	Oxford Industries	Wolf Creek Nuclear
Fulton Financial	Oxford Instruments America	
G&K Services	Peoples Natural Gas	

**Overview of Survey Participants****Participant List by Revenue (continued)****\$1 BILLION TO \$3 BILLION**

AO Smith	Cott Corporation	Herman Miller
Access Midstream Partners	Covance	Hexcel
Aeropostale	Cracker Barrel Old Country Stores	Hiscox
Aimia	Crate & Barrel	HNI
Alexion Pharmaceuticals	CSAA Insurance Group	Hudson City Savings Bank
Allegion	Cubic	Huntington Bancshares
ALLETE	Curtiss-Wright	Icon Clinical Research
AMC Networks	Cytec	Idaho Power
American Century Services	Deckers Outdoor	IDEXX Laboratories
American Greetings	Delta Dental Plan of Michigan	IMS Health
American Water Works	Deluxe	Ingenico
Americas Styrenics	Dentsply	Ingram Industries
ANN, INC.	Dex Media	Intercontinental
Ansell	Dollar Financial Group	International Flavors & Fragrances
AptarGroup	Domino's Pizza	International Game Technology
Armstrong World Industries	Donaldson	ITT Corporation
Aspen Specialty	DST Systems	J. Crew
Auto Club Group	DSW	Jack in the Box
Avista	Dynegy	John Wiley & Sons
BBA Aviation	Eastman Kodak	Jostens
Beam Suntory	Education Management	K. Hovnanian Companies
Big Heart Pet Brands	Edwards Lifesciences	Kao Brands
Black Hills	Employers Mutual Casualty Company	Kate Spade & Company
BlueCross BlueShield of Arizona	Endo	KB Home
BMC Software	Energen	Kennametal
Bob Evans Farms	EnLink Midstream	Knowles
BOK Financial	EP Energy	Kodak Alaris
Brembo	Equifax	LL Bean
Broadridge Financial Solutions	Esterline Technologies	Laclede Group
Burger King	Federal Home Loan Bank of San Francisco	Lands' End
C & J Clarks	First Horizon National	Lifetouch
Capital Power	First National of Nebraska	LinkedIn
Carmeuse North America Group	Follett Corporation	London Stock Exchange Group
CDI	Fred's	Lululemon Athletica
CEC Educational Services	GATX	Magellan Midstream Partners
Chemtura	Gentiva Health Services	Mallinckrodt
Chico's FAS	Glatfelter	McClatchy
Children's Place	Godiva Chocolatier	Meredith
Citrix Systems	Graco	Moody's
City National Bank	Granite Construction	New York Times
Clearwater Paper Corporation	H&R Block	Nortek
Cleco	HB Fuller	NorthWestern Energy
Columbia Sportswear	Harsco	OGE Energy
Commerce Bancshares	HealthSouth Corporation	OM Group
Constellation Brands		ONE Gas



**Overview of Survey Participants****Participant List by Revenue (continued)****\$1 BILLION TO \$3 BILLION (continued)**

OneAmerica Financial Partners	Regeneron Pharmaceuticals	Tronox
OneBeacon Insurance	Revlon	Tupperware Brands
Outerwall	Rollins	UBM
PF Chang's China Bistro	Rowan Companies	UIL Holdings
Pall Corporation	Sanderson Farms	ULTA Salon, Cosmetics & Fragrances
PANDORA	Schwan Food Company	Under Armour
PAREXEL	Scripps Networks Interactive	Underwriters Laboratories
Parsons Corporation	Sensata Technologies	United Launch Alliance
Penn Mutual Life	ShawCor	UNS Energy
People's Bank	Sigma-Aldrich	URENCO USA
PHH	Sinclair Broadcast Group	Vectren
Phoenix Companies	Southwest Gas	Vertex Pharmaceuticals
Pier 1 Imports	Spirit Airlines	VistaPrint
PlainsCapital	Stage Stores	Vulcan Materials
Plexus	Steelcase	Wells' Dairy
PNM Resources	SunCoke Energy	Wendy's Group
Polymer Group	Synovus Financial Corporation	West Pharmaceutical Services
Popular	TD Ameritrade	Westar Energy
Portland General Electric	TECO Energy	WhiteWave Foods
Post Holdings	Teradata	Worthington Industries
Purdue Pharma	TomTom	WPX Energy
Questar	Toro	XO Communications
Rackspace	Total System Service (TSYS)	Zales
Rayonier	TransAlta Corporation	
Recreational Equipment	Tribune	

**Overview of Survey Participants****Participant List by Revenue (continued)****\$3 BILLION TO \$6 BILLION**

ABM Industries	Discovery Communications	Lonza
Aditya Birla Management Corporation	Domtar	Lorillard Tobacco
Aera Energy	Dow Corning	LPL Financial
AGL Resources	Dr Pepper Snapple	M&T Bank
AK Steel Holding	Eisai	Magellan Health Services
Alliant Energy	Encana Services Company Limited	Mary Kay
Alliant Techsystems	Exelis	McCormick
Ally Financial	Expedia	McGraw-Hill Financial
Ameren	Experian Americas	MDU Resources
American Sugar Refining	Exterran	Mead Johnson Nutrition
AmeriHealth Caritas	First Solar	MeadWestvaco
AMETEK	Flowers Foods	Meritor
AMSTED Industries	Forest Laboratories	Molson Coors Brewing
Andersons	Fortune Brands Home & Security	Morton Salt
Arthur J Gallagher & Company	Frontier Communications	Murphy Oil
Atmos Energy	GAF Materials	Navient
Axiall Corporation	Gannett	Navy Federal Credit Union
Axis Capital Holdings	Graham Holdings	New Jersey Resources
Babcock & Wilcox	Green Plains Renewable Energy, Inc.	Newell Rubbermaid
Banner Health	GTECH	NiSource
Bard (CR Bard)	Hanesbrands	Noble Corporation
Belk	Harley-Davidson	Noble Energy
Big Lots	Harman	NOVA Chemicals
BlueCross BlueShield of Tennessee	Hasbro	Nu Skin Enterprises
Boise Cascade	Helmerich & Payne	NuStar Energy
Booz Allen Hamilton	Henry Ford Health Systems	Oncor Electric Delivery
Brown-Forman	Hillshire Brands Company	Owens Corning
Brunswick	Hospira	Pepco Holdings
Burberry	Hubbell	Perrigo
Cabot	Hunt Consolidated	Pinnacle West Capital
Carlson	Infineum USA	Pitney Bowes
Celestica	Integrus Energy Group	Polaris Industries
CF Industries	Intuit	PolyOne
CH Energy Group	JM Smucker	Protective Life
CH2M Hill	JetBlue Airways	Puget Energy
Chiquita Brands	Kelly Services	PulteGroup
Cintas	Keurig Green Mountain	Quad/Graphics
Cliffs Natural Resources	KeyCorp	Quintiles
CNO Financial	Kindred Healthcare	RadioShack
Coach	Kinross Gold	Realogy
Colfax Corporation	Laureate Education	Regal-Beloit
Cooper Standard Automotive	Leggett and Platt	Regions Financial
Crown Castle	Leidos	Rich Products
CSL Limited	Leprino Foods	Rockwell Collins
CUNA Mutual	Levi Strauss	SAIC

**Overview of Survey Participants**

**Participant List by Revenue (continued)**

**\$3 BILLION TO \$6 BILLION (continued)**

SCANA	SSAB	UTi Worldwide
Schreiber Foods	St. Jude Medical	WR Grace
Securian Financial Group	SunGard Data Systems	Western Union
ServiceMaster Company	Tervita	Westlake Chemical
Shire Pharmaceuticals	Tiffany & Co.	Willis North America
Smith & Nephew	Trinity Industries	Wisconsin Energy
Snap-on	Unisys	Wolters Kluwer
Sonoco Products	United American Insurance	Xylem
Southwestern Energy	United Rentals	Zoetis
SpartanNash	United States Cellular	
Spectra Energy	University of Texas - MD Anderson Cancer Center	
Spirit AeroSystems	USG Corporation	
SPX		

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**Overview of Survey Participants****Participant List by Revenue (continued)****\$6 BILLION TO \$10 BILLION**

Actavis	Dick's Sporting Goods	Osram Sylvania
Agilent Technologies	DTE Energy	Pacific Life
Allergan	Eastman Chemical	PetSmart
American Family Insurance	Erie Insurance	Phillips-Van Heusen
Arkema	Essilor of America	Potash
Ashland	Fifth Third Bancorp	Principal Financial Group
Avis Budget Group	Franklin Resources	Public Service Enterprise Group
Avon Products	Genworth Financial	Quest Diagnostics
Ball	Gibson Energy	Ralph Lauren
BD (Becton Dickinson)	HD Supply	Reed Business Information
Biogen Idec	Henry Schein	Republic Services
BlueCross BlueShield of Florida	Hershey	Reynolds American
BorgWarner	Hormel Foods	Rockwell Automation
Boston Scientific	HTC Corporation	Royal Caribbean Cruises
Cablevision Systems	KBR	Ryder System
Calpine	Keystone Foods	SC Johnson & Son
Campbell Soup	Level 3	Saputo Cheese USA
Canadian National Railway	Masco Corporation	Sealed Air
CBRE Group	MasterCard	SNC-Lavalin
Celanese	Mattel	Starwood Hotels & Resorts
Celgene	McCain Foods USA	State Street
CenterPoint Energy	Micron Technology	Stryker
CGI Technologies and Solutions	MillerCoors	Terex
Charter Communications	Momentive Specialty Chemicals	Thrivent Financial for Lutherans
Clear Channel Communications	Mosaic	TransCanada
CMS Energy	Mutual of Omaha	Transocean
Coca-Cola Enterprises	Mylan	UGI
Commercial Metals	NCR	Voya Financial Services
Corning	Newmont Mining	Wellcare Health Plans
Dana	Newport News Shipbuilding	Weyerhaeuser
Darden Restaurants	Northeast Utilities	Williams Companies
Dean Foods	Omnicare	

## Overview of Survey Participants

### Participant List by Revenue (continued)

#### \$10 BILLION TO \$20 BILLION

AbbVie	CST Brands	Kellogg
ACE Limited	CSX	Kinder Morgan
AES Corporation	Daiichi Sankyo, Inc.	Kohl's
AGCO	Danaher	Kraft Foods
Agrium	DCP Midstream	L-3 Communications
Air Products and Chemicals	De Lage Landen	Land O'Lakes
Altria Group	Devon Energy	L Brands
American Electric Power	Diageo North America	Lehigh Hanson
Ameriprise Financial	Dominion Resources	LG&E and KU Energy
Amgen	ebay	Liberty Global
Amway	Ecolab	Lincoln Financial
Anadarko Petroleum	Edison International	Loews
Apache	Emblem Health	Luxottica Group
ARAMARK	EMD Millipore	Manulife Financial
Areva	Entergy	Marathon Oil
Astellas Pharma	Estée Lauder	Marriott International
Aurora Healthcare	Evraz North America	Mars North America
Automatic Data Processing	Family Dollar Stores	Marsh & McLennan
Bank of Montreal	Ferrovial	Medtronic
Barrick Gold of North America	Fidelity Investments (FMR)	Monsanto
Baxter	First Data	Navistar International
BB&T	FirstEnergy	NextEra Energy, Inc.
BBVA	Gap	Nokia Corporation
Beckman Coulter	General Mills	Norfolk Southern
BG US Services	Gilead Sciences	Novo Nordisk Pharmaceuticals
BlueShield of California	GROWMARK	NRG Energy
Bristol-Myers Squibb	Guardian Life	Office Depot
Capital One Financial	Health Net	ONEOK
CarMax	Hertz	Pacific Gas & Electric
Carnival	Hilton	Parker Hannifin
Catamaran	Horizon BlueCross BlueShield of New Jersey	PPL
Centene	Huntsman	Praxair
Chevron Phillips Chemical	Independence Blue Cross	Progressive
Chubb	Indianapolis Power & Light Company	QVC
CNA	Ingersoll Rand	RR Donnelley
ConAgra Foods	JC Penney Company	RGA Reinsurance Group of America
Consolidated Edison	Jacobs Engineering	Royal DSM
Covidien	JM Family Enterprises	Seagate Technology
Cox Enterprises	John Hancock	Sempra Energy
CSC		Sherwin-Williams

## Overview of Survey Participants

### Participant List by Revenue (continued)

#### \$10 BILLION TO \$20 BILLION (continued)

Southern Company Services	Tektronix	Unum
Southwest Airlines	Tenet Healthcare	URS
Stanley Black & Decker	Tennessee Valley Authority	Viacom
Starbucks Coffee	Textron	Visa
Sun Life Financial	Thermo Fisher Scientific	Waste Management
SuperValu Stores	Thomson Reuters	Whirlpool
Syngenta Crop Protection	TRW Automotive	Whole Foods Market
Takeda Pharmaceuticals	US Bancorp	Xcel Energy
TE Connectivity Limited	United States Steel	

## Overview of Survey Participants

## Participant List by Revenue (continued)

## \$20 BILLION OR MORE

7-Eleven	Coca-Cola	Hartford Financial Services Group
ABB	Comcast	HBO
Accenture	Compass	HCA Healthcare
ACH Food	ConocoPhillips	Hess
Adecco	Continental Automotive Systems	Hitachi Data Systems
Aetna	CVS Caremark	Hoffmann-La Roche
AFLAC	Dannon	HollyFrontier Corporation
AIG	Deere & Company	Home Depot
Alcoa	Delhaize America	Honeywell
Allianz Life Insurance	Dell	Humana
Allstate	Delta Air Lines	Husky Energy
Amazon.com	Dignity Health	Iberdrola USA
American Express	Direct Energy	IBM
AmerisourceBergen	DIRECTV Group	Intel
Anheuser-Busch	Dow Chemical	International Paper
Apple	Duke Energy	Jackson National Life
Archer Daniels Midland	DuPont	Johns Manville
Arrow Electronics	Eaton	Johnson & Johnson
AstraZeneca	EDF Renewable Energy	Johnson Controls
AT&T	Eli Lilly	Kaiser Foundation Health Plan
Avnet	EMC	Kimberly-Clark
AXA Group	Emerson Electric	Kroger
BAE Systems	Energy Transfer Partners	Lafarge North America
Bank of America	Enterprise Products Partners	Liberty Mutual
Bank of the West	Exelon	Linde Group
Bayer Business & Technology Services	Express Scripts	L'Oréal
Bayer CropScience	ExxonMobil	LyondellBasell
Bayer Healthcare	Farmers Group	Macy's
Bayer MaterialScience	FedEx	MAPFRE USA
Bechtel Systems & Infrastructure	Fireman's Fund Insurance	Marathon Petroleum
Best Buy	Fluor	Massachusetts Mutual
Boehringer Ingelheim	Ford	McDonald's
Boeing	Freeport-McMoRan Oil & Gas	McKesson
BP	Frito-Lay North America	Mercedes-Benz Financial Services
BT Global Services	Fujitsu	Merck & Co
Bunge	Gavilon	MetLife
Burlington Northern Santa Fe	GDF SUEZ Energy North America	Microsoft
Cardinal Health	GE Capital	Mondelez
Cargill	GE Energy	Munich Re Group
Caterpillar Financial Services	GE Healthcare	Nationwide
Chevron	General Dynamics	Nestle Purina PetCare
CHS	General Electric	Nestle USA
Cigna	GlaxoSmithKline	New York Life
Cisco Systems	Google	Nike
	Great-West Financial	

## Overview of Survey Participants

### Participant List by Revenue (continued)

#### \$20 BILLION OR MORE (continued)

Nissan North America	Sears	Tyson Foods
Northrop Grumman	Shell Oil	Unilever United States
Northwestern Mutual	Siemens AG	United Technologies
Novartis	Sony	United Water
Occidental Chemical	Sprint Nextel	UnitedHealth Group
Occidental Petroleum	Staples	Universal Studios Orlando
PepsiCo	State Farm Insurance	UPS
Pfizer	Statoil	USAA
Phillips 66	Suncor Energy	Valero Energy
Prudential Financial	Target	Ventura Foods
Quaker Oats	Tech Data	Verizon
Qualcomm	Tesoro	Volkswagen Group of America, Inc.
Ricoh Americas	Teva Pharmaceutical	Walmart
Rolls-Royce North America	TIAA-CREF	Walt Disney
Royal Bank of Canada	Time Warner	Wellpoint
Safeway	TJX Companies	Wells Fargo
Saint Gobain	T-Mobile USA	Westinghouse Electric
Sanofi	Total Petrochemicals USA	Wm. Wrigley Jr.
Saudi Aramco	Transamerica	Xerox
Schlumberger	Travelers	Zurich North America



## Overview of Survey Participants

### Participant List by Industry

#### ENERGY SERVICES

ABB	El Paso Electric	Peoples Natural Gas
Access Midstream Partners	Energen	Pepco Holdings
ACES Power Marketing	Energy Northwest	Pinnacle West Capital
Aera Energy	Energy Transfer Partners	PJM Interconnection
AES Corporation	EnLink Midstream	PNM Resources
AGL Resources	Energry	Portland General Electric
ALLETE	Enterprise Products Partners	PPL
Alliant Energy	Exelon	Public Service Enterprise Group
Ameren	First Solar	Puget Energy
American Electric Power	FirstEnergy	Republic Services
American Water Works	GDF SUEZ Energy North America	Samson
Anadarko Petroleum	Gibson Energy	SCANA
Areva	Husky Energy	Sempra Energy
ATC Management	Iberdrola USA	Southern Company Services
Atmos Energy	Idaho Power	Southwest Gas
Avista	Indianapolis Power & Light Company	Spectra Energy
Babcock & Wilcox	Integrus Energy Group	STP Nuclear Operating
Black Hills	ISO New England	TECO Energy
Blue Ridge Electric	ITC Holdings	Tennessee Valley Authority
Membership Corporation	Kinder Morgan	TMX Group Limited
California Independent	Laclede Group	TransAlta Corporation
System Operator	LG&E and KU Energy	TransCanada
Calpine	Midwest Independent Transmission	UGI
Capital Power	System Operator	UIL Holdings
CenterPoint Energy	New Jersey Resources	United Water
CH Energy Group	New York Independent	Unitil
Cheniere Energy	System Operator	UNS Energy
Chesapeake Utilities	NextEra Energy, Inc.	URENCO USA
Cleco	NiSource	Vectren
CMS Energy	Northeast Utilities	Westar Energy
Consolidated Edison	NorthWestern Energy	Westinghouse Electric
DCP Midstream	NRG Energy	Williams Companies
Direct Energy	NuStar Energy	Wisconsin Energy
Dominion Resources	NW Natural	Wolf Creek Nuclear
DTE Energy	OGE Energy	Xcel Energy
Duke Energy	Oncor Electric Delivery	
Dynegy	ONE Gas	
EDF Renewable Energy	ONEOK	
Edison International	Pacific Gas & Electric	

**Overview of Survey Participants****Participant List by Industry (continued)****FINANCIAL SERVICES**

ACE Limited	De Lage Landen	Lincoln Financial
Aetna	Delta Dental Plan of Michigan	Loews
AFLAC	Dollar Financial Group	London Stock Exchange Group
AIG	East West Bank	LPL Financial
Allianz Life Insurance	Eastern Bank	M&T Bank
Allstate	Employers Mutual Casualty Company	Manulife Financial
Ally Financial	Encore Capital	MAPFRE USA
American Century Services	Erie Insurance	Marquette Financial Companies
American Express	Express Scripts	Marsh & McLennan
American Family Insurance	Farm Credit Foundations	Massachusetts Mutual
AmeriHealth Caritas	Farmers Group	MasterCard
Ameriprise Financial	Federal Home Loan Bank of San Francisco	MB Financial
Arthur J Gallagher & Company	Fidelity Investments (FMR)	McGraw-Hill Financial
Aspen Specialty	Fifth Third Bancorp	Mercedes-Benz Financial Services
Associated Banc-Corp	Fireman's Fund Insurance	MetLife
Astoria Bank	First Data	Moody's
Auto Club Group	First Financial Bancorp	Munich Re Group
AXA Group	First Horizon National	Mutual of Omaha
Axis Capital Holdings	First National of Nebraska	Nationwide
Bank of America	Franklin Resources	Navient
Bank of Montreal	Fulton Financial	Navy Federal Credit Union
Bank of the West	GATX	NCCI Holdings
BB&T	GE Capital	New York Life
BBVA	Genworth Financial	Northwestern Mutual
BlueCross BlueShield of Arizona	Great-West Financial	Ohio National Financial Services
BlueCross BlueShield of Florida	Guardian Life	OneAmerica Financial Partners
BlueCross BlueShield of Tennessee	H&R Block	OneBeacon Insurance
BlueShield of California	Hartford Financial Services Group	Pacific Life
Boeing Employees Credit Union	Health Net	Penn Mutual Life
BOK Financial	Hiscox	People's Bank
Bremer Financial	Horizon BlueCross BlueShield of New Jersey	Phoenix Companies
Canandaigua National Bank	Hudson City Savings Bank	PlainsCapital
Capital One Financial	Humana	Popular
Caterpillar Financial Services	Huntington Bancshares	Portfolio Recovery Associates
Centene	Iberia Bank	Principal Financial Group
Chicago Board Options Exchange	Independence Blue Cross	PrivateBancorp
Chubb	Inland Bancorp	Progressive
Cigna	Jackson National Life	Protective Life
City National Bank	Janus Capital Group	Prudential Financial
CNA	John Hancock	Radian Group
CNO Financial	KeyCorp	Regions Financial
Commerce Bancshares	Liberty Bank	RGA Reinsurance Group of America
CSAA Insurance Group	Liberty Mutual	RLI
Cullen Frost Bankers		Rockland Trust Company
CUNA Mutual		Royal Bank of Canada

## Overview of Survey Participants

### Participant List by Industry (continued)

#### FINANCIAL SERVICES (continued)

Securian Financial Group	Transamerica	Voya Financial Services
State Farm Insurance	Travelers	Webster Bank
State Street	US Bancorp	Wellpoint
Sun Life Financial	UMB Financial Corporation	Wells Fargo
Sun National Bank	United American Insurance	Western Union
Synovus Financial Corporation	Unum	Willis North America
TD Ameritrade	USAA	Zurich North America
Thrivent Financial for Lutherans	Utica National Insurance	
TIAA-CREF	Visa	

**Overview of Survey Participants****Participant List by Industry (continued)****HIGH TECH**

3M	DST Systems	Mattel
AO Smith	Eastman Kodak	McCain Foods USA
Accellent LLC	Eaton	Mead Johnson Nutrition
Agilent Technologies	Edwards Lifesciences	Medtronic
Allegion	EMC	Micron Technology
AMETEK	Emerson Electric	Microsoft
AMSTED Industries	Encompass Digital Media	Morton Salt
Apple	Essilor of America	MTS Systems
Armstrong World Industries	Flowers Foods	NCR
Arrow Electronics	Fortune Brands Home & Security	Nestle Purina PetCare
ASM International	Frito-Lay North America	Newell Rubbermaid
AT&T	Frontier Communications	Nobel Biocare
Avnet	GAF Materials	Nokia Corporation
Ball	General Electric	Nortek
Bard (CR Bard)	Graco	NuVasive
Beckman Coulter	Green Plains Renewable Energy, Inc.	Osram Sylvania
Big Heart Pet Brands	Harman	Owens Corning
BMC Software	Herman Miller	Oxford Instruments America
BorgWarner	Hillshire Brands Company	Pall Corporation
Boston Scientific	Hitachi Data Systems	Parker Hannifin
Brunswick	HNI	Pitney Bowes
BT Global Services	HTC Corporation	Plexus
Cablevision Systems	Hubbell	Polaris Industries
Calgon Carbon	IBM	Post Holdings
Campbell Soup	IMS Health	Quaker Oats
Cardinal Health	Ingersoll Rand	Qualcomm
Celestica	Intel	Regal-Beloit
Cepheid	Intuit	Rich Products
Charter Communications	ITT Corporation	Ricoh Americas
Chiquita Brands	Johns Manville	Rockwell Automation
Cisco Systems	Johnson Controls	Saint Gobain
Citrix Systems	Jostens	Saputo Cheese USA
Colfax Corporation	Kennametal	Seagate Technology
Comcast	Kewaunee Scientific Corporation	Sensata Technologies
Constellation Brands	Knowles	ShawCor
Continental Automotive Systems	Kodak Alaris	Siemens AG
Corning	Lafarge North America	Smith & Nephew
Covidien	Leggett and Platt	Snap-on
Crown Castle	Leidos	Sonoco Products
Danaher	Level 3	Sony
Deere & Company	Liberty Global	Sprint Nextel
Dell	Lifetouch	SPX
Dentsply	LinkedIn	St. Jude Medical
Donaldson	Mars North America	Stanley Black & Decker
Dr Pepper Snapple	Masco Corporation	Steelcase

## Overview of Survey Participants

### Participant List by Industry (continued)

#### HIGH TECH (continued)

Stryker	T-Mobile USA	Verizon
SunGard Data Systems	TomTom	Wells' Dairy
SWIFT	Toro	West Pharmaceutical Services
TE Connectivity Limited	Total System Service (TSYS)	Whirlpool
Tektronix	Travelport	Wm. Wrigley Jr.
Tennant Company	Trinity Industries	Worthington Industries
Teradata	TRW Automotive	Xerox
Terex	United States Cellular	XO Communications
Textron	USG Corporation	Xylem
Thermo Fisher Scientific	VeriSign	

**Overview of Survey Participants****Participant List by Industry (continued)****MANUFACTURING**

3M	Bard (CR Bard)	Colfax Corporation
AO Smith	Barrick Gold of North America	Columbia Sportswear
AbbVie	Baxter	Commercial Metals
Accellent LLC	Bayer Healthcare	ConAgra Foods
ACH Food	Bayer MaterialScience	ConocoPhillips
Acorda Therapeutics	BBA Aviation	Constellation Brands
Actavis	BD (Becton Dickinson)	Continental Automotive Systems
Aditya Birla Management Corporation	Beam Suntory	Cooper Standard Automotive
Aerostale	Bechtel Systems & Infrastructure	Corning
Agilent Technologies	Beckman Coulter	Cott Corporation
Agrium	BG US Services	Covance
Air Products and Chemicals	Big Heart Pet Brands	Covidien
AK Steel Holding	Biogen Idec	CSL Limited
Alcoa	BioMarin Pharmaceutical	CTI BioPharma
Alexion Pharmaceuticals	Bob Evans Farms	Cubic
Allegion	Boehringer Ingelheim	Curtiss-Wright
Allergan	Boeing	Cytec
Alliance Pipeline	Boise Cascade	Daiichi Sankyo, Inc.
Alliant Techsystems	BorgWarner	Dana
Altria Group	Boston Scientific	Danaher
American Greetings	BP	Dannon
American Sugar Refining	Brembo	Dean Foods
Americas Styrenics	Bristol-Myers Squibb	Deckers Outdoor
AMETEK	Brown-Forman	Deere & Company
Amgen	Brunswick	Dell
AMSTED Industries	Burger King	Dentsply
Amway	Cabot	Devon Energy
Anheuser-Busch	Calgon Carbon	Diageo North America
Ansell	Campbell Soup	Domtar
Apache	Cardinal Health	Donaldson
Apple	Carmeuse North America Group	Dow Chemical
Appvion	CBRE Group	Dow Corning
AptarGroup	Celanese	Dr Pepper Snapple
Arkema	Celestica	DuPont
Armstrong World Industries	Celgene	Eastman Chemical
Arrow Electronics	Cepheid	Eastman Kodak
Ashland	CF Industries	Eaton
ASM International	Chemtura	Ecolab
Astellas Pharma	Chevron	Edwards Lifesciences
AstraZeneca	Chevron Phillips Chemical	Eisai
Avnet	Chiquita Brands	Eli Lilly
Avon Products	Clearwater Paper Corporation	EMD Millipore
Axiall Corporation	Cliffs Natural Resources	Emerson Electric
BAE Systems	Coca-Cola	Encana Services Company Limited
Ball	Coca-Cola Enterprises	Endo

**Overview of Survey Participants****Participant List by Industry (continued)****MANUFACTURING (continued)**

EP Energy	Hormel Foods	LyondellBasell
Essilor of America	Horsehead	Magellan Midstream Partners
Estée Lauder	Hospira	Mallinckrodt
Esterline Technologies	Hubbell	Marathon Oil
Evraz North America	Hunt Consolidated	Marathon Petroleum
Exelis	Huntsman	Mars North America
Exterran	Icon Clinical Research	Mary Kay
ExxonMobil	IDEXX Laboratories	Masco Corporation
Flowers Foods	Infineum USA	Mattel
Ford	Ingersoll Rand	McCain Foods USA
Forest Laboratories	Intel	McCormick
Fortune Brands Home & Security	International Flavors & Fragrances	MDU Resources
Freeport-McMoRan Oil & Gas	International Paper	Mead Johnson Nutrition
Frito-Lay North America	ION Geophysical	MeadWestvaco
GAF Materials	ITT Corporation	Medtronic
GE Healthcare	JM Smucker	Merck & Co
General Dynamics	Jack in the Box	Meritor
General Electric	Johns Manville	Micron Technology
General Mills	Johnson & Johnson	MillerCoors
Gilead Sciences	Johnson Controls	Molson Coors Brewing
Glatfelter	Jostens	Momentive Specialty Chemicals
GlaxoSmithKline	Kao Brands	Mondelez
Godiva Chocolatier	Kate Spade & Company	Morton Salt
Graco	Kellogg	Mosaic
Green Plains Renewable Energy, Inc.	Kennametal	MTS Systems
GTECH	Keurig Green Mountain	Murphy Oil
HB Fuller	Kewaunee Scientific Corporation	Mylan
Halcon Resources	Keystone Foods	Navistar International
Hanesbrands	Kimberly-Clark	Nestle Purina PetCare
Harley-Davidson	Kinross Gold	Nestle USA
Harman	Knowles	Newell Rubbermaid
Harsco	Kodak Alaris	Newmont Mining
Hasbro	Kraft Foods	Newport News Shipbuilding
Helmerich & Payne	L-3 Communications	Nissan North America
Hercules Offshore	Lafarge North America	Nobel Biocare
Herman Miller	Land O'Lakes	Noble Corporation
Hershey	Leggett and Platt	Noble Energy
Hess	Leprino Foods	Nortek
Hexcel	Lifetouch	Northrop Grumman
Hillshire Brands Company	Linde Group	NOVA Chemicals
Hitachi Data Systems	Littelfuse	Novartis
HNI	Lonza	Novo Nordisk Pharmaceuticals
Hoffmann-La Roche	L'Oréal	Nu Skin Enterprises
HollyFrontier Corporation	Lorillard Tobacco	NuVasive
Honeywell	Lululemon Athletica	Occidental Chemical

## Overview of Survey Participants

### Participant List by Industry (continued)

#### MANUFACTURING (continued)

Occidental Petroleum	Royal DSM	Terex
Oil-Dri Corporation of America	SC Johnson & Son	Tervita
OM Group	SAIC	Tesoro
Osram Sylvania	Saint Gobain	Teva Pharmaceutical
Owens Corning	Sanderson Farms	Textron
Oxford Industries	Saputo Cheese USA	Thermo Fisher Scientific
Oxford Instruments America	Saudi Aramco	Toro
Pall Corporation	Schlumberger	Total Petrochemicals USA
PAREXEL	Schreiber Foods	Transocean
Parker Hannifin	Schwan Food Company	Trinity Industries
Peets Coffee & Tea	Seagate Technology	TRW Automotive
PepsiCo	Sealed Air	Tupperware Brands
Perrigo	Sensata Technologies	Tyson Foods
Pfizer	ShawCor	Unilever United States
Phillips 66	Shell Oil	uniQure
Phillips-Van Heusen	Sherwin-Williams	United Launch Alliance
Pitney Bowes	Shire Pharmaceuticals	United States Steel
Plexus	Siemens AG	United Technologies
Polaris Industries	Sigma-Aldrich	USG Corporation
Polymer Group	Smith & Nephew	Valero Energy
PolyOne	Snap-on	Ventura Foods
Post Holdings	Sonoco Products	Vertex Pharmaceuticals
Potash	Sony	Volkswagen Group of America, Inc.
Praxair	Southwestern Energy	Vulcan Materials
Purdue Pharma	Spirit AeroSystems	WR Grace
Quaker Oats	SPX	Wells' Dairy
Questar	SSAB	West Pharmaceutical Services
Quintiles	St. Jude Medical	Westlake Chemical
Rayonier	Stanley Black & Decker	Weyerhaeuser
Regal-Beloit	Starbucks Coffee	Whirlpool
Regeneron Pharmaceuticals	Statoil	WhiteWave Foods
Revlon	Steelcase	Wm. Wrigley Jr.
Reynolds American	Stryker	Worthington Industries
Rich Products	SunCoke Energy	WPX Energy
Ricoh Americas	Suncor Energy	Xerox
Rockwell Automation	Takeda Pharmaceuticals	Xylem
Rockwell Collins	TE Connectivity Limited	Zoetis
Rolls-Royce North America	Tektronix	
Rowan Companies	Tennant Company	



## Overview of Survey Participants

### Participant List by Industry (continued)

#### MEDIA/ENTERTAINMENT

AH Belo	Graham Holdings	Sinclair Broadcast Group
AMC Networks	International Game Technology	Time Warner
Clear Channel Communications	John Wiley & Sons	Tribune
Cox Enterprises	McClatchy	UBM
Dex Media	Meredith	Viacom
DIRECTV Group	New York Times	Walt Disney
Discovery Communications	RR Donnelley	Wolters Kluwer <sup>cc</sup>
EW Scripps	Reed Business Information	
Gannett	Scripps Networks Interactive	

**Overview of Survey Participants**

**Participant List by Industry (continued)**

**PHARMACEUTICAL/BIOTECHNOLOGY**

AbbVie	CTI BioPharma	Novartis
Acorda Therapeutics	Daiichi Sankyo, Inc.	Novo Nordisk Pharmaceuticals
Actavis	Eisai	PAREXEL
Alexion Pharmaceuticals	Eli Lilly	Perrigo
Allergan	Endo	Pfizer
Amgen	Forest Laboratories	Purdue Pharma
Astellas Pharma	GE Healthcare	Quintiles
AstraZeneca	Gilead Sciences	Regeneron Pharmaceuticals
Baxter	GlaxoSmithKline	Royal DSM
Bayer Healthcare	Hoffmann-La Roche	Sanofi
BD (Becton Dickinson)	Hospira	Shire Pharmaceuticals
Biogen Idec	Icon Clinical Research	Sigma-Aldrich
BioMarin Pharmaceutical	IDEXX Laboratories	Takeda Pharmaceuticals
Boehringer Ingelheim	Johnson & Johnson	Teva Pharmaceutical
Bristol-Myers Squibb	Lonza	uniQure
Celgene	Mallinckrodt	Vertex Pharmaceuticals
Covance	Merck & Co	Zoetis
CSL Limited	Mylan	

**Overview of Survey Participants**

**Participant List by Industry (continued)**

**RETAIL/WHOLESALE TRADE**

7-Eleven	Fred's	Pier 1 Imports
Amazon.com	Gap	QVC
AmerisourceBergen	HD Supply	RadioShack
ANN, INC.	Henry Schein	Ralph Lauren
bebe stores	Home Depot	Recreational Equipment
Belk	J. Crew	Safeway
Best Buy	JC Penney Company	Sears
Big Lots	JM Family Enterprises	SpartanNash
Burberry	Kohl's	Stage Stores
C & J Clarks	Kroger	Staples
CarMax	LL Bean	SuperValu Stores
Chico's FAS	Lands' End	Target
Children's Place	Lawson Products	Tech Data
Coach	LBrands	Tiffany & Co.
Crate & Barrel	Levi Strauss	TJX Companies
CST Brands	Luxtottica Group	ULTA Salon, Cosmetics & Fragrances
Delhaize America	Macy's	Under Armour
Dick's Sporting Goods	Nike	Walmart
DSW	Office Depot	Whole Foods Market
ebay	Outerwall	Zales
Family Dollar Stores	PANDORA	
Follett Corporation	PetSmart	

**Overview of Survey Participants****Participant List by Industry (continued)****SERVICES**

AH Belo	Darden Restaurants	KB Home
ABM Industries	Delta Air Lines	KBR
Accenture	Deluxe	Kelly Services
Adecco	Dex Media	Laureate Education
AGCO	DIRECTV Group	Lehigh Hanson
Aimia	Discovery Communications	Leidos
Alexander & Baldwin	Domino's Pizza	Level 3
AMC Networks	DST Systems	Liberty Global
Andersons	EW Scripps	LinkedIn
ARAMARK	Education Management	Markit
Archer Daniels Midland	EMC	Marriott International
AT&T	Encompass Digital Media	McClatchy
Automatic Data Processing	Equifax	McDonald's
Avis Budget Group	Expedia	Meredith
Bayer Business & Technology Services	Experian Americas	Microsoft
Bayer CropScience	FedEx	Monsanto
BMC Software	Ferrovial	Navigant Consulting
Booz Allen Hamilton	Fluor	NCR
Broadridge Financial Solutions	Frontier Communications	New York Times
BT Global Services	Fujitsu	Nokia Corporation
Bunge	G&K Services	Norfolk Southern
Burlington Northern Santa Fe	Gannett	PF Chang's China Bistro
Cablevision Systems	Gavilon	Parsons Corporation
Canadian National Railway	GE Energy	PHH
Cargill	Google	PulteGroup
Carlson	Graham Holdings	Quad/Graphics
Carnival	Granite Construction	Qualcomm
CDI	GROWMARK	RR Donnelley
CEC Educational Services	HBO	Rackspace
CGI Technologies and Solutions	Hertz	Realogy
CH2M Hill	Hilton	Reed Business Information
Charter Communications	HNTB	Regency Centers
CHS	HomeServe USA	Ritchie Brothers Auctioneers
Cintas	HTC Corporation	Rollins
Cisco Systems	IBM	Royal Caribbean Cruises
Citrix Systems	IMS Health	RTI International
Clear Channel Communications	Ingenico	Ryder System
Comcast	Ingram Industries	Scripps Networks Interactive
Compass	Intercontinental	ServiceMaster Company
Cox Enterprises	International Game Technology	Sinclair Broadcast Group
Cracker Barrel Old Country Stores	Intuit	SNC-Lavalin
Crown Castle	Jacobs Engineering	Southwest Airlines
CSC	JetBlue Airways	Spirit Airlines
CSX	John Wiley & Sons	Sprint Nextel
	K. Hovnanian Companies	Starwood Hotels & Resorts

## Overview of Survey Participants

### Participant List by Industry (continued)

#### SERVICES (continued)

SunGard Data Systems	Tribune	Verizon
SWIFT	UBM	Viacom
Syngenta Crop Protection	Underwriters Laboratories	VistaPrint
Taubman Centers	Unisys	Walt Disney
Teradata	United Rentals	Waste Management
Thomson Reuters	United States Cellular	Wendy's Group
Time Warner	Universal Studios Orlando	WEX
T-Mobile USA	UPS	Wolters Kluwer
TomTom	URS	XO Communications
Total System Service (TSYS)	UTi Worldwide	
Travelport	VeriSign	

## Overview of Survey Participants

### Participant List by Industry (continued)

#### HEALTH CARE

Aurora Healthcare  
Banner Health  
Catamaran  
CVS Caremark  
Dignity Health  
Emblem Health  
Gentiva Health Services

HCA Healthcare  
HealthSouth Corporation  
Henry Ford Health Systems  
Kaiser Foundation Health Plan  
Kindred Healthcare  
Magellan Health Services  
McKesson

Omnicare  
Quest Diagnostics  
Tenet Healthcare  
UnitedHealth Group  
University of Texas - MD Anderson  
Cancer Center  
Wellcare Health Plans

# Executive Summary

## Executive Summary

### LTI Plans

- Restricted Stock/Units continue to remain the most prevalent form of long-term incentive (67%) of companies. Stock options continue to decline in prevalence but 45% of respondents are still granting stock options.
- Most organizations (67%) are granting two or more forms of long-term incentives - a "portfolio approach." However, middle market companies with less than \$500 Million in revenues are still more likely to grant one long-term incentive.

### LTI Grant Values

- Organization size and industry continue to impact the size of individual awards. Typically LTI recipients at larger organizations receive slightly larger LTI grants. For example, participants with a \$225,000 salary receive 42% of salary at a \$2 Billion company versus 48% at an \$8 Billion company.

The industries with the highest grant values were High Tech and Manufacturing. The industries with the lowest grant values were Media/Entertainment and Financial Services.

### Plan Design Trends

- The use of TSR as a metric in performance plans continues to increase (40%).

Single-trigger vesting of equity awards upon a change of control continues to decline (29% restricted shares/units and 31% stock options). Companies are moving toward double trigger or simply continue vesting.

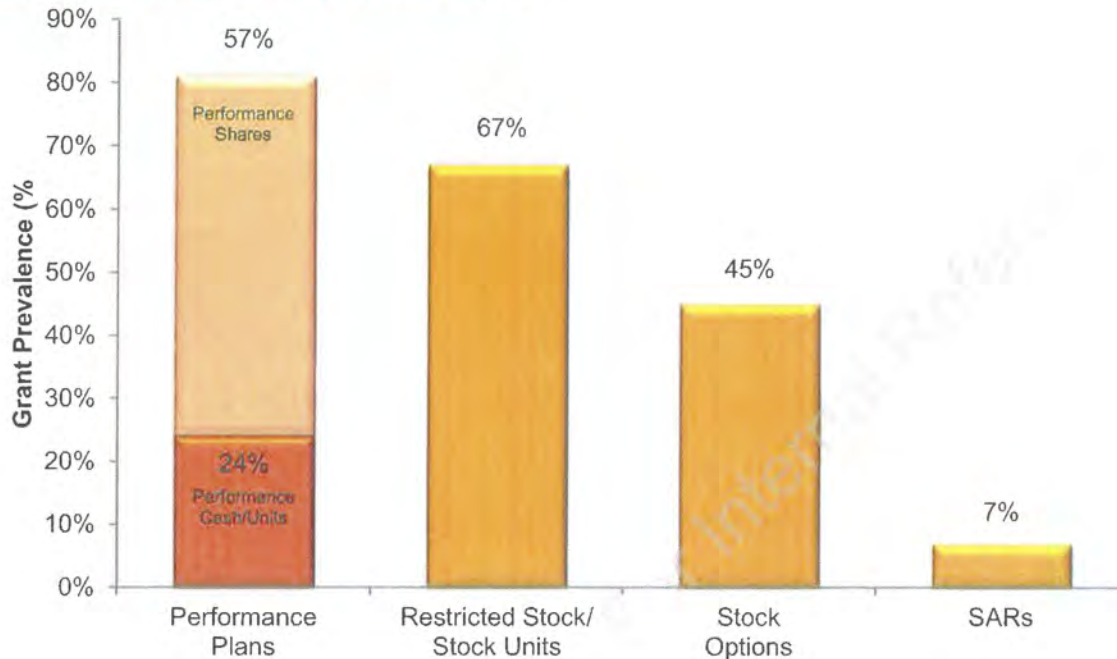
Fourteen percent of companies are considering revising the performance measures for future LTI awards.



# LTI Prevalence

## LTI Prevalence Highlights

### PREVALENCE OF LTI GRANT TYPES REPORTED



Stock options remain as part of the long-term package for approximately half of the respondents. Restricted stock/stock units and performance shares continue to be an important part of the long-term package for U.S. companies.

### Multiple Forms of LTI

Most companies (67%) are granting more than one form of long-term incentive award.

Number of LTI Awards	Prevalence
One LTI Award	33%
Two LTI Awards	37%
Three LTI Awards	30%
Four LTI Awards	<1%

## LTI Prevalence

TYPE(S) OF LTI GRANTED IN MOST RECENT ANNUAL GRANT						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>Total Sample</b>	45.0%	67.0%	56.7%	23.5%	6.5%	903
<b>Industry Sector</b>						
Energy Services	21.1%	65.1%	66.1%	20.2%	0.0%	109
Financial Services	35.4%	57.0%	48.1%	32.9%	5.7%	158
High Tech	55.5%	72.0%	57.9%	18.9%	6.1%	164
Manufacturing	53.5%	67.2%	59.2%	20.4%	9.0%	387
Media/Entertainment	48.0%	88.0%	60.0%	24.0%	8.0%	25
Pharmaceutical/Biotechnology	60.4%	67.9%	54.7%	9.4%	11.3%	53
Retail/Wholesale Trade	48.4%	71.9%	54.7%	21.9%	4.7%	64
Services	49.1%	76.4%	55.8%	20.6%	6.1%	165
Health Care	40.0%	60.0%	40.0%	55.0%	10.0%	20
<b>Revenue Size</b>						
Under \$500 Million	31.7%	39.0%	17.1%	39.0%	7.3%	41
\$500 Million - \$1 Billion	48.1%	69.2%	53.8%	13.5%	1.9%	52
\$1 Billion - \$3 Billion	46.9%	70.0%	52.7%	25.6%	6.3%	207
\$3 Billion - \$6 Billion	42.0%	69.2%	59.8%	21.3%	8.9%	169
\$6 Billion - \$10 Billion	42.1%	71.6%	71.6%	18.9%	7.4%	95
\$10 Billion - \$20 Billion	50.3%	74.5%	64.8%	17.9%	8.3%	145
\$20 Billion or More	44.8%	59.3%	54.1%	28.9%	4.1%	194

**LTI Prevalence**

<b>NUMBER OF LTI VEHICLES USED IN MOST RECENT ANNUAL GRANT</b>					
	% of Responses				# of Responses
	1	2	3	4	
<b>Total Sample</b>	32.6%	36.9%	29.9%	0.7%	903
<b>Industry Sector</b>					
Energy Services	41.3%	45.0%	13.8%	0.0%	109
Financial Services	48.1%	24.7%	27.2%	0.0%	158
High Tech	26.8%	36.6%	36.0%	0.6%	164
Manufacturing	28.9%	33.9%	36.2%	1.0%	387
Media/Entertainment	16.0%	44.0%	36.0%	4.0%	25
Pharmaceutical/Biotechnology	30.2%	37.7%	30.2%	1.9%	53
Retail/Wholesale Trade	26.6%	45.3%	28.1%	0.0%	64
Services	22.4%	47.9%	29.1%	0.6%	165
Health Care	35.0%	30.0%	30.0%	5.0%	20
<b>Revenue Size</b>					
Under \$500 Million	70.7%	24.4%	4.9%	0.0%	41
\$500 Million - \$1 Billion	28.8%	55.8%	15.4%	0.0%	52
\$1 Billion - \$3 Billion	30.0%	39.1%	30.4%	0.5%	207
\$3 Billion - \$6 Billion	30.8%	37.9%	30.8%	0.6%	169
\$6 Billion - \$10 Billion	23.2%	42.1%	34.7%	0.0%	95
\$10 Billion - \$20 Billion	22.1%	40.0%	37.9%	0.0%	145
\$20 Billion or More	42.3%	26.3%	29.4%	2.1%	194

**LTI Prevalence**

TYPE OF VEHICLE USED IN MOST RECENT ANNUAL GRANT WHEN SINGLE TYPE GRANTED						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>Total Sample</b>	12.2%	18.0%	21.4%	45.9%	2.4%	294
<b>Industry Sector</b>						
Energy Services	4.4%	26.7%	24.4%	44.4%	0.0%	45
Financial Services	5.3%	21.1%	15.8%	55.3%	2.6%	76
High Tech	25.0%	15.9%	15.9%	40.9%	2.3%	44
Manufacturing	17.0%	11.6%	25.9%	42.9%	2.7%	112
Media/Entertainment	0.0%	50.0%	25.0%	25.0%	0.0%	4
Pharmaceutical/Biotechnology	43.8%	0.0%	31.3%	25.0%	0.0%	16
Retail/Wholesale Trade	11.8%	23.5%	23.5%	35.3%	5.9%	17
Services	24.3%	21.6%	18.9%	32.4%	2.7%	37
Health Care	0.0%	0.0%	0.0%	100.0%	0.0%	7
<b>Revenue Size</b>						
Under \$500 Million	20.7%	20.7%	3.4%	51.7%	3.4%	29
\$500 Million - \$1 Billion	40.0%	6.7%	6.7%	46.7%	0.0%	15
\$1 Billion - \$3 Billion	9.7%	19.4%	19.4%	48.4%	3.2%	62
\$3 Billion - \$6 Billion	5.8%	19.2%	25.0%	44.2%	5.8%	52
\$6 Billion - \$10 Billion	18.2%	13.6%	36.4%	31.8%	0.0%	22
\$10 Billion - \$20 Billion	3.1%	18.8%	18.8%	56.3%	3.1%	32
\$20 Billion or More	12.2%	18.3%	26.8%	42.7%	0.0%	82

**LTI Prevalence**

TYPES OF VEHICLES USED IN MOST RECENT ANNUAL GRANT WHEN TWO TYPES GRANTED						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>Total Sample</b>	33.3%	83.5%	64.3%	11.1%	7.8%	333
<b>Industry Sector</b>						
Energy Services	12.2%	89.8%	93.9%	4.1%	0.0%	49
Financial Services	33.3%	79.5%	61.5%	17.9%	7.7%	39
High Tech	40.0%	88.3%	61.7%	6.7%	3.3%	60
Manufacturing	42.7%	80.2%	57.3%	9.9%	9.9%	131
Media/Entertainment	18.2%	90.9%	54.5%	27.3%	9.1%	11
Pharmaceutical/Biotechnology	50.0%	95.0%	40.0%	0.0%	15.0%	20
Retail/Wholesale Trade	37.9%	82.8%	58.6%	13.8%	6.9%	29
Services	30.4%	87.3%	60.8%	12.7%	8.9%	79
Health Care	16.7%	83.3%	66.7%	16.7%	16.7%	6
<b>Revenue Size</b>						
Under \$500 Million	50.0%	80.0%	40.0%	10.0%	20.0%	10
\$500 Million - \$1 Billion	37.9%	93.1%	65.5%	0.0%	3.4%	29
\$1 Billion - \$3 Billion	35.8%	85.2%	55.6%	13.6%	9.9%	81
\$3 Billion - \$6 Billion	29.7%	85.9%	67.2%	9.4%	7.8%	64
\$6 Billion - \$10 Billion	20.0%	82.5%	85.0%	10.0%	2.5%	40
\$10 Billion - \$20 Billion	36.2%	81.0%	58.6%	12.1%	12.1%	58
\$20 Billion or More	35.3%	76.5%	68.6%	15.7%	3.9%	51

# LTI Grants

## LTI Grants Highlights

### Organization Size

Typically LTI recipients at larger organizations receive slightly larger LTI grants. For example, at a \$2 Billion organization, an employee with a \$225,000 salary receives an annual LTI award equal to approximately 42% of salary. At an \$8 Billion organization, an employee at this salary level receives an annual LTI award equal to approximately 48% of salary. While there is a correlation between organization size and LTI value, the correlation is not as significant as cash compensation. However, size differentials are much greater for Named Executive Officers.

MEDIAN LTI VALUE (% SALARY) BY REVENUE SIZE		
	Base Salary (\$000)	
	\$201 - \$250	\$80 - \$100
\$1B - \$3B	41.8%	11.1%
\$6B - \$10B	47.9%	15.3%

### Industry Differences

There can be significant differences in LTI grant values and practices by industry. In addition to organization size, industry is also typically a key consideration when establishing LTI award guidelines.

MEDIAN LTI VALUE (% SALARY) BY INDUSTRY		
	Base Salary (\$000)	
	\$250 - \$300	\$80 - \$100
Energy Services	67.7%	12.1%
Financial Services	49.1%	12.1%
High Tech	74.0%	13.0%
Manufacturing	69.4%	13.3%
Media/Entertainment	52.7%	10.1%
Pharmaceutical/Biotechnology	58.5%	10.4%
Retail/Wholesale Trade	70.5%	13.9%
Services	58.7%	13.5%
Health Care	57.8%	---



## LTI Grants

The following LTI grant values represent the LTI dollar value award opportunity. Specifically, the values represent the annualized present value of LTI award guidelines (the typical annual award for an employee at this salary level) at grant date. In the case of equity awards, the values reflect each organization's ASC 718 or IFRS(2) values. Equity awards include stock options, restricted stock/stock units, performance shares and stock appreciation rights (SARs). Long-term cash performance plans are valued at target.

Values for long-term incentive data typically have the greatest dispersion of all compensation elements. The following summary displays a broad range of summary statistics, including 10th and 90th percentiles and averages. However, for purposes of analyzing the value of long-term incentives it is recommended that the median (50th percentile) represents the optimal "market rate." The average reflects valid but extreme values in data that are widely dispersed. The 10th and 90th percentiles provide a check on whether every value in the sample falls within a reasonable range.

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>TOTAL SAMPLE</b>							
CEO	\$1,094.8	\$2,086.0	\$4,057.6	\$7,000.0	\$10,067.0	\$5,015.5	435
CFO	\$296.4	\$565.0	\$999.9	\$1,626.8	\$2,866.7	\$1,388.6	422
\$901 - \$1,000	\$767.1	\$1,760.5	\$3,103.4	\$4,183.1	\$5,156.2	\$3,028.1	30
\$801 - \$900	\$435.6	\$815.8	\$1,958.9	\$3,425.8	\$4,746.3	\$2,449.6	53
\$701 - \$800	\$443.9	\$829.1	\$2,099.2	\$2,733.4	\$3,534.8	\$2,109.7	88
\$601 - \$700	\$500.0	\$862.5	\$1,431.0	\$1,976.1	\$2,638.8	\$1,544.6	162
\$501 - \$600	\$399.0	\$650.0	\$987.8	\$1,341.1	\$1,704.0	\$1,066.5	267
\$401 - \$500	\$276.3	\$421.0	\$602.1	\$857.4	\$1,232.5	\$719.6	382
\$351 - \$400	\$168.1	\$258.6	\$389.3	\$531.4	\$802.1	\$451.2	433
\$301 - \$350	\$121.7	\$175.9	\$269.2	\$352.4	\$503.2	\$313.2	461
\$251 - \$300	\$78.7	\$117.7	\$174.6	\$249.1	\$347.9	\$214.3	486
\$201 - \$250	\$49.2	\$68.3	\$100.6	\$147.4	\$214.0	\$138.1	483
\$176 - \$200	\$27.5	\$41.0	\$56.2	\$86.1	\$136.9	\$78.4	452
\$151 - \$175	\$18.9	\$27.1	\$39.0	\$56.5	\$88.1	\$54.7	416
\$126 - \$150	\$12.2	\$19.4	\$26.8	\$40.1	\$63.3	\$41.0	355
\$101 - \$125	\$8.0	\$11.9	\$18.4	\$29.7	\$49.7	\$31.2	279
\$80 - \$100	\$4.6	\$8.2	\$11.9	\$20.0	\$29.6	\$19.9	196

Table continues on next page.

**LTI Grants****DOLLAR VALUE OF 2014 LTI AWARDS (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR</b>							
<b>Energy Services</b>							
CEO	\$791.8	\$1,414.7	\$2,642.2	\$5,027.6	\$7,500.0	\$3,564.1	58
CFO	\$153.9	\$430.7	\$845.0	\$1,281.3	\$1,820.1	\$957.4	57
\$901 - \$1,000	---	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	---	3
\$701 - \$800	---	\$708.5	\$1,915.8	\$2,444.0	---	\$1,729.0	6
\$601 - \$700	\$1,150.4	\$1,323.4	\$1,500.0	\$2,231.4	\$2,441.4	\$1,726.1	11
\$501 - \$600	\$546.9	\$752.0	\$1,064.8	\$1,205.5	\$2,085.4	\$1,211.0	26
\$401 - \$500	\$338.1	\$505.3	\$736.6	\$991.1	\$1,436.9	\$762.9	41
\$351 - \$400	\$238.4	\$327.7	\$427.9	\$620.3	\$945.6	\$510.5	48
\$301 - \$350	\$152.8	\$206.6	\$287.3	\$437.9	\$685.4	\$368.5	61
\$251 - \$300	\$97.5	\$143.8	\$186.0	\$276.8	\$434.8	\$300.3	68
\$201 - \$250	\$55.8	\$70.5	\$119.4	\$157.3	\$269.9	\$212.1	66
\$176 - \$200	\$35.1	\$47.2	\$67.3	\$105.1	\$160.3	\$91.2	58
\$151 - \$175	\$20.2	\$27.2	\$42.5	\$67.0	\$105.7	\$65.1	53
\$126 - \$150	\$14.0	\$18.3	\$28.2	\$44.5	\$77.0	\$59.0	46
\$101 - \$125	\$11.5	\$12.1	\$19.7	\$30.4	\$49.8	\$63.8	33
\$80 - \$100	\$8.0	\$9.7	\$10.9	\$21.8	\$116.7	\$58.7	18
<b>Financial Services</b>							
CEO	\$1,063.8	\$1,482.5	\$3,333.0	\$6,625.0	\$9,114.7	\$4,374.1	89
CFO	\$218.8	\$471.1	\$818.2	\$1,532.4	\$2,545.0	\$1,127.8	85
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	---	\$1,100.0	\$1,958.9	\$3,955.7	---	\$2,414.1	5
\$701 - \$800	\$970.4	\$1,937.6	\$2,469.2	\$3,275.0	\$5,205.7	\$2,705.2	15
\$601 - \$700	\$544.9	\$846.7	\$1,356.8	\$1,763.4	\$2,155.3	\$1,342.4	34
\$501 - \$600	\$349.9	\$510.0	\$829.4	\$1,304.4	\$1,600.0	\$906.2	59
\$401 - \$500	\$203.1	\$313.4	\$471.3	\$701.3	\$1,012.8	\$547.1	84
\$351 - \$400	\$144.9	\$234.0	\$304.4	\$436.6	\$521.9	\$334.8	87
\$301 - \$350	\$96.3	\$145.7	\$212.5	\$275.0	\$329.6	\$219.3	91
\$251 - \$300	\$57.4	\$93.4	\$135.0	\$175.0	\$230.4	\$140.1	95
\$201 - \$250	\$43.4	\$56.1	\$77.6	\$100.1	\$131.2	\$85.6	93
\$176 - \$200	\$24.8	\$38.7	\$47.5	\$67.6	\$96.9	\$53.9	85
\$151 - \$175	\$14.0	\$26.2	\$33.8	\$44.0	\$60.8	\$35.7	78
\$126 - \$150	\$10.9	\$19.3	\$26.0	\$30.4	\$50.0	\$27.2	67
\$101 - \$125	\$6.5	\$11.2	\$15.0	\$25.2	\$38.6	\$19.5	50
\$80 - \$100	\$4.1	\$7.2	\$10.9	\$23.3	\$31.7	\$15.0	36

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**LTI Grants**

<b>DOLLAR VALUE OF 2014 LTI AWARDS (continued)</b>							
Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>High Tech</b>							
CEO	\$2,400.0	\$3,471.9	\$5,188.5	\$8,370.8	\$12,000.1	\$6,297.7	69
CFO	\$520.0	\$861.0	\$1,290.7	\$2,750.3	\$4,370.0	\$2,209.5	69
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	---	\$2,900.6	\$3,351.6	\$4,727.9	---	\$4,491.6	9
\$701 - \$800	\$538.0	\$1,470.6	\$2,794.6	\$4,240.3	\$6,549.0	\$3,045.5	15
\$601 - \$700	\$1,357.1	\$1,745.0	\$2,067.6	\$2,758.9	\$5,049.4	\$2,476.5	24
\$501 - \$600	\$622.6	\$969.4	\$1,324.7	\$1,603.3	\$2,588.9	\$1,466.5	42
\$401 - \$500	\$451.8	\$582.1	\$752.0	\$1,205.0	\$1,556.7	\$980.2	60
\$351 - \$400	\$280.6	\$360.6	\$450.0	\$700.5	\$934.4	\$566.8	70
\$301 - \$350	\$184.5	\$255.7	\$323.6	\$480.2	\$684.9	\$414.9	76
\$251 - \$300	\$109.3	\$154.1	\$203.5	\$285.8	\$410.0	\$253.8	79
\$201 - \$250	\$67.1	\$90.6	\$124.4	\$166.1	\$232.8	\$155.3	82
\$176 - \$200	\$26.9	\$46.4	\$71.1	\$104.8	\$154.8	\$84.6	77
\$151 - \$175	\$22.6	\$30.6	\$42.6	\$64.0	\$100.0	\$51.9	72
\$126 - \$150	\$14.3	\$19.8	\$30.1	\$43.4	\$65.4	\$35.4	58
\$101 - \$125	\$8.2	\$11.7	\$19.9	\$29.5	\$47.1	\$24.1	50
\$80 - \$100	\$3.5	\$7.5	\$11.7	\$19.7	\$23.5	\$13.3	41
<b>Manufacturing</b>							
CEO	\$1,276.5	\$2,605.3	\$4,358.0	\$7,283.2	\$10,267.9	\$5,363.6	168
CFO	\$376.6	\$708.3	\$1,036.1	\$1,602.6	\$2,878.0	\$1,428.1	165
\$901 - \$1,000	\$1,337.0	\$3,020.0	\$3,568.1	\$4,250.0	\$4,552.6	\$3,463.6	11
\$801 - \$900	\$293.6	\$1,744.7	\$2,964.6	\$3,551.0	\$3,969.7	\$2,609.0	20
\$701 - \$800	\$291.4	\$813.7	\$2,335.8	\$2,789.4	\$3,909.3	\$2,121.4	32
\$601 - \$700	\$755.6	\$993.2	\$1,617.7	\$2,044.6	\$2,650.8	\$1,672.7	53
\$501 - \$600	\$497.7	\$804.0	\$1,084.8	\$1,428.7	\$1,938.7	\$1,167.2	95
\$401 - \$500	\$389.1	\$500.0	\$711.4	\$892.8	\$1,361.3	\$843.3	145
\$351 - \$400	\$229.7	\$336.9	\$428.5	\$603.7	\$814.6	\$509.6	173
\$301 - \$350	\$151.5	\$221.0	\$297.5	\$390.9	\$511.3	\$355.0	180
\$251 - \$300	\$96.0	\$142.6	\$190.6	\$260.8	\$400.3	\$233.6	192
\$201 - \$250	\$56.2	\$79.7	\$112.7	\$155.2	\$208.9	\$148.3	196
\$176 - \$200	\$28.7	\$44.0	\$60.9	\$92.1	\$158.6	\$86.8	186
\$151 - \$175	\$19.1	\$28.5	\$40.9	\$59.5	\$98.3	\$62.3	171
\$126 - \$150	\$11.6	\$19.0	\$25.8	\$40.2	\$67.4	\$43.6	139
\$101 - \$125	\$7.5	\$11.4	\$17.6	\$28.7	\$48.6	\$28.6	113
\$80 - \$100	\$5.5	\$7.5	\$11.9	\$18.6	\$25.2	\$16.5	88

Table continues on next page.

**LTI Grants**

<b>DOLLAR VALUE OF 2014 LTI AWARDS (continued)</b>							
Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>Media/Entertainment</b>							
CEO	\$1,314.5	\$3,000.0	\$6,614.6	\$13,534.5	\$17,563.7	\$7,853.5	15
CFO	\$386.8	\$790.0	\$1,275.0	\$1,776.7	\$4,327.3	\$1,699.5	15
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	---	\$379.4	\$894.8	\$1,699.3	---	\$1,010.4	5
\$701 - \$800	---	\$431.6	\$968.0	\$2,189.4	---	\$1,164.3	7
\$601 - \$700	---	\$584.9	\$790.0	\$1,389.4	---	\$1,036.2	9
\$501 - \$600	\$358.1	\$394.9	\$517.8	\$1,022.1	\$1,366.1	\$739.1	11
\$401 - \$500	\$111.2	\$270.3	\$394.2	\$510.3	\$606.1	\$378.5	10
\$351 - \$400	\$119.3	\$188.4	\$357.5	\$388.3	\$525.3	\$304.2	13
\$301 - \$350	\$81.9	\$148.8	\$267.1	\$337.3	\$444.6	\$253.1	14
\$251 - \$300	\$76.4	\$96.4	\$145.0	\$308.6	\$353.3	\$194.7	13
\$201 - \$250	\$40.0	\$56.0	\$123.0	\$167.2	\$199.9	\$112.2	13
\$176 - \$200	\$12.5	\$23.4	\$49.8	\$73.7	\$132.8	\$54.0	14
\$151 - \$175	\$6.4	\$13.0	\$37.2	\$48.5	\$111.7	\$38.6	12
\$126 - \$150	\$8.2	\$13.4	\$20.3	\$39.7	\$48.4	\$24.3	12
\$101 - \$125	\$5.1	\$12.0	\$13.4	\$24.1	\$49.0	\$19.1	10
\$80 - \$100	---	\$5.8	\$9.1	\$14.3	---	\$9.8	5
<b>Pharmaceutical/Biotechnology</b>							
CEO	\$1,480.0	\$3,630.9	\$6,000.0	\$9,500.0	\$24,090.5	\$8,213.2	13
CFO	\$514.7	\$900.9	\$1,608.0	\$2,990.9	\$8,769.6	\$2,503.2	12
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	---	\$422.2	\$2,144.1	\$2,897.2	---	\$1,827.8	6
\$601 - \$700	---	\$640.0	\$900.6	\$1,497.5	---	\$976.9	6
\$501 - \$600	\$161.7	\$591.2	\$833.9	\$1,513.4	\$1,672.7	\$951.4	10
\$401 - \$500	\$241.6	\$383.8	\$574.2	\$878.0	\$3,155.1	\$946.2	15
\$351 - \$400	\$139.5	\$277.3	\$379.7	\$527.2	\$1,461.6	\$521.0	15
\$301 - \$350	\$111.1	\$162.0	\$258.2	\$314.2	\$1,171.3	\$406.7	16
\$251 - \$300	\$85.6	\$131.5	\$160.8	\$234.7	\$509.5	\$212.2	15
\$201 - \$250	\$44.9	\$59.2	\$99.5	\$120.6	\$315.9	\$123.9	16
\$176 - \$200	\$21.0	\$35.4	\$50.7	\$77.8	\$284.8	\$81.6	14
\$151 - \$175	\$16.3	\$27.5	\$39.9	\$48.3	\$163.1	\$51.2	12
\$126 - \$150	\$15.1	\$18.5	\$21.2	\$34.5	\$118.2	\$34.1	11
\$101 - \$125	\$6.4	\$7.3	\$11.4	\$22.0	\$94.6	\$21.9	10
\$80 - \$100	---	\$5.9	\$9.4	\$20.4	---	\$15.5	9

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**LTI Grants**

**DOLLAR VALUE OF 2014 LTI AWARDS (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>Retail/Wholesale Trade</b>							
CEO	\$1,361.2	\$2,749.9	\$5,000.0	\$10,855.1	\$14,209.0	\$6,424.7	23
CFO	\$185.5	\$719.0	\$1,295.1	\$3,130.5	\$4,552.0	\$1,913.7	20
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	\$1,175.2	\$1,752.4	\$3,056.5	---	\$2,149.9	6
\$701 - \$800	---	\$782.8	\$1,292.6	\$2,250.8	---	\$1,435.6	8
\$601 - \$700	\$414.5	\$685.2	\$1,237.4	\$2,019.8	\$4,162.8	\$1,643.6	18
\$501 - \$600	\$360.4	\$538.2	\$925.8	\$1,085.3	\$1,677.5	\$946.1	20
\$401 - \$500	\$224.5	\$320.6	\$607.6	\$1,008.2	\$2,259.3	\$802.1	24
\$351 - \$400	\$162.6	\$244.5	\$389.8	\$653.2	\$1,594.9	\$528.3	26
\$301 - \$350	\$80.5	\$140.0	\$276.0	\$487.3	\$720.4	\$337.0	28
\$251 - \$300	\$65.2	\$93.0	\$193.9	\$343.4	\$507.7	\$234.9	30
\$201 - \$250	\$47.0	\$77.6	\$128.2	\$249.2	\$437.6	\$172.5	28
\$176 - \$200	\$26.9	\$44.7	\$70.0	\$185.6	\$324.5	\$119.1	25
\$151 - \$175	\$19.7	\$25.2	\$48.7	\$106.0	\$218.2	\$79.2	22
\$126 - \$150	\$14.1	\$22.9	\$45.0	\$93.2	\$179.4	\$67.1	19
\$101 - \$125	\$5.9	\$12.2	\$22.5	\$63.2	\$125.7	\$44.5	18
\$80 - \$100	---	\$6.1	\$12.6	\$26.2	---	\$17.8	9
<b>Services</b>							
CEO	\$1,314.6	\$2,475.1	\$4,634.0	\$7,073.2	\$12,478.9	\$5,646.0	86
CFO	\$354.6	\$601.0	\$1,112.4	\$1,868.5	\$3,909.9	\$1,728.8	84
\$901 - \$1,000	\$784.7	\$1,720.6	\$2,410.1	\$5,034.4	\$5,266.0	\$2,867.0	10
\$801 - \$900	\$318.2	\$500.0	\$1,659.1	\$3,837.5	\$8,266.4	\$2,595.9	15
\$701 - \$800	\$302.3	\$777.8	\$2,189.4	\$2,668.6	\$4,860.5	\$2,175.4	21
\$601 - \$700	\$403.1	\$759.8	\$1,129.3	\$2,001.3	\$3,452.0	\$1,587.3	40
\$501 - \$600	\$390.6	\$500.0	\$895.0	\$1,286.0	\$2,504.4	\$1,085.8	59
\$401 - \$500	\$280.3	\$375.5	\$534.8	\$773.2	\$1,289.2	\$665.7	76
\$351 - \$400	\$150.2	\$212.8	\$357.1	\$535.8	\$873.0	\$410.9	88
\$301 - \$350	\$105.1	\$158.3	\$250.0	\$353.0	\$497.6	\$286.7	90
\$251 - \$300	\$70.3	\$100.7	\$161.4	\$250.0	\$322.1	\$184.6	91
\$201 - \$250	\$36.3	\$59.7	\$91.0	\$138.4	\$200.0	\$105.7	89
\$176 - \$200	\$25.0	\$37.3	\$52.0	\$83.3	\$120.0	\$65.6	89
\$151 - \$175	\$16.4	\$26.1	\$40.0	\$56.8	\$80.9	\$45.7	82
\$126 - \$150	\$12.0	\$19.5	\$27.5	\$41.4	\$56.8	\$31.7	77
\$101 - \$125	\$8.2	\$12.5	\$19.4	\$34.9	\$49.5	\$24.3	60
\$80 - \$100	\$3.5	\$8.2	\$12.1	\$21.8	\$28.5	\$14.8	41

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**LTI Grants****DOLLAR VALUE OF 2014 LTI AWARDS (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>Health Care</b>							
CEO	\$691.0	\$1,425.0	\$4,000.0	\$7,354.8	\$11,052.9	\$4,667.9	11
CFO	\$168.8	\$552.9	\$958.2	\$1,712.8	\$6,160.1	\$1,495.4	11
\$901 - \$1,000	---	---	---	---	---	---	2
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	---	\$390.7	\$1,130.6	\$2,584.1	---	\$1,608.3	6
\$601 - \$700	---	\$223.9	\$475.0	\$882.5	---	\$643.7	6
\$501 - \$600	---	\$173.9	\$654.1	\$1,252.9	---	\$741.2	8
\$401 - \$500	\$151.7	\$197.0	\$384.6	\$687.7	\$942.1	\$460.5	12
\$351 - \$400	\$109.8	\$150.0	\$248.1	\$529.0	\$843.3	\$335.4	11
\$301 - \$350	\$76.3	\$105.0	\$248.1	\$365.6	\$564.9	\$257.3	11
\$251 - \$300	\$50.7	\$65.6	\$159.0	\$284.4	\$333.5	\$175.1	10
\$201 - \$250	\$29.7	\$57.9	\$81.3	\$220.4	\$327.0	\$131.9	11
\$176 - \$200	---	\$42.3	\$63.0	\$94.3	---	\$65.7	9
\$151 - \$175	\$9.3	\$27.7	\$41.0	\$57.7	\$60.5	\$39.6	10
\$126 - \$150	---	\$18.3	\$36.0	\$50.1	---	\$33.7	7
\$101 - \$125	---	\$19.9	\$25.0	\$30.1	---	\$25.0	5
\$80 - \$100	---	---	---	---	---	---	4
<b>REVENUE SIZE</b>							
<b>Under \$500 Million</b>							
CEO	\$398.5	\$577.5	\$879.9	\$1,078.7	\$3,743.4	\$1,166.0	16
CFO	\$112.9	\$156.8	\$178.5	\$362.3	\$541.4	\$259.8	16
\$901 - \$1,000	---	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	---	0
\$701 - \$800	---	---	---	---	---	---	0
\$601 - \$700	---	---	---	---	---	---	1
\$501 - \$600	---	---	---	---	---	---	1
\$401 - \$500	---	\$221.3	\$262.2	\$340.3	---	\$281.7	6
\$351 - \$400	---	\$112.5	\$166.8	\$178.6	---	\$160.6	7
\$301 - \$350	\$82.7	\$115.3	\$154.8	\$194.6	\$289.9	\$163.8	12
\$251 - \$300	\$44.9	\$83.0	\$105.4	\$221.7	\$312.9	\$144.9	18
\$201 - \$250	\$44.5	\$49.5	\$66.5	\$93.5	\$187.4	\$83.2	16
\$176 - \$200	\$12.7	\$20.5	\$31.9	\$56.7	\$199.1	\$54.2	13
\$151 - \$175	\$10.0	\$17.2	\$29.0	\$32.8	\$95.7	\$32.8	10
\$126 - \$150	\$5.9	\$11.7	\$14.1	\$20.6	\$63.1	\$19.7	10
\$101 - \$125	---	\$11.5	\$12.0	\$25.0	---	\$20.5	7
\$80 - \$100	---	\$6.6	\$10.0	\$21.0	---	\$14.2	6

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**LTI Grants**

**DOLLAR VALUE OF 2014 LTI AWARDS (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>REVENUE SIZE (continued)</b>							
<b>\$500 Million - \$1 Billion</b>							
CEO	\$512.5	\$1,135.3	\$1,759.4	\$2,376.3	\$2,484.0	\$1,708.8	27
CFO	\$158.5	\$281.1	\$482.7	\$793.5	\$1,158.0	\$573.3	26
\$901 - \$1,000	---	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	---	1
\$701 - \$800	---	---	---	---	---	---	0
\$601 - \$700	---	---	---	---	---	---	2
\$501 - \$600	---	---	---	---	---	---	4
\$401 - \$500	\$208.1	\$326.3	\$509.0	\$701.2	\$939.3	\$520.9	16
\$351 - \$400	\$150.1	\$237.4	\$409.4	\$563.5	\$689.6	\$409.9	24
\$301 - \$350	\$96.8	\$159.7	\$250.0	\$323.5	\$425.6	\$255.9	25
\$251 - \$300	\$73.6	\$131.7	\$173.0	\$214.0	\$300.5	\$181.0	31
\$201 - \$250	\$38.5	\$68.4	\$105.3	\$132.5	\$165.0	\$106.6	30
\$176 - \$200	\$26.8	\$37.4	\$63.0	\$100.2	\$124.4	\$67.9	29
\$151 - \$175	\$19.4	\$25.7	\$37.8	\$52.3	\$76.5	\$42.2	28
\$126 - \$150	\$11.0	\$17.1	\$26.6	\$32.4	\$63.8	\$30.9	26
\$101 - \$125	\$6.9	\$11.9	\$15.1	\$30.9	\$44.3	\$22.0	24
\$80 - \$100	\$4.9	\$7.4	\$10.5	\$13.8	\$28.1	\$15.0	22
<b>\$1 Billion - \$3 Billion</b>							
CEO	\$1,005.0	\$1,540.7	\$2,783.7	\$3,896.5	\$5,182.4	\$3,275.6	106
CFO	\$262.1	\$446.6	\$698.9	\$956.5	\$1,338.1	\$883.2	107
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	---	---	---	---	---	---	3
\$601 - \$700	\$250.4	\$565.5	\$1,006.0	\$1,208.1	\$1,499.0	\$910.7	14
\$501 - \$600	\$380.1	\$504.4	\$771.4	\$992.5	\$1,171.3	\$770.2	36
\$401 - \$500	\$276.9	\$425.0	\$549.7	\$757.1	\$1,140.2	\$690.5	75
\$351 - \$400	\$164.4	\$248.0	\$375.3	\$528.1	\$789.1	\$447.1	96
\$301 - \$350	\$110.7	\$179.7	\$271.3	\$379.3	\$514.3	\$325.7	114
\$251 - \$300	\$72.7	\$113.3	\$169.0	\$237.9	\$312.8	\$187.9	116
\$201 - \$250	\$48.7	\$66.1	\$94.1	\$132.3	\$188.0	\$108.9	118
\$176 - \$200	\$27.2	\$40.5	\$50.0	\$78.7	\$116.1	\$67.7	110
\$151 - \$175	\$17.8	\$25.5	\$38.1	\$55.1	\$70.4	\$44.0	98
\$126 - \$150	\$12.7	\$18.7	\$25.7	\$36.9	\$54.4	\$30.7	88
\$101 - \$125	\$7.6	\$11.4	\$18.4	\$25.0	\$41.1	\$21.7	67
\$80 - \$100	\$3.2	\$6.2	\$10.0	\$16.9	\$32.0	\$14.2	39

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**LTI Grants**

<b>DOLLAR VALUE OF 2014 LTI AWARDS (continued)</b>							
Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>REVENUE SIZE (continued)</b>							
<b>\$3 Billion - \$6 Billion</b>							
CEO	\$1,311.0	\$2,491.2	\$3,997.0	\$5,498.6	\$8,559.6	\$4,454.0	99
CFO	\$388.6	\$623.3	\$1,029.5	\$1,350.0	\$2,081.1	\$1,145.6	95
\$901 - \$1,000	---	---	---	---	---	---	1
\$801 - \$900	---	\$475.4	\$1,571.1	\$1,744.7	---	\$1,294.7	6
\$701 - \$800	---	\$550.0	\$732.0	\$1,453.5	---	\$968.4	9
\$601 - \$700	\$483.4	\$832.0	\$1,404.4	\$2,441.4	\$3,964.6	\$1,680.8	32
\$501 - \$600	\$412.0	\$538.2	\$959.1	\$1,280.1	\$1,568.1	\$1,022.9	61
\$401 - \$500	\$297.9	\$436.1	\$605.3	\$882.3	\$1,513.8	\$772.2	84
\$351 - \$400	\$199.4	\$281.1	\$391.7	\$545.8	\$915.9	\$472.3	104
\$301 - \$350	\$126.5	\$179.5	\$275.1	\$372.7	\$534.8	\$318.6	102
\$251 - \$300	\$83.7	\$119.7	\$177.7	\$250.7	\$434.8	\$221.4	106
\$201 - \$250	\$52.8	\$70.8	\$99.6	\$151.8	\$232.4	\$149.8	106
\$176 - \$200	\$27.7	\$44.7	\$60.9	\$91.2	\$171.5	\$97.6	104
\$151 - \$175	\$23.3	\$30.8	\$43.0	\$63.1	\$102.3	\$76.3	95
\$126 - \$150	\$10.5	\$19.7	\$33.1	\$50.4	\$77.7	\$56.1	78
\$101 - \$125	\$8.9	\$14.5	\$25.0	\$40.2	\$51.4	\$37.7	64
\$80 - \$100	\$5.7	\$10.0	\$15.5	\$22.0	\$28.3	\$16.9	44
<b>\$6 Billion - \$10 Billion</b>							
CEO	\$2,898.8	\$4,000.0	\$5,000.0	\$7,006.0	\$9,327.9	\$5,585.9	47
CFO	\$710.0	\$915.6	\$1,133.5	\$1,590.0	\$2,760.4	\$1,604.0	47
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	\$493.7	\$708.5	\$1,613.3	\$2,097.6	\$4,172.2	\$1,759.5	13
\$601 - \$700	\$532.5	\$992.8	\$1,416.0	\$2,015.2	\$2,205.3	\$1,432.9	21
\$501 - \$600	\$422.8	\$761.9	\$1,002.3	\$1,351.4	\$1,785.8	\$1,174.8	38
\$401 - \$500	\$301.8	\$460.6	\$694.4	\$1,000.0	\$1,285.5	\$826.9	50
\$351 - \$400	\$147.5	\$313.4	\$422.2	\$633.6	\$876.8	\$493.5	46
\$301 - \$350	\$123.0	\$170.8	\$271.9	\$349.5	\$555.7	\$352.1	51
\$251 - \$300	\$76.2	\$119.9	\$165.6	\$249.7	\$468.8	\$243.3	51
\$201 - \$250	\$49.1	\$77.5	\$107.9	\$155.0	\$240.4	\$199.8	50
\$176 - \$200	\$26.2	\$45.1	\$60.0	\$80.0	\$127.2	\$80.9	47
\$151 - \$175	\$24.8	\$31.2	\$41.2	\$52.9	\$80.3	\$64.1	45
\$126 - \$150	\$16.3	\$23.0	\$26.5	\$39.4	\$69.5	\$62.3	40
\$101 - \$125	\$8.5	\$14.0	\$20.2	\$27.2	\$51.5	\$60.7	34
\$80 - \$100	\$4.8	\$9.3	\$13.8	\$19.4	\$42.5	\$45.2	27

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**LTI Grants****DOLLAR VALUE OF 2014 LTI AWARDS (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>REVENUE SIZE (continued)</b>							
<b>\$10 Billion - \$20 Billion</b>							
CEO	\$1,889.3	\$4,565.5	\$6,349.9	\$8,669.0	\$10,985.8	\$6,644.5	74
CFO	\$582.4	\$893.0	\$1,358.8	\$1,831.1	\$2,966.2	\$1,544.5	68
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	\$327.5	\$1,895.8	\$2,802.2	\$3,600.7	\$4,980.4	\$2,683.6	16
\$701 - \$800	\$767.5	\$1,599.5	\$2,225.8	\$2,799.7	\$3,477.9	\$2,329.1	23
\$601 - \$700	\$519.5	\$822.3	\$1,457.5	\$1,710.5	\$2,376.9	\$1,376.8	41
\$501 - \$600	\$414.3	\$602.4	\$1,035.8	\$1,364.2	\$1,683.0	\$1,074.1	66
\$401 - \$500	\$288.1	\$390.6	\$605.6	\$821.7	\$1,115.1	\$634.6	78
\$351 - \$400	\$162.2	\$258.7	\$364.8	\$458.8	\$648.8	\$422.6	80
\$301 - \$350	\$109.6	\$176.6	\$250.1	\$322.3	\$453.5	\$293.3	81
\$251 - \$300	\$60.7	\$120.0	\$170.1	\$225.5	\$290.4	\$245.0	83
\$201 - \$250	\$48.6	\$67.6	\$107.9	\$149.6	\$214.3	\$154.0	82
\$176 - \$200	\$28.5	\$38.4	\$54.3	\$78.0	\$132.3	\$65.5	73
\$151 - \$175	\$15.1	\$25.4	\$35.2	\$49.9	\$62.3	\$39.9	65
\$126 - \$150	\$11.3	\$17.0	\$23.8	\$37.8	\$51.2	\$28.7	55
\$101 - \$125	\$7.1	\$11.1	\$14.9	\$25.1	\$38.9	\$19.4	44
\$80 - \$100	\$4.9	\$8.5	\$10.4	\$21.1	\$28.4	\$15.2	28
<b>\$20 Billion or More</b>							
CEO	\$1,777.6	\$6,354.2	\$8,399.8	\$11,784.5	\$13,737.2	\$8,705.8	66
CFO	\$726.0	\$1,700.0	\$2,509.7	\$3,568.1	\$4,869.8	\$2,908.0	63
\$901 - \$1,000	\$745.5	\$2,322.7	\$3,300.0	\$4,319.8	\$5,276.2	\$3,397.0	19
\$801 - \$900	\$522.1	\$1,594.3	\$3,145.2	\$3,879.9	\$5,783.9	\$3,198.2	22
\$701 - \$800	\$436.0	\$1,480.7	\$2,437.6	\$3,179.6	\$4,741.7	\$2,472.7	40
\$601 - \$700	\$544.7	\$1,050.0	\$1,682.5	\$2,277.3	\$2,953.9	\$1,870.9	51
\$501 - \$600	\$345.2	\$770.8	\$1,106.8	\$1,625.5	\$2,062.0	\$1,223.4	61
\$401 - \$500	\$259.5	\$431.6	\$650.0	\$1,005.4	\$1,380.0	\$785.7	73
\$351 - \$400	\$180.9	\$278.3	\$427.4	\$611.8	\$869.9	\$472.0	76
\$301 - \$350	\$153.1	\$213.2	\$306.1	\$424.5	\$532.5	\$325.0	76
\$251 - \$300	\$81.4	\$134.3	\$198.2	\$280.7	\$391.5	\$221.3	81
\$201 - \$250	\$45.8	\$69.4	\$108.9	\$181.0	\$237.4	\$133.7	81
\$176 - \$200	\$27.7	\$45.9	\$67.8	\$117.0	\$158.5	\$86.4	76
\$151 - \$175	\$13.3	\$28.1	\$45.2	\$67.7	\$114.9	\$56.3	75
\$126 - \$150	\$14.9	\$20.0	\$27.6	\$45.0	\$79.8	\$41.5	58
\$101 - \$125	\$8.0	\$14.0	\$18.7	\$40.3	\$74.4	\$31.7	39
\$80 - \$100	\$3.6	\$7.4	\$11.9	\$19.3	\$32.2	\$18.1	30

### LTI Grants

The following LTI grant values represent the LTI dollar value award opportunity expressed as a percent of salary. Specifically, the values represent the annualized present value of LTI award guidelines (the typical annual award for an employee at this salary level) at grant date. In the case of equity awards, the values reflect each organization's ASC 718 or IFRS(2) values. Equity awards include stock options, restricted stock/stock units, performance shares and stock appreciation rights (SARs). Long-term cash performance plans are valued at target.

Values for long-term incentive data typically have the greatest dispersion of all compensation elements. The following summary displays a broad range of summary statistics, including 10th and 90th percentiles and averages. However, for purposes of analyzing the value of long-term incentives it is recommended that the median (50th percentile) represents the optimal "market rate." The average reflects valid but extreme values in data that are widely dispersed. The 10th and 90th percentiles provide a check on whether every value in the sample falls within a reasonable range.

2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY							
Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>TOTAL SAMPLE</b>							
CEO	132.6%	243.5%	400.0%	594.2%	800.0%	447.3%	435
CFO	67.8%	120.5%	187.5%	280.4%	397.2%	224.8%	422
\$901 - \$1,000	80.8%	185.3%	326.7%	440.4%	542.7%	318.7%	30
\$801 - \$900	51.2%	96.0%	230.5%	403.1%	558.4%	288.2%	53
\$701 - \$800	59.2%	110.5%	279.9%	364.5%	471.3%	281.3%	88
\$601 - \$700	76.9%	132.7%	220.2%	304.0%	406.0%	237.6%	162
\$501 - \$600	72.5%	118.2%	179.6%	243.8%	309.8%	193.9%	267
\$401 - \$500	61.4%	93.5%	133.8%	190.5%	273.9%	159.9%	382
\$351 - \$400	44.8%	69.0%	103.8%	141.7%	213.9%	120.3%	433
\$301 - \$350	37.5%	54.1%	82.8%	108.5%	154.8%	96.4%	461
\$251 - \$300	28.6%	42.8%	63.5%	90.6%	126.5%	77.9%	486
\$201 - \$250	21.9%	30.3%	44.7%	65.5%	95.1%	61.4%	483
\$176 - \$200	14.7%	22.0%	30.1%	46.1%	73.2%	41.9%	452
\$151 - \$175	11.5%	16.4%	23.6%	34.3%	53.4%	33.2%	416
\$126 - \$150	8.9%	14.1%	19.5%	29.3%	46.2%	29.9%	355
\$101 - \$125	7.1%	10.6%	16.4%	26.5%	44.4%	27.8%	279
\$80 - \$100	5.1%	9.1%	13.3%	22.2%	32.8%	22.1%	196

Table continues on next page.

**LTI Grants**

**2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR</b>							
<b>Energy Services</b>							
CEO	119.5%	175.5%	299.4%	490.2%	607.1%	351.6%	58
CFO	53.2%	112.2%	165.5%	242.7%	311.1%	181.1%	57
\$901 - \$1,000	---	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	---	3
\$701 - \$800	---	94.5%	255.5%	325.8%	---	230.5%	6
\$601 - \$700	177.0%	203.6%	230.8%	343.3%	375.6%	265.5%	11
\$501 - \$600	99.4%	136.7%	193.6%	219.2%	379.1%	220.2%	26
\$401 - \$500	75.1%	112.3%	163.7%	220.2%	319.3%	169.5%	41
\$351 - \$400	63.5%	87.4%	114.1%	165.4%	252.1%	136.1%	48
\$301 - \$350	47.0%	63.6%	88.4%	134.8%	210.9%	113.4%	61
\$251 - \$300	35.4%	52.3%	67.7%	100.6%	158.1%	109.2%	68
\$201 - \$250	24.8%	31.3%	53.1%	69.9%	119.9%	94.3%	66
\$176 - \$200	18.8%	25.3%	36.0%	56.2%	85.8%	48.8%	58
\$151 - \$175	12.3%	16.5%	25.7%	40.7%	64.0%	39.4%	53
\$126 - \$150	10.3%	13.4%	20.6%	32.5%	56.2%	43.0%	46
\$101 - \$125	10.3%	10.8%	17.6%	27.2%	44.5%	57.0%	33
\$80 - \$100	8.9%	10.8%	12.1%	24.3%	129.6%	65.2%	18
<b>Financial Services</b>							
CEO	110.0%	171.2%	325.0%	628.6%	850.0%	413.8%	89
CFO	54.3%	96.7%	145.0%	260.0%	350.5%	181.5%	85
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	---	129.4%	230.5%	465.4%	---	284.0%	5
\$701 - \$800	129.4%	258.3%	329.2%	436.7%	694.1%	360.7%	15
\$601 - \$700	83.8%	130.3%	208.8%	271.3%	331.6%	206.5%	34
\$501 - \$600	63.6%	92.7%	150.8%	237.2%	290.9%	164.8%	59
\$401 - \$500	45.2%	69.6%	104.8%	155.9%	225.1%	121.6%	84
\$351 - \$400	38.6%	62.4%	81.2%	116.4%	139.2%	89.3%	87
\$301 - \$350	29.6%	44.8%	65.4%	84.6%	101.4%	67.5%	91
\$251 - \$300	20.9%	33.9%	49.1%	63.6%	83.8%	50.9%	95
\$201 - \$250	19.3%	25.0%	34.5%	44.5%	58.3%	38.1%	93
\$176 - \$200	13.3%	20.7%	25.4%	36.2%	51.8%	28.8%	85
\$151 - \$175	8.5%	15.9%	20.5%	26.7%	36.8%	21.6%	78
\$126 - \$150	7.9%	14.1%	18.9%	22.2%	36.5%	19.8%	67
\$101 - \$125	5.8%	10.0%	13.4%	22.5%	34.5%	17.4%	50
\$80 - \$100	4.5%	8.0%	12.1%	25.9%	35.2%	16.7%	36

Table continues on next page.

**LTI Grants****2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>High Tech</b>							
CEO	277.9%	381.5%	541.0%	712.3%	956.8%	561.5%	69
CFO	110.1%	179.8%	250.0%	386.6%	625.0%	331.3%	69
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	---	341.3%	394.3%	556.2%	---	528.4%	9
\$701 - \$800	71.7%	196.1%	372.6%	565.4%	873.2%	406.1%	15
\$601 - \$700	208.8%	268.5%	318.1%	424.4%	776.8%	381.0%	24
\$501 - \$600	113.2%	176.3%	240.9%	291.5%	470.7%	266.6%	42
\$401 - \$500	100.4%	129.4%	167.2%	267.8%	346.0%	217.8%	60
\$351 - \$400	74.9%	96.2%	120.0%	186.8%	249.2%	151.1%	70
\$301 - \$350	56.7%	78.6%	99.6%	147.7%	210.7%	127.6%	76
\$251 - \$300	39.7%	56.1%	74.0%	103.9%	149.1%	92.3%	79
\$201 - \$250	29.8%	40.3%	55.3%	73.8%	103.5%	69.0%	82
\$176 - \$200	14.4%	24.8%	38.0%	56.1%	82.8%	45.2%	77
\$151 - \$175	13.7%	18.5%	25.9%	38.8%	60.6%	31.5%	72
\$126 - \$150	10.4%	14.5%	22.0%	31.7%	47.7%	25.9%	58
\$101 - \$125	7.3%	10.5%	17.8%	26.4%	42.1%	21.5%	50
\$80 - \$100	4.0%	8.4%	13.0%	21.9%	26.1%	14.8%	41
<b>Manufacturing</b>							
CEO	153.0%	293.2%	419.3%	598.3%	724.1%	467.3%	168
CFO	79.3%	147.4%	195.5%	282.3%	397.0%	243.2%	165
\$901 - \$1,000	140.7%	317.9%	375.6%	447.4%	479.2%	364.6%	11
\$801 - \$900	34.6%	205.2%	348.8%	417.8%	467.0%	306.9%	20
\$701 - \$800	38.9%	108.5%	311.5%	371.9%	521.3%	282.9%	32
\$601 - \$700	116.3%	152.8%	248.9%	314.6%	407.8%	257.3%	53
\$501 - \$600	90.5%	146.2%	197.2%	259.8%	352.5%	212.2%	95
\$401 - \$500	86.5%	111.1%	158.1%	198.4%	302.5%	187.4%	145
\$351 - \$400	61.3%	89.9%	114.3%	161.0%	217.2%	135.9%	173
\$301 - \$350	46.7%	68.0%	91.6%	120.3%	157.3%	109.2%	180
\$251 - \$300	34.9%	51.8%	69.4%	94.8%	145.6%	84.9%	192
\$201 - \$250	25.0%	35.4%	50.1%	69.0%	92.9%	65.9%	196
\$176 - \$200	15.3%	23.6%	32.6%	49.2%	84.9%	46.4%	186
\$151 - \$175	11.6%	17.3%	24.8%	36.1%	59.5%	37.8%	171
\$126 - \$150	8.4%	13.9%	18.8%	29.3%	49.2%	31.9%	139
\$101 - \$125	6.7%	10.2%	15.7%	25.7%	43.4%	25.6%	113
\$80 - \$100	6.1%	8.3%	13.3%	20.6%	28.0%	18.4%	88

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**LTI Grants**

**2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>Media/Entertainment</b>							
CEO	177.1%	276.0%	441.2%	676.7%	796.4%	463.4%	15
CFO	89.7%	107.7%	194.7%	292.0%	352.9%	198.0%	15
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	---	44.7%	105.3%	199.9%	---	118.9%	5
\$701 - \$800	---	57.5%	129.1%	291.9%	---	155.2%	7
\$601 - \$700	---	90.0%	121.5%	213.8%	---	159.4%	9
\$501 - \$600	65.1%	71.8%	94.1%	185.8%	248.4%	134.4%	11
\$401 - \$500	24.7%	60.1%	87.6%	113.4%	134.7%	84.1%	10
\$351 - \$400	31.8%	50.3%	95.3%	103.6%	140.1%	81.1%	13
\$301 - \$350	25.2%	45.8%	82.2%	103.8%	136.9%	77.9%	14
\$251 - \$300	27.8%	35.1%	52.7%	112.2%	128.5%	70.8%	13
\$201 - \$250	17.8%	24.9%	54.7%	74.3%	88.8%	49.9%	13
\$176 - \$200	6.7%	12.5%	26.6%	39.4%	71.1%	28.9%	14
\$151 - \$175	3.9%	7.9%	22.6%	29.4%	67.7%	23.4%	12
\$126 - \$150	6.0%	9.8%	14.8%	29.0%	35.3%	17.7%	12
\$101 - \$125	4.6%	10.8%	12.0%	21.5%	43.7%	17.1%	10
\$80 - \$100	---	6.4%	10.1%	15.9%	---	10.9%	5
<b>Pharmaceutical/Biotechnology</b>							
CEO	94.2%	320.0%	567.4%	634.5%	2,120.7%	656.7%	13
CFO	61.7%	178.1%	218.2%	369.6%	1,652.8%	395.4%	12
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	---	56.3%	285.9%	386.3%	---	243.7%	6
\$601 - \$700	---	98.5%	138.6%	230.4%	---	150.3%	6
\$501 - \$600	29.4%	107.5%	151.6%	275.2%	304.2%	173.0%	10
\$401 - \$500	53.7%	85.3%	127.6%	195.1%	701.2%	210.3%	15
\$351 - \$400	37.2%	74.0%	101.3%	140.6%	389.8%	138.9%	15
\$301 - \$350	34.2%	49.9%	79.4%	96.7%	360.4%	125.1%	16
\$251 - \$300	31.1%	47.8%	58.5%	85.3%	185.2%	77.2%	15
\$201 - \$250	19.9%	26.3%	44.2%	53.6%	140.4%	55.1%	16
\$176 - \$200	11.2%	18.9%	27.1%	41.6%	152.3%	43.6%	14
\$151 - \$175	9.9%	16.7%	24.2%	29.3%	98.9%	31.0%	12
\$126 - \$150	11.0%	13.5%	15.4%	25.2%	86.3%	24.9%	11
\$101 - \$125	5.7%	6.5%	10.2%	19.6%	84.5%	19.6%	10
\$80 - \$100	---	6.5%	10.4%	22.7%	---	17.2%	9

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**LTI Grants**

**2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>Retail/Wholesale Trade</b>							
CEO	154.4%	266.7%	454.5%	865.3%	1,495.7%	594.4%	23
CFO	48.4%	110.4%	197.9%	464.4%	651.8%	278.9%	20
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	138.3%	206.2%	359.6%	---	252.9%	6
\$701 - \$800	---	104.4%	172.4%	300.1%	---	191.4%	8
\$601 - \$700	63.7%	105.4%	190.4%	310.7%	640.4%	252.9%	18
\$501 - \$600	65.5%	97.9%	168.3%	197.3%	305.0%	172.0%	20
\$401 - \$500	49.9%	71.2%	135.1%	224.1%	502.1%	178.3%	24
\$351 - \$400	43.4%	65.3%	104.0%	174.2%	425.3%	140.9%	26
\$301 - \$350	24.8%	43.1%	85.0%	150.0%	221.6%	103.7%	28
\$251 - \$300	23.7%	33.8%	70.5%	124.9%	184.6%	85.4%	30
\$201 - \$250	20.9%	34.5%	57.0%	110.8%	194.5%	76.7%	28
\$176 - \$200	14.4%	23.9%	37.4%	99.3%	173.5%	63.7%	25
\$151 - \$175	11.9%	15.3%	29.6%	64.3%	132.3%	48.0%	22
\$126 - \$150	10.3%	16.7%	32.8%	68.0%	130.9%	49.0%	19
\$101 - \$125	5.2%	10.9%	20.1%	56.5%	112.2%	39.7%	18
\$80 - \$100	---	6.8%	13.9%	29.2%	---	19.7%	9
<b>Services</b>							
CEO	181.3%	297.0%	435.7%	642.0%	807.9%	473.6%	86
CFO	81.1%	129.2%	195.4%	289.4%	493.5%	248.7%	84
\$901 - \$1,000	82.6%	181.1%	253.7%	529.9%	554.3%	301.8%	10
\$801 - \$900	37.4%	58.8%	195.2%	451.5%	972.5%	305.4%	15
\$701 - \$800	40.3%	103.7%	291.9%	355.8%	648.0%	290.1%	21
\$601 - \$700	62.1%	116.9%	173.8%	307.9%	531.1%	244.2%	40
\$501 - \$600	71.0%	90.9%	162.7%	233.8%	455.3%	197.4%	59
\$401 - \$500	62.3%	83.5%	118.9%	171.8%	286.5%	147.9%	76
\$351 - \$400	40.1%	56.7%	95.2%	142.9%	232.8%	109.6%	88
\$301 - \$350	32.3%	48.8%	76.9%	108.7%	153.1%	88.2%	90
\$251 - \$300	25.6%	36.6%	58.7%	90.9%	117.1%	67.1%	91
\$201 - \$250	16.1%	26.6%	40.4%	61.5%	88.9%	47.0%	89
\$176 - \$200	13.4%	20.0%	27.8%	44.6%	64.2%	35.1%	89
\$151 - \$175	9.9%	15.9%	24.2%	34.5%	49.0%	27.7%	82
\$126 - \$150	8.8%	14.2%	20.1%	30.3%	41.5%	23.1%	77
\$101 - \$125	7.3%	11.1%	17.3%	31.2%	44.2%	21.7%	60
\$80 - \$100	3.9%	9.1%	13.5%	24.2%	31.6%	16.5%	41

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**LTI Grants**

**2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>INDUSTRY SECTOR (continued)</b>							
<b>Health Care</b>							
CEO	52.8%	115.0%	356.2%	638.7%	866.0%	405.9%	11
CFO	27.9%	60.0%	220.3%	285.5%	712.7%	227.1%	11
\$901 - \$1,000	---	---	---	---	---	---	2
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	---	52.1%	150.8%	344.5%	---	214.4%	6
\$601 - \$700	---	34.4%	73.1%	135.8%	---	99.0%	6
\$501 - \$600	---	31.6%	118.9%	227.8%	---	134.8%	8
\$401 - \$500	33.7%	43.8%	85.5%	152.8%	209.4%	102.3%	12
\$351 - \$400	29.3%	40.0%	66.2%	141.1%	224.9%	89.4%	11
\$301 - \$350	23.5%	32.3%	76.3%	112.5%	173.8%	79.1%	11
\$251 - \$300	18.4%	23.8%	57.8%	103.5%	121.3%	63.7%	10
\$201 - \$250	13.2%	25.7%	36.1%	97.9%	145.3%	58.6%	11
\$176 - \$200	---	22.6%	33.7%	50.4%	---	35.1%	9
\$151 - \$175	5.6%	16.8%	24.8%	35.0%	36.7%	24.0%	10
\$126 - \$150	---	13.4%	26.3%	36.5%	---	24.6%	7
\$101 - \$125	---	17.8%	22.3%	26.9%	---	22.3%	5
\$80 - \$100	---	---	---	---	---	---	4
<b>REVENUE SIZE</b>							
<b>Under \$500 Million</b>							
CEO	80.8%	86.7%	122.5%	166.2%	479.0%	165.8%	16
CFO	35.5%	40.9%	50.3%	104.7%	152.7%	73.3%	16
\$901 - \$1,000	---	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	---	0
\$701 - \$800	---	---	---	---	---	---	0
\$601 - \$700	---	---	---	---	---	---	1
\$501 - \$600	---	---	---	---	---	---	1
\$401 - \$500	---	49.2%	58.3%	75.6%	---	62.6%	6
\$351 - \$400	---	30.0%	44.5%	47.6%	---	42.8%	7
\$301 - \$350	25.5%	35.5%	47.7%	59.9%	89.2%	50.4%	12
\$251 - \$300	16.3%	30.2%	38.4%	80.6%	113.8%	52.7%	18
\$201 - \$250	19.8%	22.0%	29.6%	41.6%	83.3%	37.0%	16
\$176 - \$200	6.8%	11.0%	17.0%	30.4%	106.5%	29.0%	13
\$151 - \$175	6.1%	10.4%	17.6%	19.9%	58.0%	19.9%	10
\$126 - \$150	4.3%	8.5%	10.4%	15.1%	46.1%	14.4%	10
\$101 - \$125	---	10.2%	10.7%	22.3%	---	18.3%	7
\$80 - \$100	---	7.4%	11.2%	23.4%	---	15.8%	6

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**LTI Grants****2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>REVENUE SIZE (continued)</b>							
<b>\$500 Million - \$1 Billion</b>							
CEO	95.3%	164.3%	200.0%	263.5%	325.6%	211.8%	27
CFO	51.0%	79.5%	119.9%	187.1%	217.5%	129.0%	26
\$901 - \$1,000	---	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	---	1
\$701 - \$800	---	---	---	---	---	---	0
\$601 - \$700	---	---	---	---	---	---	2
\$501 - \$600	---	---	---	---	---	---	4
\$401 - \$500	46.3%	72.5%	113.1%	155.8%	208.7%	115.8%	16
\$351 - \$400	40.1%	63.3%	109.2%	150.3%	183.9%	109.3%	24
\$301 - \$350	29.8%	49.2%	76.9%	99.5%	131.0%	78.7%	25
\$251 - \$300	26.7%	47.9%	62.9%	77.8%	109.3%	65.8%	31
\$201 - \$250	17.1%	30.4%	46.8%	58.9%	73.3%	47.4%	30
\$176 - \$200	14.3%	20.0%	33.7%	53.6%	66.5%	36.3%	29
\$151 - \$175	11.8%	15.5%	22.9%	31.7%	46.3%	25.6%	28
\$126 - \$150	8.1%	12.5%	19.4%	23.7%	46.5%	22.5%	26
\$101 - \$125	6.2%	10.6%	13.5%	27.6%	39.6%	19.6%	24
\$80 - \$100	5.4%	8.3%	11.6%	15.3%	31.2%	16.6%	22
<b>\$1 Billion - \$3 Billion</b>							
CEO	136.1%	200.0%	299.5%	400.2%	492.4%	342.0%	106
CFO	63.4%	100.0%	150.0%	192.3%	264.8%	177.2%	107
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	---	---	---	---	---	---	3
\$601 - \$700	38.5%	87.0%	154.8%	185.9%	230.7%	140.1%	14
\$501 - \$600	69.1%	91.7%	140.3%	180.5%	213.0%	140.0%	36
\$401 - \$500	61.5%	94.4%	122.1%	168.3%	253.4%	153.4%	75
\$351 - \$400	43.8%	66.2%	100.1%	140.8%	210.4%	119.2%	96
\$301 - \$350	34.0%	55.3%	83.5%	116.7%	158.3%	100.2%	114
\$251 - \$300	26.4%	41.2%	61.5%	86.5%	113.7%	68.3%	116
\$201 - \$250	21.7%	29.4%	41.8%	58.8%	83.6%	48.4%	118
\$176 - \$200	14.5%	21.7%	26.7%	42.1%	62.1%	36.2%	110
\$151 - \$175	10.8%	15.5%	23.1%	33.4%	42.7%	26.6%	98
\$126 - \$150	9.3%	13.7%	18.8%	27.0%	39.8%	22.4%	88
\$101 - \$125	6.9%	10.2%	16.4%	22.3%	36.7%	19.4%	67
\$80 - \$100	3.6%	6.9%	11.1%	18.7%	35.6%	15.7%	39

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**LTI Grants**

**2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>REVENUE SIZE (continued)</b>							
<b>\$3 Billion - \$6 Billion</b>							
CEO	136.4%	266.7%	400.0%	530.5%	718.9%	442.7%	99
CFO	72.6%	130.9%	193.0%	244.4%	395.0%	217.6%	95
\$901 - \$1,000	---	---	---	---	---	---	1
\$801 - \$900	---	55.9%	184.8%	205.2%	---	152.3%	6
\$701 - \$800	---	73.4%	97.6%	193.8%	---	129.1%	9
\$601 - \$700	74.4%	128.0%	216.1%	375.6%	609.9%	258.6%	32
\$501 - \$600	74.9%	97.9%	174.4%	232.7%	285.1%	186.0%	61
\$401 - \$500	66.2%	96.9%	134.5%	196.1%	336.4%	171.6%	84
\$351 - \$400	53.2%	75.0%	104.5%	145.6%	244.3%	125.9%	104
\$301 - \$350	39.0%	55.2%	84.7%	114.7%	164.6%	98.0%	102
\$251 - \$300	30.4%	43.5%	64.6%	91.2%	158.1%	80.5%	106
\$201 - \$250	23.5%	31.5%	44.3%	67.5%	103.3%	66.6%	106
\$176 - \$200	14.9%	24.0%	32.6%	48.8%	91.7%	52.2%	104
\$151 - \$175	14.1%	18.7%	26.1%	38.2%	62.0%	46.2%	95
\$126 - \$150	7.7%	14.4%	24.2%	36.8%	56.7%	40.9%	78
\$101 - \$125	7.9%	13.0%	22.3%	35.9%	45.9%	33.7%	64
\$80 - \$100	6.4%	11.1%	17.3%	24.4%	31.4%	18.8%	44
<b>\$6 Billion - \$10 Billion</b>							
CEO	285.7%	375.8%	478.1%	631.1%	831.0%	518.9%	47
CFO	122.2%	150.0%	192.0%	305.3%	399.3%	268.7%	47
\$901 - \$1,000	---	---	---	---	---	---	3
\$801 - \$900	---	---	---	---	---	---	4
\$701 - \$800	65.8%	94.5%	215.1%	279.7%	556.3%	234.6%	13
\$601 - \$700	82.0%	152.7%	217.9%	310.1%	339.3%	220.4%	21
\$501 - \$600	76.8%	138.5%	182.3%	245.7%	324.7%	213.6%	38
\$401 - \$500	67.1%	102.4%	154.3%	222.2%	285.7%	183.8%	50
\$351 - \$400	39.3%	83.6%	112.6%	169.0%	233.8%	131.6%	46
\$301 - \$350	37.8%	52.6%	83.7%	107.5%	171.0%	108.3%	51
\$251 - \$300	27.7%	43.6%	60.2%	90.8%	170.5%	88.5%	51
\$201 - \$250	21.9%	34.5%	47.9%	68.9%	106.8%	88.8%	50
\$176 - \$200	14.0%	24.1%	32.1%	42.8%	68.0%	43.3%	47
\$151 - \$175	15.0%	18.9%	25.0%	32.1%	48.7%	38.9%	45
\$126 - \$150	11.9%	16.8%	19.4%	28.8%	50.7%	45.4%	40
\$101 - \$125	7.6%	12.5%	18.1%	24.3%	46.0%	54.2%	34
\$80 - \$100	5.3%	10.3%	15.3%	21.5%	47.2%	50.2%	27

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**LTI Grants****2014 LTI AWARDS EXPRESSED AS A PERCENT OF SALARY (continued)**

Salary Ranges (\$000)	Actual Awards by Salary Level						# of Responses
	10th	25th	Median	75th	90th	Average	
<b>REVENUE SIZE (continued)</b>							
<b>\$10 Billion - \$20 Billion</b>							
CEO	211.2%	404.2%	527.8%	636.0%	906.1%	539.3%	74
CFO	102.9%	146.1%	239.9%	284.7%	359.7%	235.4%	68
\$901 - \$1,000	---	---	---	---	---	---	4
\$801 - \$900	38.5%	223.1%	329.7%	423.7%	585.9%	315.7%	16
\$701 - \$800	102.3%	213.3%	296.8%	373.3%	463.7%	310.5%	23
\$601 - \$700	79.9%	126.5%	224.2%	263.2%	365.7%	211.8%	41
\$501 - \$600	75.3%	109.5%	188.4%	248.1%	306.0%	195.3%	66
\$401 - \$500	64.0%	86.8%	134.6%	182.6%	247.8%	141.0%	78
\$351 - \$400	43.2%	69.0%	97.3%	122.3%	173.0%	112.7%	80
\$301 - \$350	33.7%	54.4%	77.0%	99.2%	139.6%	90.2%	81
\$251 - \$300	22.1%	43.6%	61.8%	82.0%	105.6%	89.1%	83
\$201 - \$250	21.6%	30.0%	48.0%	66.5%	95.2%	68.4%	82
\$176 - \$200	15.2%	20.5%	29.0%	41.7%	70.7%	35.0%	73
\$151 - \$175	9.1%	15.4%	21.3%	30.3%	37.8%	24.2%	65
\$126 - \$150	8.2%	12.4%	17.3%	27.6%	37.4%	21.0%	55
\$101 - \$125	6.4%	9.9%	13.3%	22.5%	34.7%	17.3%	44
\$80 - \$100	5.5%	9.4%	11.6%	23.4%	31.5%	16.9%	28
<b>\$20 Billion or More</b>							
CEO	149.9%	488.6%	668.5%	800.0%	880.3%	633.9%	66
CFO	118.5%	245.0%	336.6%	410.1%	521.8%	350.1%	63
\$901 - \$1,000	78.5%	244.5%	347.4%	454.7%	555.4%	357.6%	19
\$801 - \$900	61.4%	187.6%	370.0%	456.5%	680.5%	376.3%	22
\$701 - \$800	58.1%	197.5%	325.0%	424.0%	632.2%	329.7%	40
\$601 - \$700	83.8%	161.5%	258.8%	350.3%	454.4%	287.8%	51
\$501 - \$600	62.8%	140.1%	201.2%	295.6%	374.9%	222.4%	61
\$401 - \$500	57.6%	96.0%	144.4%	223.4%	306.7%	174.6%	73
\$351 - \$400	48.3%	74.3%	114.0%	163.2%	232.0%	125.9%	76
\$301 - \$350	47.1%	65.6%	94.2%	130.7%	163.9%	100.0%	76
\$251 - \$300	29.6%	48.8%	72.1%	102.1%	142.4%	80.5%	81
\$201 - \$250	20.4%	30.8%	48.4%	80.5%	105.5%	59.4%	81
\$176 - \$200	14.8%	24.6%	36.2%	62.6%	84.7%	46.2%	76
\$151 - \$175	8.1%	17.0%	27.4%	41.0%	69.6%	34.2%	75
\$126 - \$150	10.8%	14.6%	20.2%	32.9%	58.2%	30.3%	58
\$101 - \$125	7.1%	12.5%	16.7%	36.0%	66.5%	28.3%	39
\$80 - \$100	4.0%	8.2%	13.3%	21.4%	35.8%	20.2%	30

**LTI Grants**

**LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN**

	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>TOTAL SAMPLE</b>						
CEO	18.8%	23.4%	40.9%	3.1%	13.8%	435
CFO	19.2%	24.7%	39.2%	3.3%	13.6%	422
\$901 - \$1,000	24.6%	32.0%	33.2%	4.0%	6.2%	30
\$801 - \$900	14.9%	30.2%	40.9%	4.8%	9.2%	53
\$701 - \$800	20.4%	29.2%	34.9%	3.4%	12.2%	88
\$601 - \$700	18.7%	26.0%	41.4%	1.6%	12.3%	162
\$501 - \$600	17.7%	28.4%	39.2%	2.2%	12.5%	267
\$401 - \$500	19.0%	27.5%	38.1%	3.0%	12.4%	382
\$351 - \$400	18.3%	30.3%	35.9%	2.6%	12.9%	433
\$301 - \$350	17.2%	32.3%	33.8%	2.5%	14.2%	461
\$251 - \$300	17.0%	35.3%	30.9%	2.7%	14.1%	486
\$201 - \$250	15.5%	38.4%	29.1%	2.7%	14.3%	483
\$176 - \$200	14.4%	43.5%	25.3%	2.7%	14.1%	452
\$151 - \$175	13.7%	46.7%	23.6%	2.8%	13.2%	416
\$126 - \$150	13.1%	51.2%	22.9%	2.7%	10.1%	355
\$101 - \$125	12.7%	58.0%	20.4%	2.0%	6.9%	279
\$80 - \$100	13.0%	62.3%	14.8%	3.2%	6.7%	196

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**LTI Grants****LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)**

	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>INDUSTRY SECTOR</b>						
<b>Energy services</b>						
CEO	3.9%	30.1%	58.8%	0.0%	7.3%	58
CFO	4.6%	30.9%	58.9%	0.0%	5.6%	57
\$901 - \$1,000	---	---	---	---	---	0
\$801 - \$900	0.0%	48.5%	51.5%	0.0%	0.0%	3
\$701 - \$800	4.0%	35.7%	60.3%	0.0%	0.0%	6
\$601 - \$700	4.4%	35.6%	60.0%	0.0%	0.0%	11
\$501 - \$600	7.3%	37.7%	54.2%	0.0%	0.8%	26
\$401 - \$500	5.8%	34.7%	56.6%	0.0%	3.0%	41
\$351 - \$400	5.4%	30.5%	57.5%	0.0%	6.7%	48
\$301 - \$350	3.7%	31.0%	56.8%	0.0%	8.5%	61
\$251 - \$300	4.2%	31.9%	54.7%	0.0%	9.1%	68
\$201 - \$250	4.2%	33.1%	54.8%	0.0%	7.9%	66
\$176 - \$200	4.5%	38.1%	52.2%	0.0%	5.2%	58
\$151 - \$175	2.6%	39.9%	49.9%	0.0%	7.5%	53
\$126 - \$150	2.9%	47.2%	47.7%	0.0%	2.2%	46
\$101 - \$125	3.5%	56.2%	37.3%	0.0%	3.0%	33
\$80 - \$100	1.3%	70.3%	28.4%	0.0%	0.0%	18
<b>Financial Services</b>						
CEO	16.0%	20.6%	35.6%	3.1%	24.6%	89
CFO	16.1%	20.4%	35.0%	3.1%	25.4%	85
\$901 - \$1,000	27.7%	18.8%	53.5%	0.0%	0.0%	4
\$801 - \$900	12.4%	14.4%	63.2%	0.0%	10.0%	5
\$701 - \$800	16.3%	22.8%	32.5%	1.7%	26.7%	15
\$601 - \$700	20.8%	17.7%	34.3%	1.3%	26.0%	34
\$501 - \$600	17.1%	23.3%	31.6%	1.7%	26.3%	59
\$401 - \$500	15.1%	22.8%	34.4%	3.3%	24.4%	84
\$351 - \$400	14.6%	29.5%	31.4%	2.5%	22.0%	87
\$301 - \$350	13.1%	32.2%	27.5%	2.7%	24.4%	91
\$251 - \$300	11.5%	37.5%	24.5%	2.7%	23.6%	95
\$201 - \$250	10.4%	40.8%	23.4%	2.9%	22.6%	93
\$176 - \$200	10.7%	47.1%	17.4%	2.8%	22.1%	85
\$151 - \$175	11.5%	49.5%	17.0%	3.0%	19.0%	78
\$126 - \$150	11.9%	56.7%	16.9%	2.8%	11.7%	67
\$101 - \$125	11.3%	65.0%	17.9%	3.8%	2.0%	50
\$80 - \$100	10.4%	65.8%	18.4%	5.3%	0.0%	36

Table continues on next page.

**LTI Grants**

**LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)**

	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>INDUSTRY SECTOR (continued)</b>						
<b>High Tech</b>						
CEO	24.9%	28.1%	38.7%	2.5%	5.9%	69
CFO	23.5%	29.3%	39.8%	2.5%	4.9%	69
\$901 - \$1,000	7.5%	52.5%	40.0%	0.0%	0.0%	4
\$801 - \$900	6.4%	45.8%	47.8%	0.0%	0.0%	9
\$701 - \$800	18.1%	35.9%	32.6%	0.0%	13.3%	15
\$601 - \$700	17.4%	34.2%	40.6%	0.0%	7.8%	24
\$501 - \$600	20.1%	33.2%	42.2%	0.3%	4.1%	42
\$401 - \$500	23.1%	30.9%	38.1%	1.7%	6.2%	60
\$351 - \$400	21.2%	34.1%	35.5%	2.2%	7.0%	70
\$301 - \$350	22.9%	33.0%	31.8%	1.7%	10.6%	76
\$251 - \$300	26.2%	33.3%	26.4%	2.1%	11.9%	79
\$201 - \$250	23.6%	37.5%	23.4%	2.3%	13.2%	82
\$176 - \$200	23.8%	41.9%	17.8%	2.2%	14.3%	77
\$151 - \$175	20.6%	46.4%	15.6%	2.5%	14.8%	72
\$126 - \$150	18.0%	49.9%	15.2%	2.9%	13.9%	58
\$101 - \$125	20.5%	52.0%	13.2%	0.3%	13.9%	50
\$80 - \$100	20.6%	55.2%	7.1%	2.4%	14.6%	41
<b>Manufacturing</b>						
CEO	25.6%	19.9%	37.7%	4.0%	12.8%	168
CFO	25.3%	20.8%	36.5%	4.5%	12.9%	165
\$901 - \$1,000	25.9%	32.4%	31.6%	7.2%	2.9%	11
\$801 - \$900	16.1%	27.9%	41.0%	6.2%	8.7%	20
\$701 - \$800	27.3%	24.0%	31.8%	4.3%	12.6%	32
\$601 - \$700	21.1%	19.0%	48.3%	2.8%	8.8%	53
\$501 - \$600	22.4%	23.8%	42.0%	3.7%	8.1%	95
\$401 - \$500	25.5%	23.5%	37.0%	4.1%	9.9%	145
\$351 - \$400	24.7%	24.8%	35.6%	4.0%	10.9%	173
\$301 - \$350	23.9%	27.0%	32.2%	3.6%	13.3%	180
\$251 - \$300	24.4%	29.9%	28.7%	4.4%	12.6%	192
\$201 - \$250	22.8%	33.1%	26.2%	4.0%	13.9%	196
\$176 - \$200	21.1%	38.4%	21.8%	3.7%	15.0%	186
\$151 - \$175	19.6%	41.7%	20.7%	4.0%	14.0%	171
\$126 - \$150	17.6%	44.8%	20.7%	4.2%	12.7%	139
\$101 - \$125	16.9%	51.0%	18.5%	2.3%	11.3%	113
\$80 - \$100	18.0%	52.9%	12.1%	3.8%	13.2%	88

Table continues on next page.

**LTI Grants**

**LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)**

	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Media/Entertainment</b>						
CEO	16.0%	23.5%	48.0%	0.0%	12.5%	15
CFO	15.5%	34.9%	37.7%	0.0%	11.8%	15
\$901 - \$1,000	25.6%	30.2%	32.3%	0.0%	11.9%	4
\$801 - \$900	34.1%	32.3%	33.6%	0.0%	0.0%	5
\$701 - \$800	22.4%	38.9%	24.4%	0.0%	14.3%	7
\$601 - \$700	14.7%	40.2%	30.7%	0.0%	14.4%	9
\$501 - \$600	11.0%	40.5%	32.4%	0.0%	16.1%	11
\$401 - \$500	13.6%	43.3%	25.6%	0.0%	17.5%	10
\$351 - \$400	9.2%	45.2%	29.9%	0.0%	15.8%	13
\$301 - \$350	11.4%	47.1%	25.6%	0.0%	15.8%	14
\$251 - \$300	7.8%	44.1%	24.7%	0.0%	23.5%	13
\$201 - \$250	6.3%	48.7%	24.8%	0.0%	20.2%	13
\$176 - \$200	2.6%	55.5%	24.8%	0.0%	17.0%	14
\$151 - \$175	3.4%	60.1%	16.7%	0.0%	19.8%	12
\$126 - \$150	0.0%	50.0%	25.0%	0.0%	25.0%	12
\$101 - \$125	0.0%	60.0%	20.0%	0.0%	20.0%	10
\$80 - \$100	0.0%	80.0%	0.0%	0.0%	20.0%	5
<b>Pharmaceutical/Biotechnology</b>						
CEO	35.8%	23.4%	28.5%	4.7%	7.7%	13
CFO	42.9%	19.5%	24.2%	5.0%	8.3%	12
\$901 - \$1,000	21.5%	36.3%	22.4%	19.8%	0.0%	3
\$801 - \$900	16.2%	23.9%	35.0%	0.0%	25.0%	4
\$701 - \$800	15.5%	18.6%	37.5%	11.7%	16.7%	6
\$601 - \$700	13.8%	11.0%	56.7%	1.8%	16.7%	6
\$501 - \$600	26.5%	23.2%	33.4%	6.9%	10.0%	10
\$401 - \$500	39.6%	21.5%	27.8%	4.4%	6.7%	15
\$351 - \$400	39.7%	25.2%	24.5%	4.0%	6.7%	15
\$301 - \$350	37.8%	29.4%	22.8%	3.7%	6.3%	16
\$251 - \$300	33.1%	32.2%	23.1%	4.9%	6.7%	15
\$201 - \$250	32.4%	40.6%	16.2%	4.6%	6.3%	16
\$176 - \$200	29.7%	50.6%	12.5%	0.0%	7.1%	14
\$151 - \$175	26.3%	59.1%	14.6%	0.0%	0.0%	12
\$126 - \$150	29.2%	54.9%	15.9%	0.0%	0.0%	11
\$101 - \$125	27.9%	59.7%	12.4%	0.0%	0.0%	10
\$80 - \$100	25.5%	60.7%	13.8%	0.0%	0.0%	9

Table continues on next page.

**LTI Grants**

LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Retail/Wholesale Trade</b>						
CEO	19.3%	23.3%	46.1%	4.2%	7.1%	23
CFO	27.7%	27.3%	36.4%	4.6%	4.0%	20
\$901 - \$1,000	39.6%	12.0%	34.2%	14.2%	0.0%	3
\$801 - \$900	24.1%	19.3%	41.8%	4.9%	9.9%	6
\$701 - \$800	33.6%	36.5%	20.4%	4.3%	5.3%	8
\$601 - \$700	20.7%	29.8%	42.5%	1.7%	5.3%	18
\$501 - \$600	24.9%	34.9%	31.6%	1.5%	7.1%	20
\$401 - \$500	27.4%	29.3%	35.0%	2.5%	5.8%	24
\$351 - \$400	24.7%	35.1%	32.8%	0.0%	7.4%	26
\$301 - \$350	24.0%	34.1%	32.7%	2.1%	7.2%	28
\$251 - \$300	20.9%	35.7%	32.9%	1.9%	8.5%	30
\$201 - \$250	18.5%	38.4%	34.3%	2.1%	6.6%	28
\$176 - \$200	15.0%	42.3%	32.7%	2.4%	7.6%	25
\$151 - \$175	13.5%	53.0%	30.6%	0.0%	3.0%	22
\$126 - \$150	14.9%	45.5%	35.5%	0.0%	4.1%	19
\$101 - \$125	11.1%	55.5%	33.4%	0.0%	0.0%	18
\$80 - \$100	16.8%	68.4%	14.8%	0.0%	0.0%	9
<b>Services</b>						
CEO	18.6%	30.3%	40.2%	2.0%	8.9%	86
CFO	18.6%	33.0%	37.2%	2.2%	9.0%	84
\$901 - \$1,000	20.7%	44.6%	29.9%	0.0%	4.8%	10
\$801 - \$900	16.2%	44.1%	39.8%	0.0%	0.0%	15
\$701 - \$800	16.4%	41.8%	36.1%	0.0%	5.7%	21
\$601 - \$700	18.7%	40.4%	31.3%	0.8%	8.7%	40
\$501 - \$600	13.6%	36.1%	40.4%	0.6%	9.4%	59
\$401 - \$500	16.1%	37.7%	35.3%	2.0%	8.9%	76
\$351 - \$400	15.4%	41.2%	31.0%	1.6%	10.9%	88
\$301 - \$350	15.5%	43.6%	28.2%	1.5%	11.2%	90
\$251 - \$300	16.0%	47.0%	23.2%	0.9%	12.9%	91
\$201 - \$250	12.7%	52.3%	20.9%	1.4%	12.7%	89
\$176 - \$200	10.4%	53.4%	20.3%	2.5%	13.4%	89
\$151 - \$175	11.0%	57.1%	16.9%	2.7%	12.2%	82
\$126 - \$150	11.2%	61.0%	14.0%	2.6%	11.1%	77
\$101 - \$125	11.0%	66.2%	13.6%	1.7%	7.5%	60
\$80 - \$100	10.1%	72.5%	11.3%	2.4%	3.7%	41

Table continues on next page.

**LTI Grants**

<b>LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)</b>						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Health Care</b>						
CEO	15.4%	12.8%	34.9%	9.1%	27.8%	11
CFO	15.4%	15.5%	32.1%	9.1%	27.8%	11
\$901 - \$1,000	7.8%	23.4%	15.6%	0.0%	53.1%	2
\$801 - \$900	3.9%	11.6%	7.8%	25.0%	51.7%	4
\$701 - \$800	6.3%	12.0%	47.1%	16.7%	17.9%	6
\$601 - \$700	7.3%	9.3%	50.0%	0.0%	33.3%	6
\$501 - \$600	11.8%	18.1%	25.1%	7.5%	37.5%	8
\$401 - \$500	14.7%	16.7%	38.5%	5.1%	25.0%	12
\$351 - \$400	13.6%	25.2%	28.3%	5.5%	27.3%	11
\$301 - \$350	12.2%	28.9%	33.8%	5.5%	19.6%	11
\$251 - \$300	12.3%	33.0%	35.9%	6.0%	12.8%	10
\$201 - \$250	9.9%	33.3%	30.2%	5.4%	21.2%	11
\$176 - \$200	14.7%	52.5%	28.9%	0.0%	3.8%	9
\$151 - \$175	13.0%	46.7%	26.0%	0.0%	14.3%	10
\$126 - \$150	19.1%	58.0%	22.9%	0.0%	0.0%	7
\$101 - \$125	20.9%	67.0%	12.1%	0.0%	0.0%	5
\$80 - \$100	0.0%	84.9%	15.1%	0.0%	0.0%	4
<b>REVENUE SIZE</b>						
<b>Under \$500 Million</b>						
CEO	9.2%	28.2%	33.8%	10.0%	18.8%	16
CFO	10.3%	29.2%	31.7%	10.0%	18.8%	16
\$901 - \$1,000	---	---	---	---	---	0
\$801 - \$900	---	---	---	---	---	0
\$701 - \$800	---	---	---	---	---	0
\$601 - \$700	0.0%	0.0%	0.0%	0.0%	100.0%	1
\$501 - \$600	0.0%	0.0%	0.0%	0.0%	100.0%	1
\$401 - \$500	11.2%	18.3%	27.3%	26.6%	16.7%	6
\$351 - \$400	7.4%	21.3%	28.5%	14.3%	28.6%	7
\$301 - \$350	11.4%	14.1%	27.9%	13.3%	33.3%	12
\$251 - \$300	14.3%	27.3%	27.5%	8.7%	22.2%	18
\$201 - \$250	6.5%	30.0%	28.5%	10.0%	25.0%	16
\$176 - \$200	11.8%	37.8%	22.7%	12.3%	15.4%	13
\$151 - \$175	6.1%	52.3%	11.6%	10.0%	20.0%	10
\$126 - \$150	5.4%	53.1%	21.6%	10.0%	10.0%	10
\$101 - \$125	6.7%	76.8%	16.5%	0.0%	0.0%	7
\$80 - \$100	6.8%	73.9%	19.3%	0.0%	0.0%	6

Table continues on next page.



**LTI Grants**

<b>LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)</b>						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>REVENUE SIZE (continued)</b>						
<b>\$500 Million - \$ 1 Billion</b>						
CEO	19.8%	28.0%	41.1%	0.0%	11.1%	27
CFO	22.6%	28.2%	41.5%	0.0%	7.7%	26
\$901 - \$1,000	---	---	---	---	---	0
\$801 - \$900	0.0%	31.3%	68.7%	0.0%	0.0%	1
\$701 - \$800	---	---	---	---	---	0
\$601 - \$700	7.5%	38.1%	54.4%	0.0%	0.0%	2
\$501 - \$600	22.6%	24.2%	53.2%	0.0%	0.0%	4
\$401 - \$500	23.9%	23.9%	45.9%	0.0%	6.3%	16
\$351 - \$400	24.1%	35.8%	35.9%	0.0%	4.2%	24
\$301 - \$350	24.3%	35.0%	32.7%	0.0%	8.0%	25
\$251 - \$300	24.0%	40.5%	24.2%	1.7%	9.7%	31
\$201 - \$250	24.9%	43.6%	23.1%	1.7%	6.7%	30
\$176 - \$200	23.8%	49.2%	22.0%	1.5%	3.4%	29
\$151 - \$175	22.5%	53.8%	14.5%	2.0%	7.1%	28
\$126 - \$150	26.0%	56.5%	15.9%	1.6%	0.0%	26
\$101 - \$125	19.5%	62.2%	16.7%	1.6%	0.0%	24
\$80 - \$100	16.9%	65.9%	15.7%	1.5%	0.0%	22
<b>\$1 Billion - \$ 3 Billion</b>						
CEO	20.9%	22.3%	39.2%	3.5%	14.1%	106
CFO	21.1%	24.2%	37.0%	3.5%	14.2%	107
\$901 - \$1,000	34.5%	39.3%	10.3%	0.0%	15.9%	3
\$801 - \$900	9.9%	37.0%	13.4%	0.0%	39.8%	4
\$701 - \$800	22.0%	22.1%	22.6%	0.0%	33.3%	3
\$601 - \$700	25.8%	24.7%	27.8%	0.0%	21.7%	14
\$501 - \$600	15.3%	29.7%	33.5%	2.1%	19.3%	36
\$401 - \$500	21.9%	26.3%	33.0%	4.3%	14.5%	75
\$351 - \$400	21.9%	28.5%	33.2%	3.3%	13.1%	96
\$301 - \$350	20.3%	30.3%	32.3%	3.1%	13.9%	114
\$251 - \$300	20.8%	31.3%	30.0%	2.6%	15.3%	116
\$201 - \$250	18.6%	33.4%	28.0%	3.1%	16.9%	118
\$176 - \$200	14.1%	40.1%	24.0%	4.3%	17.5%	110
\$151 - \$175	14.4%	43.5%	23.6%	4.8%	13.6%	98
\$126 - \$150	15.5%	44.4%	23.7%	4.4%	12.0%	88
\$101 - \$125	17.3%	50.2%	18.2%	3.9%	10.4%	67
\$80 - \$100	18.9%	52.4%	11.8%	6.7%	10.3%	39

Table continues on next page.

**LTI Grants**

<b>LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)</b>						
	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>REVENUE SIZE (continued)</b>						
<b>\$3 Billion - \$ 6 Billion</b>						
CEO	16.8%	26.5%	40.2%	3.3%	13.2%	99
CFO	16.4%	26.0%	40.5%	3.6%	13.5%	95
\$901 - \$1,000	0.0%	80.7%	0.0%	19.4%	0.0%	1
\$801 - \$900	0.0%	31.8%	48.4%	3.2%	16.7%	6
\$701 - \$800	11.9%	31.4%	41.8%	0.0%	14.8%	9
\$601 - \$700	13.6%	30.8%	48.7%	0.0%	6.8%	32
\$501 - \$600	14.7%	29.7%	39.6%	3.1%	13.0%	61
\$401 - \$500	18.9%	26.6%	40.4%	3.3%	10.8%	84
\$351 - \$400	16.2%	30.5%	39.3%	3.2%	10.8%	104
\$301 - \$350	13.6%	34.1%	37.6%	3.0%	11.8%	102
\$251 - \$300	14.9%	36.1%	34.3%	3.2%	11.5%	106
\$201 - \$250	13.4%	39.1%	32.5%	3.2%	11.8%	106
\$176 - \$200	13.5%	42.5%	29.0%	3.0%	11.9%	104
\$151 - \$175	13.2%	46.9%	28.4%	3.1%	8.3%	95
\$126 - \$150	8.2%	53.5%	29.2%	3.7%	5.4%	78
\$101 - \$125	9.4%	53.0%	31.1%	1.8%	4.7%	64
\$80 - \$100	10.3%	58.1%	20.2%	4.6%	6.8%	44
<b>\$6 Billion - \$ 10 Billion</b>						
CEO	16.9%	26.1%	46.1%	2.9%	7.9%	47
CFO	16.9%	29.1%	44.4%	2.5%	7.1%	47
\$901 - \$1,000	56.1%	12.1%	17.7%	14.2%	0.0%	3
\$801 - \$900	23.3%	34.1%	35.3%	7.3%	0.0%	4
\$701 - \$800	15.9%	33.9%	37.1%	5.4%	7.7%	13
\$601 - \$700	19.5%	28.0%	46.1%	4.0%	2.4%	21
\$501 - \$600	16.7%	30.0%	43.8%	2.3%	7.1%	38
\$401 - \$500	15.9%	31.7%	43.4%	2.3%	6.7%	50
\$351 - \$400	17.9%	35.4%	39.4%	2.4%	5.0%	46
\$301 - \$350	13.8%	37.2%	40.7%	1.8%	6.5%	51
\$251 - \$300	12.9%	40.1%	38.5%	2.2%	6.3%	51
\$201 - \$250	12.7%	43.6%	36.0%	1.8%	5.9%	50
\$176 - \$200	12.7%	52.4%	26.4%	1.7%	6.8%	47
\$151 - \$175	11.1%	56.2%	24.4%	1.7%	6.7%	45
\$126 - \$150	11.0%	63.8%	19.4%	0.8%	5.0%	40
\$101 - \$125	9.8%	68.6%	16.2%	3.8%	1.5%	34
\$80 - \$100	9.6%	74.1%	9.6%	4.8%	1.8%	27

Table continues on next page.

**LTI Grants**

**LTI AWARDS AS EXPRESSED BY PERCENT PER PLAN (continued)**

	% of Responses					# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Shares	Performance Cash/Units	Stock Appreciation Rights (SARs)	
<b>REVENUE SIZE (continued)</b>						
<b>\$10 Billion - \$ 20 Billion</b>						
CEO	21.1%	24.0%	41.2%	1.1%	12.5%	74
CFO	23.4%	25.9%	36.7%	1.7%	12.3%	68
\$901 - \$1,000	31.6%	43.4%	25.0%	0.0%	0.0%	4
\$801 - \$900	22.3%	28.0%	46.5%	0.0%	3.1%	16
\$701 - \$800	26.4%	30.6%	34.3%	0.0%	8.7%	23
\$601 - \$700	19.1%	21.4%	42.7%	1.6%	15.0%	41
\$501 - \$600	23.6%	28.0%	38.0%	0.9%	9.4%	66
\$401 - \$500	20.9%	29.2%	36.4%	1.3%	12.1%	78
\$351 - \$400	19.5%	29.4%	33.8%	1.3%	15.9%	80
\$301 - \$350	20.2%	33.4%	30.6%	0.8%	15.0%	81
\$251 - \$300	17.5%	38.7%	27.6%	1.8%	14.4%	83
\$201 - \$250	17.1%	43.5%	25.0%	1.2%	13.2%	82
\$176 - \$200	16.7%	48.2%	21.3%	1.0%	12.8%	73
\$151 - \$175	16.3%	50.4%	19.3%	1.1%	12.9%	65
\$126 - \$150	16.7%	54.1%	16.5%	0.9%	11.7%	55
\$101 - \$125	11.8%	66.9%	12.3%	0.0%	9.1%	44
\$80 - \$100	14.0%	68.1%	14.3%	0.0%	3.6%	28
<b>\$20 Billion or More</b>						
CEO	18.8%	15.2%	42.4%	3.9%	19.6%	66
CFO	17.9%	16.6%	41.0%	4.1%	20.3%	63
\$901 - \$1,000	17.9%	29.0%	42.7%	3.1%	7.3%	19
\$801 - \$900	13.5%	29.3%	39.6%	9.3%	8.2%	22
\$701 - \$800	20.1%	26.8%	33.9%	5.6%	13.5%	40
\$601 - \$700	20.2%	26.2%	37.8%	2.1%	13.8%	51
\$501 - \$600	16.1%	26.6%	40.5%	2.7%	14.1%	61
\$401 - \$500	15.9%	26.6%	38.0%	2.3%	17.1%	73
\$351 - \$400	14.9%	29.4%	35.3%	2.1%	18.3%	76
\$301 - \$350	14.9%	30.2%	31.1%	2.1%	21.6%	76
\$251 - \$300	14.5%	33.4%	29.7%	2.3%	20.1%	81
\$201 - \$250	12.1%	36.3%	28.7%	2.3%	20.7%	81
\$176 - \$200	12.0%	38.3%	26.8%	0.9%	22.0%	76
\$151 - \$175	10.7%	38.3%	25.8%	0.9%	24.3%	75
\$126 - \$150	9.6%	44.2%	24.7%	1.3%	20.1%	58
\$101 - \$125	11.0%	54.1%	22.4%	0.0%	12.4%	39
\$80 - \$100	9.8%	60.5%	14.3%	0.0%	15.4%	30

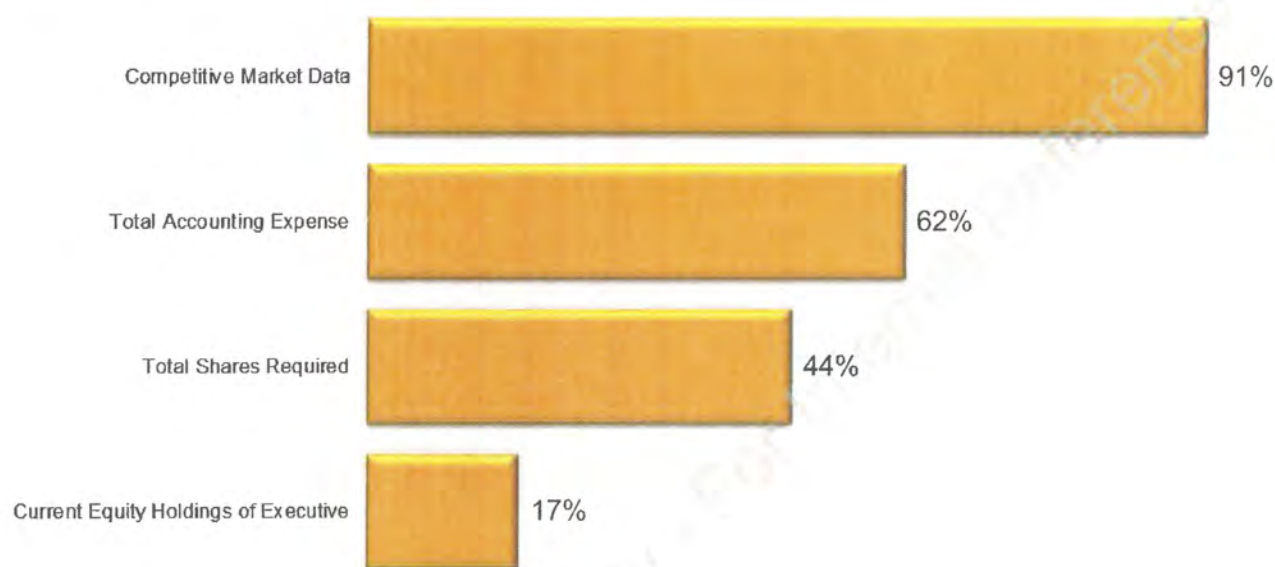


# Grant Process

## Grant Process Highlights

### Determining Award Size

In determining regularly scheduled LTI awards, most organizations (91%) consider competitive market data on individual award values.



### Frequency of Review Competitive Market Data

Most companies (70%) review competitive market data on an annual basis.

Frequency to Review	Prevalence
Annual	70%
Periodic, as needed	3%
Biennial (every 2 years)	24%
Do not review external market data	3%

Approximately half (54%) only periodically adjust/recalibrate LTI grants when there is a significant change in market value.

## **Grant Process Highlights**

### **Award Timing and Values**

Sixty-nine percent of the companies use target economic value for setting annual awards; 19% use a fixed number of shares and 12% have no set approach. Of the companies using a target economic value 45% use a multiple of pay and 55% use a flat dollar amount.

### **Global/Local National Employees Outside the United States**

For detailed information about international LTI policies and grant values refer to the 2014 General Industry International Long-Term report.

## Grant Process

### Award Timing and Values

FREQUENCY OF REGULARLY SCHEDULED AWARDS						
	% of Responses					# of Responses
	Two or More Times per Year	Annually	Biennially	Scheduled at Other Frequency	Not Scheduled	
<b>Total Sample</b>	2.6%	93.5%	0.8%	1.4%	1.7%	862
<b>Industry Sector</b>						
Energy Services	0.0%	96.2%	0.0%	1.9%	1.9%	104
Financial Services	1.9%	97.4%	0.0%	0.6%	0.0%	156
High Tech	2.6%	92.8%	1.3%	1.3%	2.0%	153
Manufacturing	2.7%	94.3%	0.5%	0.8%	1.6%	370
Media/Entertainment	8.0%	84.0%	4.0%	4.0%	0.0%	25
Pharmaceutical/Biotechnology	5.9%	92.2%	0.0%	0.0%	2.0%	51
Retail/Wholesale Trade	1.9%	94.4%	0.0%	1.9%	1.9%	54
Services	5.1%	85.4%	3.2%	2.5%	3.8%	158
Health Care	0.0%	95.0%	0.0%	5.0%	0.0%	20
<b>Revenue Size</b>						
Under \$500 Million	0.0%	89.5%	0.0%	2.6%	7.9%	38
\$500 Million - \$1 Billion	2.0%	93.9%	0.0%	4.1%	0.0%	49
\$1 Billion - \$3 Billion	1.5%	92.9%	1.5%	1.5%	2.5%	197
\$3 Billion - \$6 Billion	4.3%	91.5%	0.6%	1.8%	1.8%	164
\$6 Billion - \$10 Billion	2.2%	94.5%	0.0%	1.1%	2.2%	91
\$10 Billion - \$20 Billion	2.8%	95.7%	0.7%	0.0%	0.7%	141
\$20 Billion or More	2.7%	94.5%	1.1%	1.1%	0.5%	182



**Grant Process**

**Award Timing and Values (continued)**

<b>TIMING OF ANNUAL AWARDS</b>				
	% of Responses			# of Responses
	Fixed Date	Fixed Board of Directors/Compensation Committee Meeting	Other	
<b>Total Sample</b>	37.0%	60.1%	3.0%	844
<b>Industry Sector</b>				
Energy Services	32.4%	65.7%	2.0%	102
Financial Services	42.9%	53.9%	3.2%	154
High Tech	38.8%	57.1%	4.1%	147
Manufacturing	34.2%	62.5%	3.3%	363
Media/Entertainment	32.0%	68.0%	0.0%	25
Pharmaceutical/Biotechnology	47.9%	50.0%	2.1%	48
Retail/Wholesale Trade	28.3%	67.9%	3.8%	53
Services	42.5%	54.9%	2.6%	153
Health Care	47.4%	52.6%	0.0%	19
<b>Revenue Size</b>				
Under \$500 Million	48.6%	48.6%	2.9%	35
\$500 Million - \$1 Billion	45.8%	52.1%	2.1%	48
\$1 Billion - \$3 Billion	31.1%	65.8%	3.2%	190
\$3 Billion - \$6 Billion	32.5%	64.4%	3.1%	163
\$6 Billion - \$10 Billion	27.0%	70.8%	2.2%	89
\$10 Billion - \$20 Billion	39.9%	57.2%	2.9%	138
\$20 Billion or More	45.3%	51.4%	3.3%	181

**Grant Process****Award Timing and Values (continued)**

	% of Responses					# of Responses
	1st quarter	2nd quarter	3rd quarter	4th quarter	Grants in Multiple Quarters	
<b>QUARTER IN WHICH ANNUAL AWARDS OCCUR</b>						
<b>Total Sample</b>	68.5%	12.5%	6.8%	9.6%	2.7%	857
<b>Industry Sector</b>						
Energy Services	88.6%	2.9%	2.9%	3.8%	1.9%	105
Financial Services	81.8%	8.4%	1.3%	6.5%	1.9%	154
High Tech	57.4%	12.2%	13.5%	13.5%	3.4%	148
Manufacturing	63.3%	11.7%	8.4%	13.9%	2.7%	368
Media/Entertainment	64.0%	20.0%	4.0%	12.0%	0.0%	25
Pharmaceutical/Biotechnology	60.8%	21.6%	3.9%	7.8%	5.9%	51
Retail/Wholesale Trade	59.3%	27.8%	9.3%	3.7%	0.0%	54
Services	56.7%	19.7%	10.2%	8.3%	5.1%	157
Health Care	73.7%	10.5%	5.3%	10.5%	0.0%	19
<b>Revenue Size</b>						
Under \$500 Million	78.4%	5.4%	8.1%	2.7%	5.4%	37
\$500 Million - \$1 Billion	66.7%	12.5%	4.2%	12.5%	4.2%	48
\$1 Billion - \$3 Billion	68.7%	13.3%	6.2%	8.2%	3.6%	195
\$3 Billion - \$6 Billion	71.2%	10.4%	6.7%	9.8%	1.8%	163
\$6 Billion - \$10 Billion	68.1%	9.9%	6.6%	12.1%	3.3%	91
\$10 Billion - \$20 Billion	65.7%	15.0%	5.0%	11.4%	2.9%	140
\$20 Billion or More	66.7%	14.2%	9.3%	8.7%	1.1%	183

**Grant Process**

**Award Timing and Values (continued)**

**TYPES OF SPECIAL AWARDS MADE**

	% of Responses							# of Responses
	None (All Grants per Regular Schedule)	New Hires	Executive Hires	Promotions	Retention	Special Recognition	Other	
<b>Total Sample</b>	33.1%	45.9%	46.4%	32.1%	30.9%	22.9%	4.3%	822
<b>Industry Sector</b>								
Energy Services	48.4%	33.3%	30.1%	25.8%	17.2%	15.1%	0.0%	93
Financial Services	32.2%	48.3%	43.6%	27.5%	27.5%	20.8%	4.7%	149
High Tech	28.6%	53.7%	54.4%	38.8%	38.1%	27.2%	6.1%	147
Manufacturing	31.8%	46.0%	48.9%	28.7%	33.8%	25.3%	5.1%	352
Media/Entertainment	24.0%	52.0%	68.0%	56.0%	28.0%	16.0%	4.0%	25
Pharmaceutical/Biotechnology	20.4%	55.1%	69.4%	26.5%	49.0%	32.7%	4.1%	49
Retail/Wholesale Trade	30.2%	45.3%	50.9%	49.1%	32.1%	26.4%	5.7%	53
Services	27.6%	51.3%	51.3%	42.3%	35.9%	22.4%	4.5%	156
Health Care	42.1%	42.1%	47.4%	31.6%	26.3%	26.3%	0.0%	19
<b>Revenue Size</b>								
Under \$500 Million	52.6%	36.8%	36.8%	18.4%	15.8%	2.6%	2.6%	38
\$500 Million - \$1 Billion	34.8%	45.7%	34.8%	19.6%	15.2%	23.9%	6.5%	46
\$1 Billion - \$3 Billion	29.9%	48.7%	47.1%	33.2%	23.0%	25.7%	5.3%	187
\$3 Billion - \$6 Billion	33.5%	43.9%	45.2%	36.8%	32.3%	21.3%	2.6%	155
\$6 Billion - \$10 Billion	24.4%	47.7%	55.8%	34.9%	39.5%	31.4%	4.7%	86
\$10 Billion - \$20 Billion	30.6%	52.2%	47.8%	33.6%	38.1%	23.1%	3.0%	134
\$20 Billion or More	37.5%	40.9%	46.0%	30.7%	35.8%	21.0%	5.1%	176

**Grant Process****Award Timing and Values (continued)**

	% of Responses				# of Responses
	Competitive Market Data on Individual Award Values	Total Accounting Expense/Award Value	Total Shares Required	Current Equity Holdings of Executives	
<b>Total Sample</b>	90.8%	62.4%	44.3%	17.3%	792
<b>Industry Sector</b>					
Energy Services	92.8%	51.5%	33.0%	7.2%	97
Financial Services	86.9%	65.7%	39.4%	18.2%	137
High Tech	88.4%	67.4%	54.3%	29.7%	138
Manufacturing	92.4%	57.6%	43.6%	16.4%	342
Media/Entertainment	88.0%	92.0%	64.0%	24.0%	25
Pharmaceutical/Biotechnology	97.8%	69.6%	39.1%	13.0%	46
Retail/Wholesale Trade	87.8%	81.6%	51.0%	14.3%	49
Services	89.2%	71.6%	56.1%	26.4%	148
Health Care	100.0%	57.9%	42.1%	15.8%	19
<b>Revenue Size</b>					
Under \$500 Million	96.8%	38.7%	38.7%	12.9%	31
\$500 Million - \$1 Billion	86.7%	66.7%	37.8%	15.6%	45
\$1 Billion - \$3 Billion	94.4%	67.8%	45.8%	20.3%	177
\$3 Billion - \$6 Billion	91.1%	68.8%	50.3%	18.5%	157
\$6 Billion - \$10 Billion	91.8%	58.8%	41.2%	15.3%	85
\$10 Billion - \$20 Billion	89.2%	62.3%	43.8%	16.9%	130
\$20 Billion or More	87.4%	55.7%	41.9%	15.6%	167

**Grant Process**

**Award Timing and Values (continued)**

**FREQUENCY OF COMPETITIVE MARKET DATA REVIEW**

	% of Responses				# of Responses
	Annually	Biennially	Periodically	Do Not Review External Market Data	
<b>Total Sample</b>	70.0%	3.4%	23.7%	2.9%	826
<b>Industry Sector</b>					
Energy Services	74.7%	1.0%	22.2%	2.0%	99
Financial Services	67.3%	6.1%	23.8%	2.7%	147
High Tech	72.9%	2.1%	21.5%	3.5%	144
Manufacturing	71.5%	3.1%	22.9%	2.5%	354
Media/Entertainment	79.2%	4.2%	12.5%	4.2%	24
Pharmaceutical/Biotechnology	74.0%	4.0%	20.0%	2.0%	50
Retail/Wholesale Trade	65.4%	3.8%	26.9%	3.8%	52
Services	65.8%	3.2%	26.5%	4.5%	155
Health Care	84.2%	0.0%	15.8%	0.0%	19
<b>Revenue Size</b>					
Under \$500 Million	57.6%	6.1%	30.3%	6.1%	33
\$500 Million - \$1 Billion	60.9%	8.7%	26.1%	4.3%	46
\$1 Billion - \$3 Billion	69.1%	4.7%	24.6%	1.6%	191
\$3 Billion - \$6 Billion	72.8%	3.2%	22.2%	1.9%	158
\$6 Billion - \$10 Billion	73.9%	3.4%	19.3%	3.4%	88
\$10 Billion - \$20 Billion	69.6%	1.5%	24.4%	4.4%	135
\$20 Billion or More	71.4%	1.7%	24.0%	2.9%	175

**Grant Process****Award Timing and Values (continued)**

<b>FREQUENCY OF ADJUSTMENTS OF AWARDS BASED ON CHANGES IN MARKET DATA</b>				
	% of Responses			# of Responses
	Annually, "Mark-to-Market" Every Year as Market Values Fluctuate	Periodically, When There is a Significant Change in Market Values	Averaging, Market Data is Averaged Over Several Years to Smooth Volatility	
<b>Total Sample</b>	44.7%	53.7%	1.7%	777
<b>Industry Sector</b>				
Energy Services	51.0%	45.8%	3.1%	96
Financial Services	41.7%	57.6%	0.8%	132
High Tech	46.7%	52.6%	0.7%	135
Manufacturing	44.1%	55.0%	0.9%	338
Media/Entertainment	43.5%	52.2%	4.3%	23
Pharmaceutical/Biotechnology	42.9%	55.1%	2.0%	49
Retail/Wholesale Trade	42.9%	55.1%	2.0%	49
Services	45.1%	52.1%	2.8%	144
Health Care	44.4%	50.0%	5.6%	18
<b>Revenue Size</b>				
Under \$500 Million	46.4%	50.0%	3.6%	28
\$500 Million - \$1 Billion	47.7%	50.0%	2.3%	44
\$1 Billion - \$3 Billion	45.8%	52.5%	1.7%	177
\$3 Billion - \$6 Billion	44.7%	54.7%	0.7%	150
\$6 Billion - \$10 Billion	44.0%	54.8%	1.2%	84
\$10 Billion - \$20 Billion	43.4%	55.0%	1.6%	129
\$20 Billion or More	43.6%	53.9%	2.4%	165

**Grant Process****Award Timing and Values (continued)****CALCULATION OF LTI ECONOMIC VALUES WHEN DETERMINING ANNUAL AWARDS**

	% of Responses			# of Responses
	Use ASC 718 or IFRS(2) Values	Use Third Party/ Consultant Valuations	Use Separate Internal Valuations	
<b>Total Sample</b>	33.2%	38.0%	28.8%	705
<b>Industry Sector</b>				
Energy Services	30.3%	51.7%	18.0%	89
Financial Services	28.8%	34.7%	36.4%	118
High Tech	34.7%	34.7%	30.6%	124
Manufacturing	33.1%	38.3%	28.6%	308
Media/Entertainment	31.8%	45.5%	22.7%	22
Pharmaceutical/Biotechnology	33.3%	37.8%	28.9%	45
Retail/Wholesale Trade	47.4%	26.3%	26.3%	38
Services	35.3%	32.4%	32.4%	136
Health Care	31.3%	56.3%	12.5%	16
<b>Revenue Size</b>				
Under \$500 Million	26.1%	47.8%	26.1%	23
\$500 Million - \$1 Billion	31.7%	41.5%	26.8%	41
\$1 Billion - \$3 Billion	42.0%	36.4%	21.6%	162
\$3 Billion - \$6 Billion	25.0%	45.7%	29.3%	140
\$6 Billion - \$10 Billion	31.6%	39.2%	29.1%	79
\$10 Billion - \$20 Billion	35.8%	36.7%	27.5%	120
\$20 Billion or More	31.4%	30.0%	38.6%	140

**Grant Process****Award Timing and Values (continued)**

	% of Responses			# of Responses
	Target Economic Values	Fixed Number of Shares	No Set Approach	
<b>APPROACH TO SETTING ANNUAL AWARDS</b>				
<b>Total Sample</b>	69.4%	19.3%	11.3%	732
<b>Industry Sector</b>				
Energy Services	66.3%	22.1%	11.6%	86
Financial Services	69.4%	19.4%	11.3%	124
High Tech	69.9%	20.3%	9.8%	133
Manufacturing	69.6%	18.1%	12.3%	326
Media/Entertainment	63.6%	31.8%	4.5%	22
Pharmaceutical/Biotechnology	61.4%	31.8%	6.8%	44
Retail/Wholesale Trade	73.3%	20.0%	6.7%	45
Services	69.1%	19.9%	11.0%	136
Health Care	73.3%	20.0%	6.7%	15
<b>Revenue Size</b>				
Under \$500 Million	70.8%	12.5%	16.7%	24
\$500 Million - \$1 Billion	64.3%	23.8%	11.9%	42
\$1 Billion - \$3 Billion	67.1%	19.7%	13.3%	173
\$3 Billion - \$6 Billion	69.7%	18.6%	11.7%	145
\$6 Billion - \$10 Billion	74.7%	20.3%	5.1%	79
\$10 Billion - \$20 Billion	73.5%	15.4%	11.1%	117
\$20 Billion or More	67.1%	21.7%	11.2%	152



**Grant Process**

**Award Timing and Values (continued)**

<b>HOW ARE AWARDS EXPRESSED WHEN USING TARGET ECONOMIC VALUES</b>			
	Multiplies of Pay	Flat Dollar Amount	# of Responses
<b>Total Sample</b>	44.5%	55.5%	371
<b>Industry Sector</b>			
Energy Services	69.0%	31.0%	42
Financial Services	44.8%	55.2%	58
High Tech	29.4%	70.6%	68
Manufacturing	39.6%	60.4%	164
Media/Entertainment	60.0%	40.0%	10
Pharmaceutical/Biotechnology	45.0%	55.0%	20
Retail/Wholesale Trade	45.5%	54.5%	22
Services	39.5%	60.5%	76
Health Care	55.6%	44.4%	9
<b>Revenue Size</b>			
Under \$500 Million	75.0%	25.0%	12
\$500 Million - \$ 1 Billion	50.0%	50.0%	22
\$1 Billion - \$ 3 Billion	47.3%	52.7%	91
\$3 Billion - \$ 6 Billion	48.6%	51.4%	74
\$6 Billion - \$ 10 Billion	38.9%	61.1%	36
\$10 Billion - \$ 20 Billion	42.4%	57.6%	59
\$20 Billion or More	35.1%	64.9%	77

**Grant Process**

**Individual Participation/Awards**

	% of Responses				# of Responses
	All (100%) Eligible Employees Automatically Participate	Prescribed Participation Rates at Various Salary Levels	Suggested Participation Guidelines are Provided, but Management Exercises Discretion	No Formal Process in Place – Management Discretion	
<b>Total Sample</b>	34.1%	28.0%	30.1%	7.7%	803
<b>Industry Sector</b>					
Energy Services	33.3%	29.0%	33.3%	4.3%	93
Financial Services	36.4%	23.8%	30.8%	9.1%	143
High Tech	30.3%	27.5%	35.9%	6.3%	142
Manufacturing	31.3%	30.2%	29.9%	8.5%	351
Media/Entertainment	25.0%	20.8%	33.3%	20.8%	24
Pharmaceutical/Biotechnology	28.6%	38.8%	26.5%	6.1%	49
Retail/Wholesale Trade	58.0%	28.0%	10.0%	4.0%	50
Services	30.5%	27.2%	34.4%	7.9%	151
Health Care	40.0%	20.0%	33.3%	6.7%	15
<b>Revenue Size</b>					
Under \$500 Million	25.0%	43.8%	15.6%	15.6%	32
\$500 Million - \$1 Billion	31.8%	20.5%	40.9%	6.8%	44
\$1 Billion - \$3 Billion	32.8%	22.2%	32.8%	12.2%	180
\$3 Billion - \$6 Billion	35.3%	28.8%	30.1%	5.9%	153
\$6 Billion - \$10 Billion	32.2%	33.3%	24.1%	10.3%	87
\$10 Billion - \$20 Billion	30.5%	29.8%	34.4%	5.3%	131
\$20 Billion or More	40.3%	28.4%	27.3%	4.0%	176

**Grant Process**

**Individual Participation/Awards (continued)**

	% of Responses			# of Responses
	Corporate Prescribes Awards by Position/Salary Range with No Flexibility	LTI Guideline is a Specific Award Size by Level/Position but Can be Adjusted	LTI Guideline is a Range with a Mid-Point, High and Low, Can be Adjusted	
<b>Total Sample</b>	46.0%	18.4%	35.5%	819
<b>Industry Sector</b>				
Energy Services	60.8%	15.5%	23.7%	97
Financial Services	40.4%	19.2%	40.4%	146
High Tech	41.3%	18.9%	39.9%	143
Manufacturing	43.8%	19.9%	36.2%	356
Media/Entertainment	45.8%	8.3%	45.8%	24
Pharmaceutical/Biotechnology	26.0%	14.0%	60.0%	50
Retail/Wholesale Trade	62.7%	9.8%	27.5%	51
Services	41.7%	19.2%	39.1%	151
Health Care	44.4%	16.7%	38.9%	18
<b>Revenue Size</b>				
Under \$500 Million	72.7%	21.2%	6.1%	33
\$500 Million - \$1 Billion	56.8%	15.9%	27.3%	44
\$1 Billion - \$3 Billion	54.9%	16.3%	28.8%	184
\$3 Billion - \$6 Billion	48.1%	19.6%	32.3%	158
\$6 Billion - \$10 Billion	34.8%	20.2%	44.9%	89
\$10 Billion - \$20 Billion	41.4%	15.0%	43.6%	133
\$20 Billion or More	36.5%	21.3%	42.1%	178

**Grant Process****Individual Participation/Awards (continued)**

<b>HOW OFTEN MANAGERS TYPICALLY DEVIATE FROM GRANT GUIDELINE</b>					
	% of Responses				# of Responses
	Almost Never	Sometimes	Frequently	Almost Always	
<b>Total Sample</b>	36.0%	54.0%	8.6%	1.4%	428
<b>Industry Sector</b>					
Energy Services	43.2%	48.6%	5.4%	2.7%	37
Financial Services	29.3%	59.8%	11.0%	0.0%	82
High Tech	38.8%	51.3%	6.3%	3.8%	80
Manufacturing	40.4%	48.2%	9.3%	2.1%	193
Media/Entertainment	23.1%	69.2%	7.7%	0.0%	13
Pharmaceutical/Biotechnology	35.1%	48.6%	16.2%	0.0%	37
Retail/Wholesale Trade	31.6%	68.4%	0.0%	0.0%	19
Services	30.7%	60.2%	8.0%	1.1%	88
Health Care	33.3%	55.6%	11.1%	0.0%	9
<b>Revenue Size</b>					
Under \$500 Million	77.8%	11.1%	11.1%	0.0%	9
\$500 Million - \$1 Billion	15.8%	68.4%	15.8%	0.0%	19
\$1 Billion - \$3 Billion	34.6%	59.3%	4.9%	1.2%	81
\$3 Billion - \$6 Billion	40.7%	51.9%	7.4%	0.0%	81
\$6 Billion - \$10 Billion	36.4%	47.3%	16.4%	0.0%	55
\$10 Billion - \$20 Billion	32.9%	57.9%	5.3%	3.9%	76
\$20 Billion or More	35.5%	53.3%	9.3%	1.9%	107

<b>HOW MANAGERS DETERMINE ADJUSTMENTS WHEN DEVIATING FROM GUIDELINES</b>					
	% of Responses				# of Responses
	Management Discretion	Performance Rating/ Management System	Talent Management Framework	Other	
<b>Total Sample</b>	66.4%	22.5%	5.9%	5.1%	408
<b>Industry Sector</b>					
Energy Services	78.1%	15.6%	3.1%	3.1%	32
Financial Services	73.1%	20.5%	1.3%	5.1%	78
High Tech	70.0%	16.3%	11.3%	2.5%	80
Manufacturing	61.9%	25.4%	6.9%	5.8%	189
Media/Entertainment	76.9%	15.4%	7.7%	0.0%	13
Pharmaceutical/Biotechnology	35.3%	47.1%	11.8%	5.9%	34
Retail/Wholesale Trade	62.5%	18.8%	12.5%	6.3%	16
Services	65.5%	22.6%	7.1%	4.8%	84
Health Care	77.8%	11.1%	11.1%	0.0%	9
<b>Revenue Size</b>					
Under \$500 Million	85.7%	14.3%	0.0%	0.0%	7
\$500 Million - \$1 Billion	68.4%	31.6%	0.0%	0.0%	19
\$1 Billion - \$3 Billion	71.8%	19.2%	3.8%	5.1%	78
\$3 Billion - \$6 Billion	68.8%	18.8%	7.5%	5.0%	80
\$6 Billion - \$10 Billion	61.8%	23.6%	7.3%	7.3%	55
\$10 Billion - \$20 Billion	63.4%	25.4%	7.0%	4.2%	71
\$20 Billion or More	63.3%	24.5%	6.1%	6.1%	98

**Grant Process**

**Individual Participation/Awards (continued)**

<b>TYPICAL AWARD ADJUSTMENT VS. GRANT GUIDELINES</b>				
	% of Responses			# of Responses
	Less than +/- 10% From Guidelines	Between +/- 10% - 25% From Guidelines	Greater than +/- 25% From Guidelines	
<b>Total Sample</b>	67.8%	29.0%	3.3%	397
<b>Industry Sector</b>				
Energy Services	57.6%	42.4%	0.0%	33
Financial Services	76.6%	22.1%	1.3%	77
High Tech	69.3%	26.7%	4.0%	75
Manufacturing	67.8%	29.5%	2.7%	183
Media/Entertainment	69.2%	30.8%	0.0%	13
Pharmaceutical/Biotechnology	66.7%	33.3%	0.0%	33
Retail/Wholesale Trade	62.5%	31.3%	6.3%	16
Services	62.0%	30.4%	7.6%	79
Health Care	88.9%	11.1%	0.0%	9
<b>Revenue Size</b>				
Under \$500 Million	100.0%	0.0%	0.0%	6
\$500 Million - \$1 Billion	72.2%	22.2%	5.6%	18
\$1 Billion - \$3 Billion	64.0%	29.3%	6.7%	75
\$3 Billion - \$6 Billion	72.7%	24.7%	2.6%	77
\$6 Billion - \$10 Billion	60.0%	36.0%	4.0%	50
\$10 Billion - \$20 Billion	70.4%	28.2%	1.4%	71
\$20 Billion or More	66.0%	32.0%	2.0%	100

**Grant Process****Global/Local National Employees Outside the United States**

PARTICIPATION OF LOCAL NATIONALS - NON-U.S.-BASED EMPLOYEES							
	% of Responses						# of Responses
	Same Plan as U.S.	Same Plan Modified	Separate Plan	Do Not Participate	Other	Do Not Have Employees in this Category	
<b>TOTAL SAMPLE</b>	50.5%	19.7%	2.3%	3.5%	1.4%	22.6%	483
<b>INDUSTRY SECTOR</b>							
Energy Services	17.5%	10.0%	5.0%	5.0%	2.5%	60.0%	40
Financial Services	45.5%	7.6%	0.0%	6.1%	1.5%	39.4%	66
High Tech	63.0%	21.0%	7.0%	0.0%	1.0%	8.0%	100
Manufacturing	56.5%	25.9%	2.9%	1.3%	1.3%	12.1%	239
Media/Entertainment	47.4%	15.8%	0.0%	5.3%	0.0%	31.6%	19
Pharmaceutical and Biotechnology	54.5%	39.4%	0.0%	0.0%	0.0%	6.1%	33
Retail/Wholesale Trade	52.0%	12.0%	0.0%	8.0%	0.0%	28.0%	25
Services	54.7%	19.8%	0.9%	5.7%	1.9%	17.0%	106
Health Care	14.3%	0.0%	14.3%	0.0%	0.0%	71.4%	7
<b>REVENUE SIZE</b>							
Under \$500 Million	5.9%	23.5%	0.0%	5.9%	0.0%	64.7%	17
\$500 Million - \$ 1 Billion	41.7%	20.8%	4.2%	4.2%	0.0%	29.2%	24
\$1 Billion - \$ 3 Billion	49.6%	11.0%	0.8%	3.1%	1.6%	33.9%	127
\$3 Billion - \$ 6 Billion	50.5%	20.4%	4.3%	3.2%	0.0%	21.5%	93
\$6 Billion - \$ 10 Billion	55.1%	22.4%	4.1%	2.0%	2.0%	14.3%	49
\$10 Billion - \$ 20 Billion	56.3%	23.9%	1.4%	1.4%	2.8%	14.1%	71
\$20 Billion or More	54.9%	24.5%	2.0%	5.9%	2.0%	10.8%	102

**Grant Process**

**Global/Local National Employees Outside the United States (continued)**

<b>GRANT GUIDELINES FOR LOCAL NATIONALS UNDER U.S. PLAN</b>			
	% of Responses		# of Responses
	U.S. Guidelines are Utilized	Share Guidelines are Modified	
<b>Total Sample</b>	75.1%	24.9%	421
<b>Industry Sector</b>			
Energy Services	88.9%	11.1%	18
Financial Services	83.3%	16.7%	48
High Tech	70.9%	29.1%	103
Manufacturing	71.6%	28.4%	236
Media/Entertainment	71.4%	28.6%	14
Pharmaceutical/Biotechnology	60.6%	39.4%	33
Retail/Wholesale Trade	76.9%	23.1%	26
Services	76.7%	23.3%	90
Health Care	66.7%	33.3%	3
<b>Revenue Size</b>			
Under \$500 Million	80.0%	20.0%	5
\$500 Million - \$1 Billion	88.9%	11.1%	18
\$1 Billion - \$3 Billion	78.9%	21.1%	90
\$3 Billion - \$6 Billion	80.5%	19.5%	77
\$6 Billion - \$10 Billion	64.3%	35.7%	56
\$10 Billion - \$20 Billion	72.0%	28.0%	75
\$20 Billion or More	73.0%	27.0%	100

**Grant Process****Global/Local National Employees Outside the United States (continued)**

	% of Responses			# of Responses
	Share Guidelines are Recalculated as a Percent of Salary, and the Same United States Percent of Salary is Applied	A Specific Guideline is Developed for Each Region or Country Based on Local Market Analysis/Values	Other	
<b>MODIFICATION OF U.S. GUIDELINES</b>				
<b>Total Sample</b>	18.7%	57.9%	23.4%	107
<b>Industry Sector</b>				
Energy Services	100.0%	0.0%	0.0%	2
Financial Services	25.0%	12.5%	62.5%	8
High Tech	20.0%	60.0%	20.0%	30
Manufacturing	15.7%	67.1%	17.1%	70
Media/Entertainment	33.3%	33.3%	33.3%	3
Pharmaceutical/Biotechnology	8.3%	91.7%	0.0%	12
Retail/Wholesale Trade	40.0%	60.0%	0.0%	5
Services	9.5%	52.4%	38.1%	21
Health Care	100.0%	0.0%	0.0%	1
<b>Revenue Size</b>				
Under \$500 Million	0.0%	100.0%	0.0%	1
\$500 Million - \$1 Billion	0.0%	100.0%	0.0%	2
\$1 Billion - \$3 Billion	27.8%	44.4%	27.8%	18
\$3 Billion - \$6 Billion	20.0%	60.0%	20.0%	15
\$6 Billion - \$10 Billion	13.6%	68.2%	18.2%	22
\$10 Billion - \$20 Billion	33.3%	47.6%	19.0%	21
\$20 Billion or More	7.1%	60.7%	32.1%	28

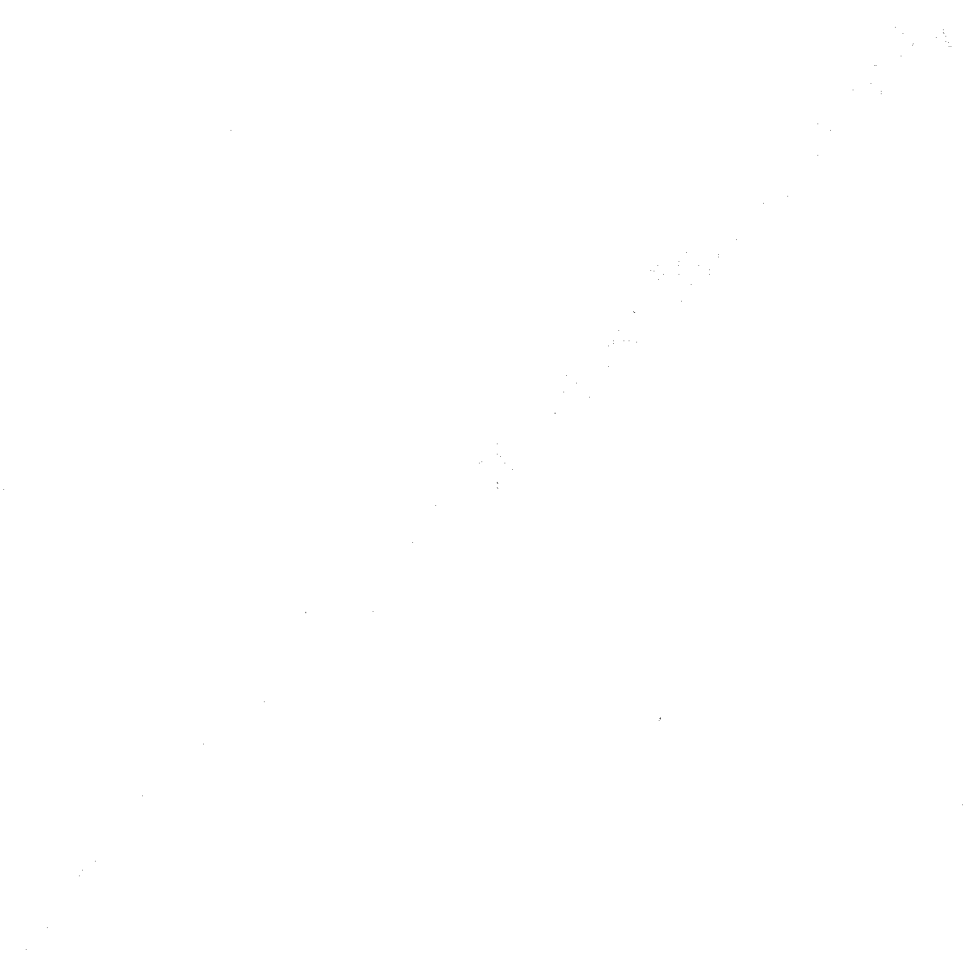


**Grant Process**

**Global/Local National Employees Outside the United States (continued)**

**MOST COMMON PLAN DESIGN CHANGES WHEN LTI PLANS ARE EXTENDED OUTSIDE U.S.**

	% of Responses									# of Responses
	Changed to Unit Form Instead of Stock	Changed How Awards are Settled	Changed Vesting	Introduces a Qualified Plan	Changed Termination Provisions	Modified Form of Award Agreement	Require Forced Sales of Shares upon Certain Events	No Modifications	Other	
<b>Total Sample</b>	24.9%	20.2%	6.7%	4.3%	5.9%	15.4%	5.9%	39.5%	17.4%	253
<b>Industry Sector</b>										
Energy Services	0.0%	10.0%	10.0%	0.0%	0.0%	20.0%	0.0%	40.0%	50.0%	10
Financial Services	27.6%	10.3%	3.4%	3.4%	13.8%	13.8%	0.0%	51.7%	13.8%	29
High Tech	17.7%	27.4%	9.7%	6.5%	9.7%	12.9%	14.5%	37.1%	22.6%	62
Manufacturing	25.7%	26.3%	9.2%	5.9%	7.2%	13.8%	7.2%	31.6%	19.1%	152
Media/Entertainment	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	87.5%	12.5%	8
Pharmaceutical/Biotechnology	21.1%	10.5%	10.5%	15.8%	10.5%	26.3%	5.3%	21.1%	31.6%	19
Retail/Wholesale Trade	36.4%	9.1%	9.1%	0.0%	0.0%	36.4%	0.0%	54.5%	0.0%	11
Services	22.4%	10.2%	0.0%	2.0%	0.0%	16.3%	8.2%	53.1%	12.2%	49
Health Care	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	2
<b>Revenue Size</b>										
Under \$500 Million	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	16.7%	6
\$500 Million - \$1 Billion	23.1%	7.7%	0.0%	7.7%	0.0%	30.8%	0.0%	38.5%	7.7%	13
\$1 Billion - \$3 Billion	27.1%	11.9%	1.7%	3.4%	5.1%	13.6%	5.1%	50.8%	3.4%	59
\$3 Billion - \$6 Billion	20.0%	34.5%	10.9%	3.6%	3.6%	16.4%	3.6%	32.7%	18.2%	55
\$6 Billion - \$10 Billion	38.5%	19.2%	11.5%	7.7%	7.7%	30.8%	7.7%	26.9%	26.9%	26
\$10 Billion - \$20 Billion	20.0%	22.5%	10.0%	7.5%	12.5%	12.5%	10.0%	37.5%	22.5%	40
\$20 Billion or More	25.9%	18.5%	5.6%	1.9%	5.6%	9.3%	7.4%	38.9%	25.9%	54



# LTI Plan Design

## LTI Plan Design Highlights

### Stock Options

Approximately half (45%) of the organizations are granting stock options. This is significantly lower than five years ago, primarily due to mandatory stock option expensing under ASC 718 (formerly FAS123[R]). Stock option grants are the most prevalent in the Pharmaceutical and Biotechnology industry (60%) and the least prevalent (21%) in the energy services industry.

Most organizations (82%) granting stock options made no changes to their plans from the prior year. However, organizations continue to drop stock option plans from their mix (7%) or decrease the weight of options granted (7%).

Stock option grants are most typically granted on an annual basis (99%) with a 10-year term (77%) at 100% of fair market value (99.7%). Most plans (90%) have graded vesting and are 100% vested after three years (54%) or four years (34%).

### Restricted Stock/Stock Units

Organizations have typically not made any changes to their restricted stock/stock unit plans with 84% reporting status quo/no change. However, 7% report an increase in the weight of restricted stock granted.

Sixty percent of the grants are restricted stock units, 30% are restricted stock, 9% grant both and the remainder grants phantom units. Annual grants are most common (99%) and proportional or graded vesting is used by 60% of organizations granting restricted stock/stock units.

### Performance Plans

Performance plans may be granted in the form of shares (71%) or cash/units (29%). Most companies (84%) utilize a three-year performance period. The most prevalent performance metrics are Total Shareholder Return (TSR) which is used by 40% of companies and Earnings Per Share (EPS) used by 21% of companies. The use of relative performance plans continues to increase with 49% of companies now reporting relative performance plans (versus 48% in 2013). Most of these relative performance plans use Total Shareholder Return (TSR) as the performance metric.

More than half of the plans (57%) provide a maximum award payout equal to 200% of target and some specify a maximum payout equal to 150% of target (22%). For those companies with performance shares, approximately half 51% provide dividends or dividend equivalents. Most of these companies (91%) accrue or reinvest in shares with the ultimate payment contingent on the performance goals.

### Stock Appreciation Rights

Only 7% of the sample report granting stock appreciation rights. Most (93%) grant annually and the participant selects exercise/settlement dates in 86% of companies. Graded vesting is used in 70% of the plans.

## LTI Plan Design

### Changes in Most Recent Grants and Future Directions

CHANGES MADE TO PLAN DESIGN						
	% of Responses					# of Responses
	Status Quo/ No Change	Added Plan	Increased Weight	Dropped Plan	Decreased Weight	
<b>TOTAL SAMPLE</b>						
Stock Options	82.2%	3.3%	0.9%	6.8%	6.8%	428
Restricted Stock/Stock Units	84.4%	4.5%	6.5%	0.5%	4.0%	596
Performance Plan Awards	86.9%	6.0%	4.1%	1.1%	1.8%	711
Stock Appreciation Rights	79.7%	5.8%	1.4%	4.3%	8.7%	69
<b>INDUSTRY SECTOR</b>						
<b>Energy Services</b>						
Stock Options	77.4%	3.2%	0.0%	9.7%	9.7%	31
Restricted Stock/Stock Units	86.2%	4.6%	4.6%	0.0%	4.6%	65
Performance Plan Awards	91.2%	3.3%	1.1%	0.0%	4.4%	91
Stock Appreciation Rights	100.0%	0.0%	0.0%	0.0%	0.0%	4
<b>Financial Services</b>						
Stock Options	87.3%	0.0%	1.6%	6.3%	4.8%	63
Restricted Stock/Stock Units	89.2%	0.0%	8.6%	0.0%	2.2%	93
Performance Plan Awards	89.9%	4.7%	3.9%	0.8%	0.8%	129
Stock Appreciation Rights	54.5%	27.3%	0.0%	0.0%	18.2%	11
<b>High Tech</b>						
Stock Options	88.5%	3.4%	0.0%	4.6%	3.4%	87
Restricted Stock/Stock Units	83.5%	5.5%	3.7%	0.9%	6.4%	109
Performance Plan Awards	85.7%	8.4%	5.0%	0.8%	0.0%	119
Stock Appreciation Rights	83.3%	8.3%	0.0%	0.0%	8.3%	12
<b>Manufacturing</b>						
Stock Options	85.2%	2.9%	1.4%	3.3%	7.2%	209
Restricted Stock/Stock Units	83.5%	4.6%	6.5%	0.8%	4.6%	260
Performance Plan Awards	86.2%	7.2%	3.6%	1.6%	1.3%	305
Stock Appreciation Rights	82.5%	0.0%	2.5%	5.0%	10.0%	40
<b>Media/Entertainment</b>						
Stock Options	66.7%	16.7%	0.0%	0.0%	16.7%	12
Restricted Stock/Stock Units	76.2%	14.3%	4.8%	0.0%	4.8%	21
Performance Plan Awards	81.8%	4.5%	9.1%	0.0%	4.5%	22
Stock Appreciation Rights	66.7%	0.0%	0.0%	33.3%	0.0%	3
<b>Pharmaceutical/Biotechnology</b>						
Stock Options	93.5%	3.2%	0.0%	0.0%	3.2%	31
Restricted Stock/Stock Units	86.8%	7.9%	5.3%	0.0%	0.0%	38
Performance Plan Awards	89.7%	5.1%	0.0%	5.1%	0.0%	39
Stock Appreciation Rights	87.5%	0.0%	0.0%	0.0%	12.5%	8

Table continues on next page.

**LTI Plan Design****Changes in Most Recent Grants and Future Directions (continued)**

<b>CHANGES MADE TO PLAN DESIGN (continued)</b>						
	% of Responses					# of Responses
	Status Quo/ No Change	Added Plan	Increased Weight	Dropped Plan	Decreased Weight	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Retail/Wholesale Trade</b>						
Stock Options	71.4%	5.7%	0.0%	20.0%	2.9%	35
Restricted Stock/Stock Units	79.5%	6.8%	6.8%	0.0%	6.8%	44
Performance Plan Awards	85.7%	4.8%	9.5%	0.0%	0.0%	42
Stock Appreciation Rights	100.0%	0.0%	0.0%	0.0%	0.0%	2
<b>Services</b>						
Stock Options	79.0%	6.2%	0.0%	8.6%	6.2%	81
Restricted Stock/Stock Units	84.4%	7.4%	4.9%	0.8%	2.5%	122
Performance Plan Awards	83.2%	8.0%	4.8%	1.6%	2.4%	125
Stock Appreciation Rights	80.0%	10.0%	0.0%	10.0%	0.0%	10
<b>Health Care</b>						
Stock Options	66.7%	0.0%	0.0%	11.1%	22.2%	9
Restricted Stock/Stock Units	75.0%	0.0%	16.7%	0.0%	8.3%	12
Performance Plan Awards	84.2%	0.0%	10.5%	0.0%	5.3%	19
Stock Appreciation Rights	100.0%	0.0%	0.0%	0.0%	0.0%	2
<b>REVENUE SIZE</b>						
<b>Under \$500 Million</b>						
Stock Options	81.8%	9.1%	0.0%	0.0%	9.1%	11
Restricted Stock/Stock Units	89.5%	5.3%	5.3%	0.0%	0.0%	19
Performance Plan Awards	96.0%	0.0%	0.0%	4.0%	0.0%	25
Stock Appreciation Rights	100.0%	0.0%	0.0%	0.0%	0.0%	4
<b>\$500 Million - \$1 Billion</b>						
Stock Options	92.3%	0.0%	0.0%	7.7%	0.0%	26
Restricted Stock/Stock Units	84.8%	9.1%	6.1%	0.0%	0.0%	33
Performance Plan Awards	86.7%	6.7%	6.7%	0.0%	0.0%	30
Stock Appreciation Rights	100.0%	0.0%	0.0%	0.0%	0.0%	2
<b>\$1 Billion - \$3 Billion</b>						
Stock Options	81.0%	5.0%	2.0%	5.0%	7.0%	100
Restricted Stock/Stock Units	82.3%	7.1%	6.4%	0.7%	3.5%	141
Performance Plan Awards	84.1%	8.3%	4.5%	0.6%	2.5%	157
Stock Appreciation Rights	68.8%	6.3%	6.3%	12.5%	6.3%	16
<b>\$3 Billion - \$6 Billion</b>						
Stock Options	82.7%	0.0%	1.3%	6.7%	9.3%	75
Restricted Stock/Stock Units	83.5%	3.5%	8.7%	0.0%	4.3%	115
Performance Plan Awards	83.6%	6.4%	5.0%	2.1%	2.9%	140
Stock Appreciation Rights	88.2%	5.9%	0.0%	0.0%	5.9%	17

Table continues on next page.

**LTI Plan Design****Changes in Most Recent Grants and Future Directions (continued)**

<b>CHANGES MADE TO PLAN DESIGN (continued)</b>						
	% of Responses					# of Responses
	Status Quo/ No Change	Added Plan	Increased Weight	Dropped Plan	Decreased Weight	
<b>REVENUE SIZE (continued)</b>						
<b>\$6 Billion - \$10 Billion</b>						
Stock Options	72.7%	6.8%	0.0%	11.4%	9.1%	44
Restricted Stock/Stock Units	82.1%	6.0%	10.4%	1.5%	0.0%	67
Performance Plan Awards	89.2%	6.0%	2.4%	0.0%	2.4%	83
Stock Appreciation Rights	57.1%	14.3%	0.0%	0.0%	28.6%	7
<b>\$10 Billion - \$20 Billion</b>						
Stock Options	83.8%	3.8%	0.0%	7.5%	5.0%	80
Restricted Stock/Stock Units	86.4%	4.5%	4.5%	0.9%	3.6%	110
Performance Plan Awards	84.2%	7.9%	4.4%	1.8%	1.8%	114
Stock Appreciation Rights	84.6%	0.0%	0.0%	0.0%	15.4%	13
<b>\$20 Billion or More</b>						
Stock Options	83.7%	2.2%	1.1%	6.5%	6.5%	92
Restricted Stock/Stock Units	86.5%	0.0%	4.5%	0.0%	9.0%	111
Performance Plan Awards	92.0%	3.1%	3.7%	0.6%	0.6%	162
Stock Appreciation Rights	80.0%	10.0%	0.0%	10.0%	0.0%	10

**CHANGES IN PARTICIPATION IN MOST RECENT GRANT**

	% of Responses			# of Responses
	About the Same - No Significant Policy Change	Increased Participation	Reduced Participation	
<b>Total Sample</b>	77.4%	16.0%	6.6%	832
<b>Industry Sector</b>				
Energy Services	72.4%	18.4%	9.2%	98
Financial Services	82.4%	12.4%	5.2%	153
High Tech	75.5%	17.0%	7.5%	147
Manufacturing	75.6%	18.3%	6.1%	360
Media/Entertainment	80.0%	8.0%	12.0%	25
Pharmaceutical/Biotechnology	62.0%	30.0%	8.0%	50
Retail/Wholesale Trade	88.2%	7.8%	3.9%	51
Services	76.0%	15.3%	8.7%	150
Health Care	80.0%	15.0%	5.0%	20
<b>Revenue Size</b>				
Under \$500 Million	78.4%	18.9%	2.7%	37
\$500 Million - \$1 Billion	77.8%	15.6%	6.7%	45
\$1 Billion - \$3 Billion	73.7%	20.5%	5.8%	190
\$3 Billion - \$6 Billion	73.9%	18.6%	7.5%	161
\$6 Billion - \$10 Billion	75.0%	19.3%	5.7%	88
\$10 Billion - \$20 Billion	81.2%	10.5%	8.3%	133
\$20 Billion or More	82.6%	10.7%	6.7%	178

**LTI Plan Design**

**Changes in Most Recent Grants and Future Directions (continued)**

	% of Responses											# of Responses
	Status Quo/ No Change	Adding LTI Plan Types	Eliminating LTI Plan Types	Modifying Perfor- mance Measures	Expanding Participa- tion	Reducing Participa- tion	Reviewing Interna- tional Grants	Introducing Stock Ownership Guidelines	Modifying Stock Ownership Guidelines	Other		
<b>Total Sample</b>	69.1%	5.6%	2.5%	13.5%	7.1%	5.0%	7.5%	1.2%	2.9%	4.0%	816	
<b>Industry Sector</b>												
Energy Services	73.9%	5.4%	2.2%	10.9%	7.6%	5.4%	4.3%	1.1%	1.1%	5.4%	92	
Financial Services	75.8%	3.9%	2.0%	8.5%	7.2%	4.6%	2.6%	1.3%	2.0%	3.9%	153	
High Tech	67.6%	6.3%	2.8%	14.1%	6.3%	5.6%	9.2%	1.4%	4.2%	2.8%	142	
Manufacturing	66.1%	6.3%	2.6%	13.7%	9.1%	4.8%	12.0%	0.6%	3.1%	3.7%	351	
Media/Entertainment	72.0%	4.0%	0.0%	8.0%	4.0%	8.0%	4.0%	0.0%	0.0%	4.0%	25	
Pharmaceutical/Biotechnology	58.0%	6.0%	0.0%	14.0%	16.0%	8.0%	10.0%	4.0%	6.0%	8.0%	50	
Retail/Wholesale Trade	66.7%	7.8%	2.0%	15.7%	5.9%	2.0%	3.9%	2.0%	2.0%	2.0%	51	
Services	66.7%	6.0%	3.3%	18.0%	3.3%	6.7%	6.0%	2.7%	5.3%	5.3%	150	
Health Care	73.7%	0.0%	0.0%	21.1%	0.0%	5.3%	0.0%	0.0%	0.0%	0.0%	19	
<b>Revenue Size</b>												
Under \$500 Million	78.9%	7.9%	0.0%	7.9%	10.5%	5.3%	2.6%	7.9%	2.6%	5.3%	38	
\$500 Million - \$1 Billion	59.1%	6.8%	0.0%	18.2%	4.5%	9.1%	13.6%	0.0%	6.8%	11.4%	44	
\$1 Billion - \$3 Billion	67.0%	8.5%	3.7%	13.3%	7.4%	4.3%	5.3%	0.5%	3.2%	3.2%	188	
\$3 Billion - \$6 Billion	65.8%	6.6%	2.0%	13.8%	7.9%	7.9%	11.2%	0.7%	2.6%	4.6%	152	
\$6 Billion - \$10 Billion	76.7%	4.7%	1.2%	14.0%	3.5%	1.2%	4.7%	2.3%	0.0%	2.3%	86	
\$10 Billion - \$20 Billion	68.7%	5.2%	3.0%	12.7%	6.0%	3.7%	9.7%	1.5%	6.0%	3.0%	134	
\$20 Billion or More	71.3%	1.7%	2.9%	13.8%	8.6%	5.2%	5.7%	0.6%	1.1%	4.0%	174	



## LTI Plan Design

### Stock Options

ORGANIZATIONS GRANTING DURING MOST RECENT ANNUAL LTI GRANT			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	406	45.0%	903
<b>Industry Sector</b>			
Energy Services	23	21.1%	109
Financial Services	56	35.4%	158
High Tech	91	55.5%	164
Manufacturing	207	53.5%	387
Media/Entertainment	12	48.0%	25
Pharmaceutical/Biotechnology	32	60.4%	53
Retail/Wholesale Trade	31	48.4%	64
Services	81	49.1%	165
Health Care	8	40.0%	20
<b>Revenue Size</b>			
Under \$500 Million	13	31.7%	41
\$500 Million - \$1 Billion	25	48.1%	52
\$1 Billion - \$3 Billion	97	46.9%	207
\$3 Billion - \$6 Billion	71	42.0%	169
\$6 Billion - \$10 Billion	40	42.1%	95
\$10 Billion - \$20 Billion	73	50.3%	145
\$20 Billion or More	87	44.8%	194

TYPE OF GRANT				
	% of Responses			# of Responses
	Incentive Stock Options (ISOs)	Nonqualified Stock Options (NQSOs)	Combination NQSOs and ISOs	
<b>Total Sample</b>	6.0%	85.4%	8.6%	384
<b>Industry Sector</b>				
Energy Services	4.5%	90.9%	4.5%	22
Financial Services	9.3%	75.9%	14.8%	54
High Tech	8.5%	85.4%	6.1%	82
Manufacturing	5.2%	86.1%	8.8%	194
Media/Entertainment	8.3%	91.7%	0.0%	12
Pharmaceutical/Biotechnology	3.3%	70.0%	26.7%	30
Retail/Wholesale Trade	3.3%	93.3%	3.3%	30
Services	7.9%	84.2%	7.9%	76
Health Care	0.0%	100.0%	0.0%	8
<b>Revenue Size</b>				
Under \$500 Million	18.2%	54.5%	27.3%	11
\$500 Million - \$1 Billion	8.7%	78.3%	13.0%	23
\$1 Billion - \$3 Billion	8.5%	87.2%	4.3%	94
\$3 Billion - \$6 Billion	4.3%	88.4%	7.2%	69
\$6 Billion - \$10 Billion	7.7%	79.5%	12.8%	39
\$10 Billion - \$20 Billion	5.7%	88.6%	5.7%	70
\$20 Billion or More	1.3%	87.2%	11.5%	78

**LTI Plan Design****Stock Options (continued)**

<b>CRITERIA USED TO DETERMINE ELIGIBILITY</b>						
	% of Responses					# of Responses
	Base/ Midpoint/ Grade	Discretionary Judgment	Position or Title	All Employees	Other	
<b>Total Sample</b>	49.0%	26.5%	59.0%	4.0%	13.3%	400
<b>Industry Sector</b>						
Energy Services	43.5%	13.0%	73.9%	4.3%	30.4%	23
Financial Services	60.7%	33.9%	55.4%	1.8%	8.9%	56
High Tech	44.0%	31.9%	62.6%	5.5%	12.1%	91
Manufacturing	54.4%	23.3%	52.4%	4.9%	13.1%	206
Media/Entertainment	25.0%	25.0%	66.7%	0.0%	0.0%	12
Pharmaceutical/Biotechnology	48.4%	32.3%	51.6%	19.4%	12.9%	31
Retail/Wholesale Trade	37.9%	20.7%	75.9%	0.0%	6.9%	29
Services	29.5%	34.6%	67.9%	5.1%	12.8%	78
Health Care	75.0%	37.5%	62.5%	0.0%	25.0%	8
<b>Revenue Size</b>						
Under \$500 Million	30.8%	46.2%	46.2%	15.4%	7.7%	13
\$500 Million - \$1 Billion	40.0%	32.0%	68.0%	4.0%	16.0%	25
\$1 Billion - \$3 Billion	29.9%	26.8%	76.3%	5.2%	15.5%	97
\$3 Billion - \$6 Billion	44.3%	27.1%	55.7%	1.4%	12.9%	70
\$6 Billion - \$10 Billion	51.3%	28.2%	61.5%	5.1%	10.3%	39
\$10 Billion - \$20 Billion	70.4%	16.9%	50.7%	1.4%	14.1%	71
\$20 Billion or More	61.2%	28.2%	47.1%	4.7%	11.8%	85

<b>LOWEST MIDPOINT ELIGIBLE</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$88.7	\$116.9	\$150.0	\$200.0	\$269.5	\$170.9	259
<b>Industry Sector</b>							
Energy Services	\$108.4	\$126.5	\$175.0	\$217.5	\$243.0	\$174.8	17
Financial Services	\$89.7	\$108.0	\$135.2	\$160.2	\$271.7	\$149.5	28
High Tech	\$76.8	\$111.0	\$152.7	\$197.0	\$245.6	\$155.5	54
Manufacturing	\$83.7	\$117.5	\$150.0	\$192.4	\$249.6	\$159.0	144
Media/Entertainment	---	\$128.4	\$254.8	\$451.3	---	\$287.9	8
Pharmaceutical/Biotechnology	\$26.1	\$99.7	\$127.9	\$210.4	\$256.0	\$143.5	18
Retail/Wholesale Trade	\$82.7	\$102.5	\$140.0	\$217.5	\$506.0	\$219.6	17
Services	\$79.4	\$112.4	\$151.9	\$247.0	\$384.5	\$193.2	48
Health Care	---	\$128.5	\$179.6	\$388.0	---	\$242.5	5
<b>Revenue Size</b>							
Under \$500 Million	---	\$53.7	\$84.3	\$116.9	---	\$80.1	8
\$500 Million - \$1 Billion	\$62.1	\$85.6	\$100.0	\$127.0	\$215.9	\$112.4	13
\$1 Billion - \$3 Billion	\$100.0	\$121.3	\$150.0	\$195.8	\$251.9	\$182.6	68
\$3 Billion - \$6 Billion	\$95.0	\$117.5	\$160.0	\$199.8	\$249.7	\$165.3	43
\$6 Billion - \$10 Billion	\$90.0	\$125.6	\$159.0	\$197.5	\$225.0	\$158.1	25
\$10 Billion - \$20 Billion	\$94.8	\$115.3	\$138.5	\$196.3	\$280.0	\$161.2	44
\$20 Billion or More	\$84.0	\$131.6	\$159.3	\$268.8	\$331.0	\$200.2	58

**LTI Plan Design****Stock Options (continued)**

MIDPOINT OF 100% PARTICIPATION LEVEL							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$125.1	\$148.0	\$192.2	\$250.0	\$318.3	\$212.6	201
<b>Industry Sector</b>							
Energy Services	\$117.0	\$137.3	\$208.6	\$298.8	\$370.9	\$219.0	12
Financial Services	\$108.2	\$161.2	\$205.5	\$250.7	\$292.2	\$203.0	22
High Tech	\$126.6	\$150.0	\$198.3	\$234.0	\$260.3	\$195.6	41
Manufacturing	\$125.9	\$147.1	\$180.0	\$230.0	\$281.4	\$195.5	119
Media/Entertainment	---	---	---	---	---	---	3
Pharmaceutical/Biotechnology	\$89.2	\$150.8	\$162.5	\$208.3	\$289.7	\$175.3	16
Retail/Wholesale Trade	\$90.5	\$132.5	\$200.8	\$405.0	\$834.9	\$297.5	14
Services	\$118.1	\$150.0	\$225.0	\$280.0	\$376.4	\$243.7	31
Health Care	---	---	---	---	---	---	3
<b>Revenue Size</b>							
Under \$500 Million	---	---	---	---	---	---	3
\$500 Million - \$1 Billion	\$96.8	\$102.8	\$133.5	\$240.0	\$273.1	\$166.8	12
\$1 Billion - \$3 Billion	\$125.9	\$148.0	\$185.3	\$258.7	\$361.2	\$230.7	53
\$3 Billion - \$6 Billion	\$133.9	\$159.6	\$200.0	\$244.2	\$310.0	\$210.8	37
\$6 Billion - \$10 Billion	\$130.7	\$148.2	\$175.0	\$225.9	\$290.9	\$187.9	21
\$10 Billion - \$20 Billion	\$112.1	\$137.0	\$195.5	\$233.8	\$298.0	\$210.9	33
\$20 Billion or More	\$122.6	\$150.0	\$196.0	\$274.5	\$344.8	\$218.7	42

NUMBER OF EMPLOYEES ELIGIBLE FOR GRANTS						
	25th	Median	75th	Average	# of Responses	
<b>Total Sample</b>	52	168	656	1,965	337	
<b>Industry Sector</b>						
Energy Services	26	60	146	322	19	
Financial Services	61	155	625	2,917	46	
High Tech	63	189	1,600	3,153	79	
Manufacturing	55	189	796	1,888	177	
Media/Entertainment	11	125	200	217	11	
Pharmaceutical/Biotechnology	105	300	1,400	1,632	27	
Retail/Wholesale Trade	74	185	900	1,640	23	
Services	37	200	603	1,871	65	
Health Care	50	100	12,300	4,042	7	
<b>Revenue Size</b>						
Under \$500 Million	14	90	364	157	11	
\$500 Million - \$1 Billion	75	192	325	230	19	
\$1 Billion - \$3 Billion	30	98	233	351	86	
\$3 Billion - \$6 Billion	42	134	460	928	59	
\$6 Billion - \$10 Billion	89	195	451	2,082	38	
\$10 Billion - \$20 Billion	74	299	1,075	1,346	56	
\$20 Billion or More	74	712	4,266	6,126	68	

**LTI Plan Design****Stock Options (continued)**

<b>NUMBER OF EMPLOYEES RECEIVING GRANTS</b>					
	25th	Median	75th	Average	# of Responses
<b>Total Sample</b>	46	137	460	829	337
<b>Industry Sector</b>					
Energy Services	26	60	146	272	19
Financial Services	51	111	477	657	46
High Tech	48	150	575	1,163	79
Manufacturing	50	150	515	891	177
Media/Entertainment	11	125	200	154	11
Pharmaceutical/Biotechnology	100	250	1,350	1,462	27
Retail/Wholesale Trade	31	167	900	1,475	23
Services	29	160	432	511	65
Health Care	46	100	3,120	2,721	7
<b>Revenue Size</b>					
Under \$500 Million	14	50	114	109	11
\$500 Million - \$1 Billion	50	88	226	166	19
\$1 Billion - \$3 Billion	27	85	200	172	86
\$3 Billion - \$6 Billion	34	107	240	303	59
\$6 Billion - \$10 Billion	59	189	415	1,197	38
\$10 Billion - \$20 Billion	69	200	990	699	56
\$20 Billion or More	74	581	3,015	2,319	68

<b>PERCENT OF EMPLOYEES ELIGIBLE FOR GRANTS</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	0.7%	1.2%	2.4%	7.4%	24.6%	9.3%	242
<b>Industry Sector</b>							
Energy Services	0.5%	0.7%	1.3%	3.0%	37.0%	7.3%	15
Financial Services	1.0%	1.8%	4.8%	13.3%	23.3%	9.9%	35
High Tech	0.7%	1.4%	2.9%	9.8%	39.2%	11.2%	55
Manufacturing	0.8%	1.3%	2.1%	6.7%	42.5%	11.3%	129
Media/Entertainment	---	0.9%	4.1%	5.7%	---	5.4%	7
Pharmaceutical/Biotechnology	0.8%	1.5%	5.7%	55.4%	95.9%	26.9%	21
Retail/Wholesale Trade	0.5%	0.9%	1.4%	5.2%	7.9%	2.9%	16
Services	0.6%	0.9%	2.7%	7.4%	19.3%	6.1%	43
Health Care	---	---	---	---	---	---	4
<b>Revenue Size</b>							
Under \$500 Million	---	2.3%	5.0%	19.6%	---	17.9%	9
\$500 Million - \$1 Billion	1.5%	5.7%	11.6%	18.8%	34.0%	13.8%	16
\$1 Billion - \$3 Billion	0.7%	0.9%	1.8%	6.7%	17.6%	7.7%	65
\$3 Billion - \$6 Billion	0.8%	1.3%	2.8%	6.5%	38.8%	9.0%	39
\$6 Billion - \$10 Billion	0.7%	1.0%	1.6%	4.8%	74.9%	13.3%	31
\$10 Billion - \$20 Billion	0.6%	1.0%	1.7%	5.0%	12.8%	5.0%	39
\$20 Billion or More	0.5%	1.4%	2.4%	8.7%	23.7%	9.4%	43

**LTI Plan Design****Stock Options (continued)****PERCENT OF EMPLOYEES RECEIVING GRANTS**

	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	0.7%	1.0%	2.1%	5.2%	12.1%	6.9%	234
<b>Industry Sector</b>							
Energy Services	0.5%	0.7%	1.3%	3.0%	29.4%	6.0%	15
Financial Services	0.9%	1.7%	2.8%	7.2%	13.7%	5.0%	33
High Tech	0.7%	0.9%	1.7%	5.5%	10.3%	5.5%	56
Manufacturing	0.7%	1.1%	2.0%	5.3%	25.3%	9.1%	128
Media/Entertainment	---	0.8%	4.1%	5.7%	---	3.6%	7
Pharmaceutical/Biotechnology	0.7%	1.5%	5.3%	57.5%	86.9%	28.5%	23
Retail/Wholesale Trade	0.7%	0.9%	2.4%	5.7%	7.2%	3.1%	13
Services	0.5%	0.8%	1.9%	4.4%	7.6%	3.3%	41
Health Care	---	---	---	---	---	---	4
<b>Revenue Size</b>							
Under \$500 Million	1.0%	2.3%	7.2%	65.1%	92.1%	26.9%	10
\$500 Million - \$1 Billion	1.2%	2.6%	9.8%	12.8%	29.9%	11.0%	15
\$1 Billion - \$3 Billion	0.6%	0.9%	1.8%	4.5%	9.6%	6.2%	63
\$3 Billion - \$6 Billion	0.6%	1.0%	2.1%	4.8%	21.4%	6.0%	39
\$6 Billion - \$10 Billion	0.7%	0.8%	1.8%	4.5%	40.6%	9.4%	28
\$10 Billion - \$20 Billion	0.6%	0.9%	1.7%	3.9%	6.3%	2.8%	38
\$20 Billion or More	0.5%	1.4%	2.3%	4.5%	8.8%	4.6%	41

**GRANT FREQUENCY**

	% of Responses			# of Responses
	Annual	Biennial	3 Years or More	
<b>Total Sample</b>	98.5%	0.5%	1.0%	409
<b>Industry Sector</b>				
Energy Services	100.0%	0.0%	0.0%	23
Financial Services	100.0%	0.0%	0.0%	56
High Tech	97.8%	0.0%	2.2%	92
Manufacturing	99.0%	0.0%	1.0%	210
Media/Entertainment	100.0%	0.0%	0.0%	12
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	32
Retail/Wholesale Trade	96.8%	0.0%	3.2%	31
Services	96.3%	2.5%	1.2%	81
Health Care	100.0%	0.0%	0.0%	8
<b>Revenue Size</b>				
Under \$500 Million	100.0%	0.0%	0.0%	13
\$500 Million - \$1 Billion	100.0%	0.0%	0.0%	25
\$1 Billion - \$3 Billion	96.9%	0.0%	3.1%	98
\$3 Billion - \$6 Billion	98.6%	1.4%	0.0%	73
\$6 Billion - \$10 Billion	100.0%	0.0%	0.0%	40
\$10 Billion - \$20 Billion	100.0%	0.0%	0.0%	73
\$20 Billion or More	97.7%	1.1%	1.1%	87

**LTI Plan Design****Stock Options (continued)**

<b>EXERCISE TERM</b>					
	% of Responses				# of Responses
	10 Years	8 Years	7 Years	Less Than 7 Years	
<b>Total Sample</b>	77.3%	2.0%	16.4%	4.4%	409
<b>Industry Sector</b>					
Energy Services	56.5%	0.0%	30.4%	13.0%	23
Financial Services	82.1%	3.6%	12.5%	1.8%	56
High Tech	78.3%	1.1%	16.3%	4.3%	92
Manufacturing	81.9%	1.4%	12.9%	3.8%	210
Media/Entertainment	66.7%	16.7%	16.7%	0.0%	12
Pharmaceutical/Biotechnology	84.4%	6.3%	6.3%	3.1%	32
Retail/Wholesale Trade	64.5%	0.0%	29.0%	6.5%	31
Services	75.3%	3.7%	16.0%	4.9%	81
Health Care	50.0%	0.0%	50.0%	0.0%	8
<b>Revenue Size</b>					
Under \$500 Million	92.3%	0.0%	7.7%	0.0%	13
\$500 Million - \$1 Billion	68.0%	4.0%	24.0%	4.0%	25
\$1 Billion - \$3 Billion	75.5%	3.1%	16.3%	5.1%	98
\$3 Billion - \$6 Billion	63.0%	2.7%	27.4%	6.8%	73
\$6 Billion - \$10 Billion	80.0%	0.0%	17.5%	2.5%	40
\$10 Billion - \$20 Billion	82.2%	2.7%	12.3%	2.7%	73
\$20 Billion or More	86.2%	0.0%	9.2%	4.6%	87

**LTI Plan Design**

**Stock Options (continued)**

<b>DETERMINATION OF EXERCISE PRICE</b>					
	% of Responses				# of Responses
	Fair Market Value on Date of Grant	Premium to Fair Market Value on Grant Date	Discounted to Fair Market Value on Grant Date	Exercise Price Indexed to External Metric	
<b>Total Sample</b>	99.7%	0.3%	0.0%	0.0%	398
<b>Industry Sector</b>					
Energy Services	95.7%	4.3%	0.0%	0.0%	23
Financial Services	100.0%	0.0%	0.0%	0.0%	54
High Tech	100.0%	0.0%	0.0%	0.0%	88
Manufacturing	100.0%	0.0%	0.0%	0.0%	205
Media/Entertainment	100.0%	0.0%	0.0%	0.0%	12
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	0.0%	31
Retail/Wholesale Trade	100.0%	0.0%	0.0%	0.0%	29
Services	100.0%	0.0%	0.0%	0.0%	79
Health Care	100.0%	0.0%	0.0%	0.0%	8
<b>Revenue Size</b>					
Under \$500 Million	100.0%	0.0%	0.0%	0.0%	10
\$500 Million - \$1 Billion	100.0%	0.0%	0.0%	0.0%	24
\$1 Billion - \$3 Billion	100.0%	0.0%	0.0%	0.0%	96
\$3 Billion - \$6 Billion	100.0%	0.0%	0.0%	0.0%	71
\$6 Billion - \$10 Billion	97.4%	2.6%	0.0%	0.0%	39
\$10 Billion - \$20 Billion	100.0%	0.0%	0.0%	0.0%	72
\$20 Billion or More	100.0%	0.0%	0.0%	0.0%	86

**LTI Plan Design****Stock Options (continued)**

	% of Responses			# of Responses
	Cliff Vesting	Graded Vesting	Immediate Vesting	
<b>Total Sample</b>	10.5%	89.5%	0.0%	409
<b>Industry Sector</b>				
Energy Services	8.7%	91.3%	0.0%	23
Financial Services	10.7%	89.3%	0.0%	56
High Tech	10.9%	89.1%	0.0%	92
Manufacturing	11.9%	88.1%	0.0%	210
Media/Entertainment	25.0%	75.0%	0.0%	12
Pharmaceutical/Biotechnology	15.6%	84.4%	0.0%	32
Retail/Wholesale Trade	3.2%	96.8%	0.0%	31
Services	11.1%	88.9%	0.0%	81
Health Care	0.0%	100.0%	0.0%	8
<b>Revenue Size</b>				
Under \$500 Million	15.4%	84.6%	0.0%	13
\$500 Million - \$1 Billion	12.0%	88.0%	0.0%	25
\$1 Billion - \$3 Billion	8.2%	91.8%	0.0%	98
\$3 Billion - \$6 Billion	2.7%	97.3%	0.0%	73
\$6 Billion - \$10 Billion	12.5%	87.5%	0.0%	40
\$10 Billion - \$20 Billion	9.6%	90.4%	0.0%	73
\$20 Billion or More	18.4%	81.6%	0.0%	87

	% of Responses					# of Responses
	20% Per Year	25% Per Year	33% Per Year	50% Per Year	Other	
<b>Total Sample</b>	9.0%	34.7%	50.0%	4.4%	1.9%	366
<b>Industry Sector</b>						
Energy Services	4.8%	9.5%	85.7%	0.0%	0.0%	21
Financial Services	10.0%	34.0%	48.0%	8.0%	0.0%	50
High Tech	9.8%	34.1%	46.3%	7.3%	2.4%	82
Manufacturing	6.5%	31.9%	55.1%	4.9%	1.6%	185
Media/Entertainment	0.0%	66.7%	22.2%	11.1%	0.0%	9
Pharmaceutical/Biotechnology	11.1%	59.3%	25.9%	3.7%	0.0%	27
Retail/Wholesale Trade	20.0%	46.7%	30.0%	0.0%	3.3%	30
Services	12.5%	43.1%	36.1%	4.2%	4.2%	72
Health Care	0.0%	50.0%	50.0%	0.0%	0.0%	8
<b>Revenue Size</b>						
Under \$500 Million	27.3%	54.5%	0.0%	9.1%	9.1%	11
\$500 Million - \$1 Billion	27.3%	18.2%	40.9%	13.6%	0.0%	22
\$1 Billion - \$3 Billion	10.0%	36.7%	51.1%	2.2%	0.0%	90
\$3 Billion - \$6 Billion	2.8%	33.8%	56.3%	5.6%	1.4%	71
\$6 Billion - \$10 Billion	5.7%	45.7%	42.9%	2.9%	2.9%	35
\$10 Billion - \$20 Billion	3.0%	40.9%	48.5%	4.5%	3.0%	66
\$20 Billion or More	12.7%	23.9%	57.7%	2.8%	2.8%	71



**LTI Plan Design****Stock Options (continued)**

<b>TOTAL TIME UNTIL 100% VESTED</b>						
	% of Organizations					# of Responses
	1 Year or Less	2 Years	3 Years	4 Years	5 Years or More	
<b>Total Sample</b>	0.0%	1.0%	53.8%	33.7%	11.5%	409
<b>Industry Sector</b>						
Energy Services	0.0%	0.0%	87.0%	8.7%	4.3%	23
Financial Services	0.0%	0.0%	50.0%	35.7%	14.3%	56
High Tech	0.0%	2.2%	50.0%	34.8%	13.0%	92
Manufacturing	0.0%	1.9%	58.1%	31.4%	8.6%	210
Media/Entertainment	0.0%	0.0%	41.7%	50.0%	8.3%	12
Pharmaceutical/Biotechnology	0.0%	3.1%	34.4%	53.1%	9.4%	32
Retail/Wholesale Trade	0.0%	0.0%	32.3%	48.4%	19.4%	31
Services	0.0%	0.0%	44.4%	38.3%	17.3%	81
Health Care	0.0%	0.0%	50.0%	50.0%	0.0%	8
<b>Revenue Size</b>						
Under \$500 Million	0.0%	7.7%	7.7%	53.8%	30.8%	13
\$500 Million - \$1 Billion	0.0%	4.0%	48.0%	20.0%	28.0%	25
\$1 Billion - \$3 Billion	0.0%	1.0%	52.0%	33.7%	13.3%	98
\$3 Billion - \$6 Billion	0.0%	0.0%	60.3%	34.2%	5.5%	73
\$6 Billion - \$10 Billion	0.0%	0.0%	50.0%	42.5%	7.5%	40
\$10 Billion - \$20 Billion	0.0%	0.0%	50.7%	43.8%	5.5%	73
\$20 Billion or More	0.0%	1.1%	63.2%	21.8%	13.8%	87

**LTI Plan Design****Stock Options (continued)**

<b>PERFORMANCE FEATURES</b>				
	% of Responses			# of Responses
	No Performance Features Included	Stock Options Will Only Vest if Certain Performance Conditions are Met	Stock Option Vesting is Accelerated if Specified Performance Conditions are Met	
<b>Total Sample</b>	93.5%	6.5%	0.0%	402
<b>Industry Sector</b>				
Energy Services	100.0%	0.0%	0.0%	23
Financial Services	90.6%	9.4%	0.0%	53
High Tech	96.7%	3.3%	0.0%	90
Manufacturing	94.7%	5.3%	0.0%	207
Media/Entertainment	91.7%	8.3%	0.0%	12
Pharmaceutical/Biotechnology	93.8%	6.3%	0.0%	32
Retail/Wholesale Trade	93.5%	6.5%	0.0%	31
Services	90.0%	10.0%	0.0%	80
Health Care	100.0%	0.0%	0.0%	8
<b>Revenue Size</b>				
Under \$500 Million	100.0%	0.0%	0.0%	12
\$500 Million - \$1 Billion	96.0%	4.0%	0.0%	25
\$1 Billion - \$3 Billion	93.8%	6.3%	0.0%	96
\$3 Billion - \$6 Billion	95.8%	4.2%	0.0%	71
\$6 Billion - \$10 Billion	87.5%	12.5%	0.0%	40
\$10 Billion - \$20 Billion	95.9%	4.1%	0.0%	73
\$20 Billion or More	90.6%	9.4%	0.0%	85

**LTI Plan Design**

**Stock Options (continued)**

**VESTED STOCK OPTIONS - POST-TERMINATION EXERCISE PERIODS**

	% of Responses						# of Responses
	0 Months	1 - 3 Months	4 - 23 Months	2 - 3 Years	4 - 5 Years	Full Remaining Term	
<b>TOTAL SAMPLE</b>							
Normal Retirement	1.6%	15.2%	12.9%	19.4%	18.6%	32.3%	381
Early Retirement	3.4%	31.5%	11.5%	15.2%	14.6%	23.9%	356
Death	1.8%	6.6%	43.7%	19.7%	8.9%	19.2%	380
Disability	1.8%	7.7%	36.9%	19.0%	10.0%	24.5%	379
Resignation	23.1%	66.1%	9.1%	1.3%	0.0%	0.3%	372
Termination for Cause	68.8%	26.4%	4.3%	0.3%	0.0%	0.3%	368
Involuntary Termination	7.6%	61.4%	20.5%	5.4%	1.1%	4.1%	370
<b>INDUSTRY SECTOR</b>							
<b>Energy Services</b>							
Normal Retirement	0.0%	14.3%	19.0%	14.3%	14.3%	38.1%	21
Early Retirement	0.0%	19.0%	23.8%	14.3%	14.3%	28.6%	21
Death	0.0%	4.8%	47.6%	14.3%	4.8%	28.6%	21
Disability	0.0%	4.8%	28.6%	19.0%	4.8%	42.9%	21
Resignation	5.0%	65.0%	30.0%	0.0%	0.0%	0.0%	20
Termination for Cause	60.0%	30.0%	10.0%	0.0%	0.0%	0.0%	20
Involuntary Termination	0.0%	42.9%	47.6%	4.8%	0.0%	4.8%	21
<b>Financial Services</b>							
Normal Retirement	0.0%	16.7%	9.3%	13.0%	22.2%	38.9%	54
Early Retirement	4.0%	22.0%	10.0%	14.0%	20.0%	30.0%	50
Death	1.9%	7.5%	49.1%	15.1%	11.3%	15.1%	53
Disability	0.0%	9.3%	37.0%	14.8%	13.0%	25.9%	54
Resignation	38.9%	51.9%	9.3%	0.0%	0.0%	0.0%	54
Termination for Cause	79.2%	18.9%	1.9%	0.0%	0.0%	0.0%	53
Involuntary Termination	7.7%	65.4%	15.4%	5.8%	1.9%	3.8%	52
<b>High Tech</b>							
Normal Retirement	3.5%	19.8%	10.5%	18.6%	24.4%	23.3%	86
Early Retirement	2.5%	34.6%	7.4%	14.8%	17.3%	23.5%	81
Death	2.3%	5.8%	41.9%	24.4%	4.7%	20.9%	86
Disability	2.4%	7.1%	36.9%	23.8%	9.5%	20.2%	84
Resignation	16.0%	76.5%	4.9%	1.2%	0.0%	1.2%	81
Termination for Cause	62.5%	32.5%	3.8%	0.0%	0.0%	1.3%	80
Involuntary Termination	6.3%	74.7%	12.7%	3.8%	0.0%	2.5%	79

Table continues on next page.

**LTI Plan Design****Stock Options (continued)**

	% of Responses						# of Responses
	0 Months	1 - 3 Months	4 - 23 Months	2 - 3 Years	4 - 5 Years	Full Remaining Term	
<b>VESTED STOCK OPTIONS - POST-TERMINATION EXERCISE PERIODS (continued)</b>							
<b>INDUSTRY SECTOR (continued)</b>							
<b>Manufacturing</b>							
Normal Retirement	2.0%	11.7%	10.7%	19.9%	23.5%	32.1%	196
Early Retirement	3.3%	31.1%	6.7%	16.7%	17.2%	25.0%	180
Death	1.5%	6.7%	39.2%	22.7%	10.3%	19.6%	194
Disability	1.6%	7.3%	33.9%	21.4%	11.5%	24.5%	192
Resignation	20.9%	70.1%	8.0%	1.1%	0.0%	0.0%	187
Termination for Cause	65.1%	31.2%	3.8%	0.0%	0.0%	0.0%	186
Involuntary Termination	7.4%	61.4%	20.6%	5.3%	1.1%	4.2%	189
<b>Media/Entertainment</b>							
Normal Retirement	0.0%	16.7%	8.3%	41.7%	8.3%	25.0%	12
Early Retirement	0.0%	25.0%	8.3%	33.3%	8.3%	25.0%	12
Death	0.0%	8.3%	33.3%	33.3%	0.0%	25.0%	12
Disability	0.0%	8.3%	33.3%	33.3%	0.0%	25.0%	12
Resignation	33.3%	50.0%	8.3%	8.3%	0.0%	0.0%	12
Termination for Cause	72.7%	27.3%	0.0%	0.0%	0.0%	0.0%	11
Involuntary Termination	8.3%	41.7%	25.0%	16.7%	0.0%	8.3%	12
<b>Pharmaceutical/Biotechnology</b>							
Normal Retirement	0.0%	16.7%	13.3%	16.7%	10.0%	43.3%	30
Early Retirement	3.6%	39.3%	7.1%	14.3%	10.7%	25.0%	28
Death	0.0%	13.8%	51.7%	6.9%	3.4%	24.1%	29
Disability	0.0%	10.3%	34.5%	13.8%	6.9%	34.5%	29
Resignation	10.3%	86.2%	3.4%	0.0%	0.0%	0.0%	29
Termination for Cause	58.6%	37.9%	3.4%	0.0%	0.0%	0.0%	29
Involuntary Termination	0.0%	69.0%	20.7%	3.4%	0.0%	6.9%	29
<b>Retail/Wholesale Trade</b>							
Normal Retirement	0.0%	14.3%	25.0%	17.9%	10.7%	32.1%	28
Early Retirement	7.7%	38.5%	15.4%	7.7%	7.7%	23.1%	26
Death	3.6%	7.1%	42.9%	21.4%	7.1%	17.9%	28
Disability	7.1%	3.6%	46.4%	17.9%	7.1%	17.9%	28
Resignation	21.4%	67.9%	7.1%	3.6%	0.0%	0.0%	28
Termination for Cause	70.4%	22.2%	3.7%	3.7%	0.0%	0.0%	27
Involuntary Termination	7.1%	64.3%	17.9%	7.1%	0.0%	3.6%	28

Table continues on next page.

**LTI Plan Design****Stock Options (continued)**

	% of Responses						# of Responses
	0 Months	1 - 3 Months	4 - 23 Months	2 - 3 Years	4 - 5 Years	Full Remaining Term	
<b>VESTED STOCK OPTIONS - POST-TERMINATION EXERCISE PERIODS (continued)</b>							
<b>INDUSTRY SECTOR (continued)</b>							
<b>Services</b>							
Normal Retirement	2.7%	25.7%	13.5%	24.3%	8.1%	25.7%	74
Early Retirement	2.8%	38.0%	18.3%	15.5%	8.5%	16.9%	71
Death	2.6%	6.6%	50.0%	17.1%	5.3%	18.4%	76
Disability	2.6%	10.5%	42.1%	17.1%	6.6%	21.1%	76
Resignation	23.7%	65.8%	6.6%	2.6%	0.0%	1.3%	76
Termination for Cause	70.7%	22.7%	5.3%	0.0%	0.0%	1.3%	75
Involuntary Termination	11.1%	62.5%	16.7%	5.6%	1.4%	2.8%	72
<b>Health Care</b>							
Normal Retirement	0.0%	0.0%	25.0%	25.0%	12.5%	37.5%	8
Early Retirement	0.0%	50.0%	25.0%	12.5%	0.0%	12.5%	8
Death	0.0%	0.0%	50.0%	12.5%	12.5%	25.0%	8
Disability	0.0%	0.0%	50.0%	12.5%	12.5%	25.0%	8
Resignation	14.3%	71.4%	14.3%	0.0%	0.0%	0.0%	7
Termination for Cause	85.7%	0.0%	14.3%	0.0%	0.0%	0.0%	7
Involuntary Termination	0.0%	62.5%	25.0%	0.0%	0.0%	12.5%	8
<b>REVENUE SIZE</b>							
<b>Under \$500 Million</b>							
Normal Retirement	0.0%	54.5%	18.2%	9.1%	0.0%	18.2%	11
Early Retirement	0.0%	54.5%	27.3%	9.1%	0.0%	9.1%	11
Death	10.0%	30.0%	50.0%	0.0%	0.0%	10.0%	10
Disability	0.0%	30.0%	50.0%	0.0%	0.0%	20.0%	10
Resignation	10.0%	70.0%	20.0%	0.0%	0.0%	0.0%	10
Termination for Cause	10.0%	80.0%	10.0%	0.0%	0.0%	0.0%	10
Involuntary Termination	0.0%	70.0%	20.0%	0.0%	0.0%	10.0%	10
<b>\$500 Million - \$1 Billion</b>							
Normal Retirement	4.5%	31.8%	22.7%	18.2%	0.0%	22.7%	22
Early Retirement	4.8%	57.1%	9.5%	19.0%	0.0%	9.5%	21
Death	4.5%	18.2%	63.6%	0.0%	0.0%	13.6%	22
Disability	4.5%	18.2%	54.5%	4.5%	0.0%	18.2%	22
Resignation	31.8%	68.2%	0.0%	0.0%	0.0%	0.0%	22
Termination for Cause	71.4%	28.6%	0.0%	0.0%	0.0%	0.0%	21
Involuntary Termination	14.3%	66.7%	14.3%	0.0%	0.0%	4.8%	21

Table continues on next page.

**LTI Plan Design****Stock Options (continued)**

	% of Responses						# of Responses
	0 Months	1 - 3 Months	4 - 23 Months	2 - 3 Years	4 - 5 Years	Full Remaining Term	
<b>REVENUE SIZE (continued)</b>							
<b>\$1 Billion - \$3 Billion</b>							
Normal Retirement	3.3%	17.8%	14.4%	20.0%	18.9%	25.6%	90
Early Retirement	4.7%	38.8%	10.6%	12.9%	16.5%	16.5%	85
Death	3.3%	8.8%	45.1%	20.9%	7.7%	14.3%	91
Disability	3.3%	9.9%	40.7%	19.8%	9.9%	16.5%	91
Resignation	25.3%	69.2%	3.3%	1.1%	0.0%	1.1%	91
Termination for Cause	69.0%	27.6%	2.3%	0.0%	0.0%	1.1%	87
Involuntary Termination	9.0%	70.8%	14.6%	4.5%	0.0%	1.1%	89
<b>\$3 Billion - \$6 Billion</b>							
Normal Retirement	0.0%	20.6%	13.2%	22.1%	14.7%	29.4%	68
Early Retirement	3.3%	39.3%	11.5%	18.0%	8.2%	19.7%	61
Death	0.0%	5.9%	47.1%	23.5%	7.4%	16.2%	68
Disability	0.0%	9.0%	43.3%	14.9%	9.0%	23.9%	67
Resignation	6.1%	77.3%	13.6%	3.0%	0.0%	0.0%	66
Termination for Cause	63.1%	30.8%	6.2%	0.0%	0.0%	0.0%	65
Involuntary Termination	1.5%	67.7%	20.0%	7.7%	0.0%	3.1%	65
<b>\$6 Billion - \$10 Billion</b>							
Normal Retirement	0.0%	10.3%	7.7%	20.5%	20.5%	41.0%	39
Early Retirement	2.8%	30.6%	8.3%	13.9%	16.7%	27.8%	36
Death	0.0%	2.6%	41.0%	23.1%	15.4%	17.9%	39
Disability	0.0%	7.9%	23.7%	31.6%	15.8%	21.1%	38
Resignation	28.9%	57.9%	10.5%	2.6%	0.0%	0.0%	38
Termination for Cause	60.5%	34.2%	5.3%	0.0%	0.0%	0.0%	38
Involuntary Termination	2.6%	55.3%	28.9%	5.3%	5.3%	2.6%	38
<b>\$10 Billion - \$20 Billion</b>							
Normal Retirement	2.8%	8.3%	13.9%	23.6%	23.6%	27.8%	72
Early Retirement	4.5%	25.4%	11.9%	19.4%	14.9%	23.9%	67
Death	2.8%	2.8%	42.3%	23.9%	8.5%	19.7%	71
Disability	2.8%	1.4%	40.3%	23.6%	8.3%	23.6%	72
Resignation	20.9%	68.7%	10.4%	0.0%	0.0%	0.0%	67
Termination for Cause	77.9%	14.7%	5.9%	1.5%	0.0%	0.0%	68
Involuntary Termination	8.6%	58.6%	18.6%	8.6%	0.0%	5.7%	70

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## LTI Plan Design

### Stock Options (continued)

	% of Responses						# of Responses
	0 Months	1 - 3 Months	4 - 23 Months	2 - 3 Years	4 - 5 Years	Full Remaining Term	
<b>REVENUE SIZE (continued)</b>							
<b>\$20 Billion or More</b>							
Normal Retirement	0.0%	6.3%	8.9%	13.9%	24.1%	46.8%	79
Early Retirement	1.3%	12.0%	12.0%	12.0%	22.7%	40.0%	75
Death	0.0%	3.8%	35.4%	17.7%	12.7%	30.4%	79
Disability	1.3%	3.8%	24.1%	17.7%	13.9%	39.2%	79
Resignation	33.3%	53.8%	11.5%	1.3%	0.0%	0.0%	78
Termination for Cause	75.9%	20.3%	3.8%	0.0%	0.0%	0.0%	79
Involuntary Termination	11.7%	48.1%	27.3%	3.9%	2.6%	6.5%	77

	% of Responses					# of Responses
	Vesting Accelerated	Normal Vested Continued During Term	Prorated Vesting	Forfeited	Discretion	
<b>UNVESTED STOCK OPTIONS - TREATMENT UPON TERMINATION</b>						
<b>TOTAL SAMPLE</b>						
Normal Retirement	33.7%	32.4%	11.2%	21.2%	1.5%	392
Early Retirement	19.6%	24.2%	10.3%	43.5%	2.4%	368
Death	64.7%	11.0%	6.9%	15.9%	1.5%	391
Disability	53.8%	19.2%	7.2%	17.7%	2.1%	390
Resignation	2.1%	0.8%	2.3%	93.8%	1.0%	386
Termination for Cause	0.5%	0.0%	0.8%	98.2%	0.5%	388
Involuntary Termination	9.8%	6.1%	12.4%	66.8%	5.0%	379
<b>INDUSTRY SECTOR</b>						
<b>Energy Services</b>						
Normal Retirement	33.3%	23.8%	14.3%	23.8%	4.8%	21
Early Retirement	33.3%	9.5%	9.5%	38.1%	9.5%	21
Death	61.9%	14.3%	9.5%	14.3%	0.0%	21
Disability	57.1%	23.8%	14.3%	4.8%	0.0%	21
Resignation	9.5%	0.0%	4.8%	85.7%	0.0%	21
Termination for Cause	0.0%	0.0%	0.0%	100.0%	0.0%	21
Involuntary Termination	19.0%	4.8%	9.5%	66.7%	0.0%	21

Table continues on next page.

**LTI Plan Design****Stock Options (continued)**

INDUSTRY SECTOR (continued)	% of Responses					# of Responses
	Vesting Accelerated	Normal Vested Continued During Term	Prorated Vesting	Forfeited	Discretion	
<b>Financial Services</b>						
Normal Retirement	35.7%	39.3%	10.7%	14.3%	0.0%	56
Early Retirement	15.4%	32.7%	7.7%	44.2%	0.0%	52
Death	80.4%	8.9%	3.6%	3.6%	3.6%	56
Disability	67.9%	23.2%	1.8%	3.6%	3.6%	56
Resignation	3.6%	0.0%	0.0%	96.4%	0.0%	55
Termination for Cause	0.0%	0.0%	0.0%	100.0%	0.0%	56
Involuntary Termination	7.5%	5.7%	7.5%	73.6%	5.7%	53
<b>High Tech</b>						
Normal Retirement	38.4%	23.3%	10.5%	26.7%	1.2%	86
Early Retirement	25.6%	19.5%	13.4%	41.5%	0.0%	82
Death	60.9%	9.2%	9.2%	19.5%	1.1%	87
Disability	50.0%	17.4%	9.3%	22.1%	1.2%	86
Resignation	2.4%	1.2%	4.8%	91.6%	0.0%	83
Termination for Cause	1.2%	0.0%	1.2%	97.6%	0.0%	85
Involuntary Termination	11.3%	2.5%	11.3%	71.3%	3.8%	80
<b>Manufacturing</b>						
Normal Retirement	33.2%	34.7%	11.9%	19.8%	0.5%	202
Early Retirement	19.7%	27.1%	12.2%	38.8%	2.1%	188
Death	64.7%	12.4%	7.5%	14.9%	0.5%	201
Disability	51.5%	21.0%	8.0%	19.0%	0.5%	200
Resignation	1.0%	1.0%	3.0%	94.4%	0.5%	197
Termination for Cause	0.5%	0.0%	1.0%	98.5%	0.0%	200
Involuntary Termination	7.2%	6.2%	14.9%	66.0%	5.7%	194
<b>Media/Entertainment</b>						
Normal Retirement	33.3%	25.0%	25.0%	16.7%	0.0%	12
Early Retirement	25.0%	25.0%	25.0%	25.0%	0.0%	12
Death	50.0%	8.3%	16.7%	25.0%	0.0%	12
Disability	41.7%	16.7%	16.7%	16.7%	8.3%	12
Resignation	0.0%	0.0%	8.3%	83.3%	8.3%	12
Termination for Cause	0.0%	0.0%	0.0%	100.0%	0.0%	11
Involuntary Termination	18.2%	27.3%	18.2%	36.4%	0.0%	11

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**LTI Plan Design**

**Stock Options (continued)**

<b>UNVESTED STOCK OPTIONS - TREATMENT UPON TERMINATION (continued)</b>						
	% of Responses					# of Responses
	Vesting Accelerated	Normal Vested Continued During Term	Prorated Vesting	Forfeited	Discretion	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Pharmaceutical/Biotechnology</b>						
Normal Retirement	23.3%	40.0%	10.0%	26.7%	0.0%	30
Early Retirement	22.2%	14.8%	11.1%	51.9%	0.0%	27
Death	65.5%	10.3%	6.9%	17.2%	0.0%	29
Disability	44.8%	24.1%	6.9%	24.1%	0.0%	29
Resignation	0.0%	0.0%	0.0%	100.0%	0.0%	29
Termination for Cause	0.0%	0.0%	0.0%	100.0%	0.0%	29
Involuntary Termination	10.3%	3.4%	10.3%	69.0%	6.9%	29
<b>Retail/Wholesale Trade</b>						
Normal Retirement	31.0%	27.6%	6.9%	34.5%	0.0%	29
Early Retirement	14.8%	14.8%	7.4%	63.0%	0.0%	27
Death	65.5%	6.9%	10.3%	17.2%	0.0%	29
Disability	58.6%	10.3%	6.9%	20.7%	3.4%	29
Resignation	0.0%	0.0%	0.0%	100.0%	0.0%	29
Termination for Cause	0.0%	0.0%	0.0%	96.6%	3.4%	29
Involuntary Termination	13.8%	3.4%	6.9%	72.4%	3.4%	29
<b>Services</b>						
Normal Retirement	35.5%	26.3%	10.5%	23.7%	3.9%	76
Early Retirement	22.2%	20.8%	9.7%	44.4%	2.8%	72
Death	53.9%	10.5%	6.6%	26.3%	2.6%	76
Disability	48.7%	15.8%	6.6%	25.0%	3.9%	76
Resignation	2.6%	1.3%	2.6%	90.8%	2.6%	76
Termination for Cause	1.4%	0.0%	1.4%	97.3%	0.0%	74
Involuntary Termination	14.9%	6.8%	12.2%	62.2%	4.1%	74
<b>Health Care</b>						
Normal Retirement	25.0%	25.0%	12.5%	25.0%	12.5%	8
Early Retirement	0.0%	0.0%	0.0%	87.5%	12.5%	8
Death	62.5%	0.0%	0.0%	25.0%	12.5%	8
Disability	37.5%	0.0%	12.5%	37.5%	12.5%	8
Resignation	0.0%	0.0%	0.0%	87.5%	12.5%	8
Termination for Cause	0.0%	0.0%	0.0%	87.5%	12.5%	8
Involuntary Termination	0.0%	12.5%	12.5%	62.5%	12.5%	8

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**LTI Plan Design****Stock Options (continued)**

	% of Responses					# of Responses
	Vesting Accelerated	Normal Vested Continued During Term	Prorated Vesting	Forfeited	Discretion	
<b>UNVESTED STOCK OPTIONS - TREATMENT UPON TERMINATION (continued)</b>						
<b>REVENUE SIZE</b>						
<b>Under \$500 Million</b>						
Normal Retirement	18.2%	0.0%	27.3%	54.5%	0.0%	11
Early Retirement	0.0%	10.0%	20.0%	70.0%	0.0%	10
Death	40.0%	0.0%	20.0%	40.0%	0.0%	10
Disability	30.0%	10.0%	10.0%	50.0%	0.0%	10
Resignation	0.0%	0.0%	0.0%	100.0%	0.0%	10
Termination for Cause	0.0%	0.0%	0.0%	100.0%	0.0%	10
Involuntary Termination	0.0%	0.0%	20.0%	70.0%	10.0%	10
<b>\$500 Million - \$1 Billion</b>						
Normal Retirement	36.4%	18.2%	4.5%	36.4%	4.5%	22
Early Retirement	18.2%	13.6%	4.5%	59.1%	4.5%	22
Death	50.0%	13.6%	0.0%	31.8%	4.5%	22
Disability	54.5%	18.2%	0.0%	22.7%	4.5%	22
Resignation	4.3%	0.0%	0.0%	95.7%	0.0%	23
Termination for Cause	0.0%	0.0%	0.0%	100.0%	0.0%	23
Involuntary Termination	4.5%	4.5%	4.5%	86.4%	0.0%	22
<b>\$1 Billion - \$3 Billion</b>						
Normal Retirement	33.7%	30.4%	8.7%	26.1%	1.1%	92
Early Retirement	19.0%	23.8%	10.7%	44.0%	2.4%	84
Death	56.5%	9.8%	10.9%	21.7%	1.1%	92
Disability	47.8%	16.3%	9.8%	25.0%	1.1%	92
Resignation	1.1%	1.1%	3.3%	94.4%	0.0%	90
Termination for Cause	1.1%	0.0%	0.0%	98.9%	0.0%	90
Involuntary Termination	12.5%	1.1%	11.4%	72.7%	2.3%	88
<b>\$3 Billion - \$6 Billion</b>						
Normal Retirement	28.2%	31.0%	12.7%	28.2%	0.0%	71
Early Retirement	14.3%	19.0%	6.3%	60.3%	0.0%	63
Death	63.4%	8.5%	1.4%	26.8%	0.0%	71
Disability	54.9%	16.9%	2.8%	25.4%	0.0%	71
Resignation	0.0%	1.4%	1.4%	97.1%	0.0%	70
Termination for Cause	0.0%	0.0%	2.9%	97.1%	0.0%	70
Involuntary Termination	2.9%	5.8%	14.5%	73.9%	2.9%	69

Table continues on next page.

**LTI Plan Design**

**Stock Options (continued)**

	% of Responses					# of Responses
	Vesting Accelerated	Normal Vested Continued During Term	Prorated Vesting	Forfeited	Discretion	
<b>UNVESTED STOCK OPTIONS - TREATMENT UPON TERMINATION (continued)</b>						
<b>REVENUE SIZE (continued)</b>						
<b>\$6 Billion - \$10 Billion</b>						
Normal Retirement	33.3%	43.6%	5.1%	17.9%	0.0%	39
Early Retirement	15.8%	31.6%	7.9%	44.7%	0.0%	38
Death	64.1%	23.1%	5.1%	7.7%	0.0%	39
Disability	46.2%	38.5%	7.7%	7.7%	0.0%	39
Resignation	2.6%	2.6%	2.6%	92.3%	0.0%	39
Termination for Cause	2.6%	0.0%	0.0%	97.4%	0.0%	39
Involuntary Termination	13.2%	13.2%	18.4%	52.6%	2.6%	38
<b>\$10 Billion - \$20 Billion</b>						
Normal Retirement	38.4%	31.5%	8.2%	17.8%	4.1%	73
Early Retirement	24.3%	21.4%	8.6%	41.4%	4.3%	70
Death	74.0%	6.8%	8.2%	8.2%	2.7%	73
Disability	59.7%	13.9%	6.9%	16.7%	2.8%	72
Resignation	4.2%	0.0%	4.2%	90.3%	1.4%	72
Termination for Cause	0.0%	0.0%	1.4%	97.3%	1.4%	73
Involuntary Termination	15.3%	4.2%	9.7%	63.9%	6.9%	72
<b>\$20 Billion or More</b>						
Normal Retirement	35.7%	39.3%	17.9%	6.0%	1.2%	84
Early Retirement	24.7%	32.1%	16.0%	23.5%	3.7%	81
Death	73.8%	13.1%	7.1%	3.6%	2.4%	84
Disability	60.7%	21.4%	9.5%	3.6%	4.8%	84
Resignation	2.4%	0.0%	1.2%	92.7%	3.7%	82
Termination for Cause	0.0%	0.0%	0.0%	98.8%	1.2%	83
Involuntary Termination	8.8%	11.3%	12.5%	57.5%	10.0%	80

**LTI Plan Design****Stock Options (continued)**

	% of Responses				# of Responses
	"Single Trigger" Vesting	"Double Trigger" Vesting	No Impact	Other	
<b>Total Sample</b>	31.1%	49.2%	9.6%	10.2%	354
<b>Industry Sector</b>					
Energy Services	45.0%	45.0%	5.0%	5.0%	20
Financial Services	31.1%	51.1%	8.9%	8.9%	45
High Tech	27.7%	56.6%	9.6%	6.0%	83
Manufacturing	29.1%	50.3%	7.9%	12.7%	189
Media/Entertainment	45.5%	27.3%	18.2%	9.1%	11
Pharmaceutical/Biotechnology	29.6%	48.1%	11.1%	11.1%	27
Retail/Wholesale Trade	29.2%	54.2%	12.5%	4.2%	24
Services	35.3%	41.2%	16.2%	7.4%	68
Health Care	12.5%	75.0%	0.0%	12.5%	8
<b>Revenue Size</b>					
Under \$500 Million	66.7%	33.3%	0.0%	0.0%	9
\$500 Million - \$1 Billion	57.1%	23.8%	19.0%	0.0%	21
\$1 Billion - \$3 Billion	32.6%	55.1%	5.6%	6.7%	89
\$3 Billion - \$6 Billion	30.8%	40.0%	9.2%	20.0%	65
\$6 Billion - \$10 Billion	30.6%	52.8%	8.3%	8.3%	36
\$10 Billion - \$20 Billion	17.7%	61.3%	11.3%	9.7%	62
\$20 Billion or More	29.2%	47.2%	12.5%	11.1%	72

**LTJ Plan Design****Stock Options (continued)**

<b>OPTIONEES PERMITTED TO TRANSFER OPTIONS TO FAMILY MEMBERS OR CHARITIES</b>				
	% of Responses			# of Responses
	Yes, Only Certain Employees	Yes, All Employees	No	
<b>Total Sample</b>	5.9%	8.6%	85.4%	370
<b>Industry Sector</b>				
Energy Services	10.0%	15.0%	75.0%	20
Financial Services	3.6%	9.1%	87.3%	55
High Tech	5.2%	7.8%	87.0%	77
Manufacturing	7.4%	9.5%	83.1%	189
Media/Entertainment	8.3%	0.0%	91.7%	12
Pharmaceutical/Biotechnology	14.3%	10.7%	75.0%	28
Retail/Wholesale Trade	7.7%	11.5%	80.8%	26
Services	1.4%	4.2%	94.4%	72
Health Care	12.5%	0.0%	87.5%	8
<b>Revenue Size</b>				
Under \$500 Million	0.0%	0.0%	100.0%	12
\$500 Million - \$1 Billion	4.5%	9.1%	86.4%	22
\$1 Billion - \$3 Billion	3.4%	10.2%	86.4%	88
\$3 Billion - \$6 Billion	3.0%	10.6%	86.4%	66
\$6 Billion - \$10 Billion	5.4%	13.5%	81.1%	37
\$10 Billion - \$20 Billion	10.4%	7.5%	82.1%	67
\$20 Billion or More	9.0%	5.1%	85.9%	78

**TYPES OF OPTION TRANSFERS PERMITTED**

	% of Responses				# of Responses
	Family Members	Family Trusts	Family Entities	Charities	
<b>Total Sample</b>	74.5%	90.2%	54.9%	33.3%	51
<b>Industry Sector</b>					
Energy Services	66.7%	66.7%	66.7%	33.3%	3
Financial Services	85.7%	85.7%	71.4%	42.9%	7
High Tech	44.4%	88.9%	55.6%	33.3%	9
Manufacturing	67.7%	90.3%	41.9%	29.0%	31
Media/Entertainment	100.0%	100.0%	100.0%	0.0%	1
Pharmaceutical/Biotechnology	75.0%	100.0%	25.0%	12.5%	8
Retail/Wholesale Trade	75.0%	100.0%	75.0%	25.0%	4
Services	100.0%	100.0%	100.0%	75.0%	4
Health Care	100.0%	100.0%	50.0%	0.0%	2
<b>Revenue Size</b>					
Under \$500 Million	---	---	---	---	0
\$500 Million - \$1 Billion	50.0%	100.0%	50.0%	25.0%	4
\$1 Billion - \$3 Billion	53.8%	92.3%	53.8%	7.7%	13
\$3 Billion - \$6 Billion	90.0%	80.0%	40.0%	50.0%	10
\$6 Billion - \$10 Billion	80.0%	80.0%	60.0%	60.0%	5
\$10 Billion - \$20 Billion	88.9%	100.0%	77.8%	33.3%	9
\$20 Billion or More	80.0%	90.0%	50.0%	40.0%	10

## LTI Plan Design

### Stock Options (continued)

ORGANIZATIONS HAVING A MANDATORY SHARE RETENTION RATIO			
	No	Yes	# of Responses
<b>Total Sample</b>	72.7%	27.3%	341
<b>Industry Sector</b>			
Energy Services	65.0%	35.0%	20
Financial Services	70.2%	29.8%	47
High Tech	80.6%	19.4%	72
Manufacturing	75.1%	24.9%	173
Media/Entertainment	90.0%	10.0%	10
Pharmaceutical/Biotechnology	92.0%	8.0%	25
Retail/Wholesale Trade	80.8%	19.2%	26
Services	67.6%	32.4%	68
Health Care	71.4%	28.6%	7
<b>Revenue Size</b>			
Under \$500 Million	100.0%	0.0%	11
\$500 Million - \$1 Billion	77.3%	22.7%	22
\$1 Billion - \$3 Billion	80.5%	19.5%	87
\$3 Billion - \$6 Billion	78.1%	21.9%	64
\$6 Billion - \$10 Billion	78.8%	21.2%	33
\$10 Billion - \$20 Billion	62.1%	37.9%	58
\$20 Billion or More	57.6%	42.4%	66

SHARES WHICH MUST BE RETAINED IF SHARE RETENTION IS REQUIRED			
	All shares after taxes are paid must be retained	Only a percentage of share profit must be retained	# of Responses
<b>Total Sample</b>	27.7%	72.3%	94
<b>Industry Sector</b>			
Energy Services	0.0%	100.0%	7
Financial Services	26.7%	73.3%	15
High Tech	28.6%	71.4%	14
Manufacturing	32.6%	67.4%	43
Media/Entertainment	0.0%	100.0%	1
Pharmaceutical/Biotechnology	50.0%	50.0%	2
Retail/Wholesale Trade	20.0%	80.0%	5
Services	31.8%	68.2%	22
Health Care	0.0%	100.0%	2
<b>Revenue Size</b>			
Under \$500 Million	---	---	0
\$500 Million - \$1 Billion	40.0%	60.0%	5
\$1 Billion - \$3 Billion	27.8%	72.2%	18
\$3 Billion - \$6 Billion	28.6%	71.4%	14
\$6 Billion - \$10 Billion	42.9%	57.1%	7
\$10 Billion - \$20 Billion	13.6%	86.4%	22
\$20 Billion or More	32.1%	67.9%	28

**LTI Plan Design**

**Stock Options (continued)**

<b>TIME PERIOD SHARES MUST BE RETAINED</b>				
	% of Responses			# of Responses
	Until Ownership Guideline is Met	Specified Period of Time	Until Retirement	
<b>Total Sample</b>	81.3%	13.5%	5.2%	96
<b>Industry Sector</b>				
Energy Services	87.5%	12.5%	0.0%	8
Financial Services	73.3%	13.3%	13.3%	15
High Tech	71.4%	21.4%	7.1%	14
Manufacturing	74.4%	18.6%	7.0%	43
Media/Entertainment	100.0%	0.0%	0.0%	1
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	2
Retail/Wholesale Trade	100.0%	0.0%	0.0%	5
Services	95.5%	4.5%	0.0%	22
Health Care	66.7%	33.3%	0.0%	3
<b>Revenue Size</b>				
Under \$500 Million	--	--	--	0
\$500 Million - \$1 Billion	100.0%	0.0%	0.0%	5
\$1 Billion - \$3 Billion	78.9%	5.3%	15.8%	19
\$3 Billion - \$6 Billion	86.7%	6.7%	6.7%	15
\$6 Billion - \$10 Billion	100.0%	0.0%	0.0%	7
\$10 Billion - \$20 Billion	77.3%	18.2%	4.5%	22
\$20 Billion or More	75.0%	25.0%	0.0%	28

## LTI Plan Design

### Restricted Stock/Stock Units

ORGANIZATIONS GRANTING DURING MOST RECENT ANNUAL LTI GRANT			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	605	67.0%	903
<b>Industry Sector</b>			
Energy Services	71	65.1%	109
Financial Services	90	57.0%	158
High Tech	118	72.0%	164
Manufacturing	260	67.2%	387
Media/Entertainment	22	88.0%	25
Pharmaceutical/Biotechnology	36	67.9%	53
Retail/Wholesale Trade	46	71.9%	64
Services	126	76.4%	165
Health Care	12	60.0%	20
<b>Revenue Size</b>			
Under \$500 Million	16	39.0%	41
\$500 Million - \$1 Billion	36	69.2%	52
\$1 Billion - \$3 Billion	145	70.0%	207
\$3 Billion - \$6 Billion	117	69.2%	169
\$6 Billion - \$10 Billion	68	71.6%	95
\$10 Billion - \$20 Billion	108	74.5%	145
\$20 Billion or More	115	59.3%	194

TYPE OF GRANT					
	% of Responses				# of Responses
	Restricted Stock Only	Restricted Stock Units Only	Both Restricted Stock and Restricted Stock Units	Phantom Stock Only	
<b>Total Sample</b>	30.5%	60.4%	8.6%	0.5%	606
<b>Industry Sector</b>					
Energy Services	35.2%	60.6%	2.8%	1.4%	71
Financial Services	34.4%	51.1%	14.4%	0.0%	90
High Tech	23.7%	71.2%	4.2%	0.8%	118
Manufacturing	24.9%	65.9%	8.8%	0.4%	261
Media/Entertainment	36.4%	59.1%	0.0%	4.5%	22
Pharmaceutical/Biotechnology	11.1%	80.6%	8.3%	0.0%	36
Retail/Wholesale Trade	47.8%	34.8%	17.4%	0.0%	46
Services	30.2%	64.3%	4.8%	0.8%	126
Health Care	33.3%	66.7%	0.0%	0.0%	12
<b>Revenue Size</b>					
Under \$500 Million	50.0%	43.8%	6.3%	0.0%	16
\$500 Million - \$1 Billion	55.6%	36.1%	8.3%	0.0%	36
\$1 Billion - \$3 Billion	31.0%	60.0%	7.6%	1.4%	145
\$3 Billion - \$6 Billion	32.2%	61.0%	6.8%	0.0%	118
\$6 Billion - \$10 Billion	25.0%	61.8%	13.2%	0.0%	68
\$10 Billion - \$20 Billion	20.4%	69.4%	9.3%	0.9%	108
\$20 Billion or More	30.4%	60.9%	8.7%	0.0%	115



**LTI Plan Design**

**Restricted Stock/Stock Units (continued)**

<b>SECTION 83(B) ELECTION</b>			
	Plan Document and Award Agreement Allow Participants to Make Section 83(b) Election		# of Responses
	# of Organizations	% of Organizations	
<b>Total Sample</b>	113	59.2%	191
<b>Industry Sector</b>			
Energy Services	14	58.3%	24
Financial Services	23	65.7%	35
High Tech	17	65.4%	26
Manufacturing	38	52.8%	72
Media/Entertainment	3	50.0%	6
Pharmaceutical/Biotechnology	1	14.3%	7
Retail/Wholesale Trade	14	60.9%	23
Services	21	61.8%	34
Health Care	3	100.0%	3
<b>Revenue Size</b>			
Under \$500 Million	7	87.5%	8
\$500 Million - \$1 Billion	13	61.9%	21
\$1 Billion - \$3 Billion	23	51.1%	45
\$3 Billion - \$6 Billion	25	62.5%	40
\$6 Billion - \$10 Billion	16	76.2%	21
\$10 Billion - \$20 Billion	16	64.0%	25
\$20 Billion or More	13	41.9%	31

<b>DIVIDENDS (OR DIVIDEND EQUIVALENTS) - RESTRICTED STOCK ONLY*</b>			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	170	71.7%	237
<b>Industry Sector</b>			
Energy Services	22	81.5%	27
Financial Services	37	84.1%	44
High Tech	25	75.8%	33
Manufacturing	61	69.3%	88
Media/Entertainment	4	50.0%	8
Pharmaceutical/Biotechnology	1	14.3%	7
Retail/Wholesale Trade	17	56.7%	30
Services	29	65.9%	44
Health Care	4	100.0%	4
<b>Revenue Size</b>			
Under \$500 Million	6	66.7%	9
\$500 Million - \$1 Billion	16	69.6%	23
\$1 Billion - \$3 Billion	35	62.5%	56
\$3 Billion - \$6 Billion	37	80.4%	46
\$6 Billion - \$10 Billion	18	69.2%	26
\$10 Billion - \$20 Billion	26	81.3%	32
\$20 Billion or More	32	71.1%	45

\*Summary statistics include organizations granting restricted stock only and both restricted stock and restricted stock units.

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>DIVIDENDS PAID DURING RESTRICTION PERIOD - RESTRICTED STOCK ONLY*</b>					
	% of Responses				# of Responses
	Paid Currently	Accrued with Interest	Accrued with No Interest	Reinvested in Additional Shares	
<b>Total Sample</b>	53.5%	3.8%	30.2%	12.6%	159
<b>Industry Sector</b>					
Energy Services	59.1%	0.0%	18.2%	22.7%	22
Financial Services	63.9%	2.8%	16.7%	16.7%	36
High Tech	38.1%	14.3%	38.1%	9.5%	21
Manufacturing	50.9%	7.0%	31.6%	10.5%	57
Media/Entertainment	100.0%	0.0%	0.0%	0.0%	4
Pharmaceutical/Biotechnology	0.0%	0.0%	100.0%	0.0%	1
Retail/Wholesale Trade	40.0%	6.7%	46.7%	6.7%	15
Services	51.9%	0.0%	40.7%	7.4%	27
Health Care	0.0%	0.0%	100.0%	0.0%	2
<b>Revenue Size</b>					
Under \$500 Million	60.0%	0.0%	40.0%	0.0%	5
\$500 Million - \$1 Billion	66.7%	0.0%	13.3%	20.0%	15
\$1 Billion - \$3 Billion	56.3%	0.0%	34.4%	9.4%	32
\$3 Billion - \$6 Billion	52.9%	5.9%	26.5%	14.7%	34
\$6 Billion - \$10 Billion	31.3%	0.0%	56.3%	12.5%	16
\$10 Billion - \$20 Billion	64.0%	0.0%	24.0%	12.0%	25
\$20 Billion or More	46.9%	12.5%	28.1%	12.5%	32

\*Summary statistics include organizations granting restricted stock only and both restricted stock and restricted stock units.

<b>DIVIDEND EQUIVALENTS - RESTRICTED STOCK UNITS ONLY</b>			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	220	60.1%	366
<b>Industry Sector</b>			
Energy Services	39	90.7%	43
Financial Services	30	65.2%	46
High Tech	47	56.0%	84
Manufacturing	104	60.5%	172
Media/Entertainment	7	53.8%	13
Pharmaceutical/Biotechnology	18	62.1%	29
Retail/Wholesale Trade	7	43.8%	16
Services	37	45.7%	81
Health Care	3	37.5%	8
<b>Revenue Size</b>			
Under \$500 Million	4	57.1%	7
\$500 Million - \$1 Billion	4	30.8%	13
\$1 Billion - \$3 Billion	47	54.0%	87
\$3 Billion - \$6 Billion	46	63.9%	72
\$6 Billion - \$10 Billion	28	66.7%	42
\$10 Billion - \$20 Billion	47	62.7%	75
\$20 Billion or More	44	62.9%	70

**LTI Plan Design****Restricted Stock/Stock Units (continued)****DIVIDEND EQUIVALENTS PAID DURING RESTRICTION PERIOD - RESTRICTED STOCK UNITS ONLY**

	% of Responses				# of Responses
	Paid Currently	Accrued with Interest	Accrued with No Interest	Reinvested in Additional Shares	
<b>Total Sample</b>	25.9%	2.4%	33.2%	38.5%	205
<b>Industry Sector</b>					
Energy Services	20.5%	2.6%	25.6%	51.3%	39
Financial Services	21.4%	3.6%	39.3%	35.7%	28
High Tech	26.2%	0.0%	35.7%	38.1%	42
Manufacturing	26.6%	3.2%	34.0%	36.2%	94
Media/Entertainment	57.1%	0.0%	28.6%	14.3%	7
Pharmaceutical/Biotechnology	18.8%	6.3%	37.5%	37.5%	16
Retail/Wholesale Trade	20.0%	0.0%	40.0%	40.0%	5
Services	30.6%	0.0%	36.1%	33.3%	36
Health Care	66.7%	0.0%	0.0%	33.3%	3
<b>Revenue Size</b>					
Under \$500 Million	50.0%	0.0%	50.0%	0.0%	4
\$500 Million - \$1 Billion	50.0%	0.0%	0.0%	50.0%	4
\$1 Billion - \$3 Billion	19.0%	0.0%	31.0%	50.0%	42
\$3 Billion - \$6 Billion	22.0%	4.9%	36.6%	36.6%	41
\$6 Billion - \$10 Billion	28.6%	0.0%	39.3%	32.1%	28
\$10 Billion - \$20 Billion	23.3%	2.3%	32.6%	41.9%	43
\$20 Billion or More	32.6%	4.7%	30.2%	32.6%	43

**CRITERIA USED TO DETERMINE ELIGIBILITY**

	% of Responses					# of Responses
	Base/ Midpoint/ Grade	Discretionary Judgment	Position or Title	All Employees	Other	
<b>Total Sample</b>	53.7%	34.1%	57.4%	4.9%	13.7%	577
<b>Industry Sector</b>						
Energy Services	51.5%	27.9%	67.6%	1.5%	17.6%	68
Financial Services	60.9%	41.4%	56.3%	4.6%	9.2%	87
High Tech	54.5%	37.3%	53.6%	8.2%	12.7%	110
Manufacturing	60.2%	35.4%	48.8%	4.5%	16.3%	246
Media/Entertainment	36.4%	22.7%	68.2%	4.5%	4.5%	22
Pharmaceutical/Biotechnology	61.1%	36.1%	44.4%	11.1%	16.7%	36
Retail/Wholesale Trade	42.9%	26.2%	71.4%	2.4%	7.1%	42
Services	41.0%	33.6%	62.3%	9.0%	11.5%	122
Health Care	50.0%	25.0%	83.3%	0.0%	16.7%	12
<b>Revenue Size</b>						
Under \$500 Million	46.7%	53.3%	53.3%	6.7%	6.7%	15
\$500 Million - \$1 Billion	26.5%	50.0%	70.6%	17.6%	2.9%	34
\$1 Billion - \$3 Billion	37.4%	35.3%	71.2%	3.6%	14.4%	139
\$3 Billion - \$6 Billion	58.3%	39.8%	58.3%	2.8%	9.3%	108
\$6 Billion - \$10 Billion	55.2%	26.9%	56.7%	6.0%	11.9%	67
\$10 Billion - \$20 Billion	64.7%	24.5%	52.9%	4.9%	11.8%	102
\$20 Billion or More	67.9%	33.0%	40.2%	3.6%	24.1%	112

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>LOWEST MIDPOINT ELIGIBLE</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$56.9	\$84.5	\$118.7	\$150.0	\$195.0	\$123.6	396
<b>Industry Sector</b>							
Energy Services	\$48.0	\$83.7	\$119.3	\$150.8	\$217.5	\$131.0	54
Financial Services	\$54.4	\$83.9	\$110.0	\$131.5	\$177.7	\$112.6	57
High Tech	\$47.5	\$77.6	\$125.4	\$154.0	\$187.2	\$123.1	74
Manufacturing	\$57.7	\$81.6	\$121.6	\$150.0	\$177.1	\$122.2	184
Media/Entertainment	\$50.8	\$101.2	\$135.0	\$162.1	\$232.7	\$134.3	12
Pharmaceutical/Biotechnology	\$40.0	\$64.0	\$100.0	\$120.0	\$132.6	\$93.7	23
Retail/Wholesale Trade	\$75.2	\$96.1	\$129.0	\$200.0	\$273.0	\$154.2	22
Services	\$44.1	\$75.0	\$117.0	\$156.1	\$200.0	\$121.6	71
Health Care	---	\$91.5	\$112.5	\$136.4	---	\$115.8	8
<b>Revenue Size</b>							
Under \$500 Million	\$52.7	\$58.5	\$92.1	\$126.5	\$142.7	\$92.8	10
\$500 Million - \$1 Billion	\$31.2	\$60.0	\$85.0	\$117.6	\$158.9	\$87.3	19
\$1 Billion - \$3 Billion	\$59.4	\$77.5	\$120.0	\$150.0	\$192.5	\$126.1	105
\$3 Billion - \$6 Billion	\$57.1	\$81.8	\$120.0	\$140.0	\$193.0	\$119.1	77
\$6 Billion - \$10 Billion	\$44.0	\$90.7	\$128.6	\$152.2	\$168.0	\$119.0	37
\$10 Billion - \$20 Billion	\$70.4	\$92.5	\$116.9	\$150.0	\$204.0	\$125.0	71
\$20 Billion or More	\$56.1	\$97.0	\$131.0	\$160.8	\$238.4	\$138.4	77
<b>MIDPOINT OF 100% PARTICIPATION LEVEL</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$107.8	\$131.7	\$158.0	\$200.0	\$255.3	\$173.8	304
<b>Industry Sector</b>							
Energy Services	\$76.0	\$127.2	\$140.7	\$167.2	\$218.5	\$156.4	42
Financial Services	\$109.7	\$139.5	\$165.6	\$219.6	\$278.5	\$185.6	38
High Tech	\$126.7	\$142.5	\$165.9	\$213.5	\$272.7	\$183.5	52
Manufacturing	\$104.8	\$136.3	\$160.0	\$200.0	\$264.1	\$171.7	150
Media/Entertainment	---	\$123.0	\$192.9	\$251.1	---	\$198.0	8
Pharmaceutical/Biotechnology	\$46.9	\$108.0	\$149.0	\$184.4	\$200.8	\$138.2	21
Retail/Wholesale Trade	\$73.8	\$113.8	\$184.7	\$227.5	\$388.2	\$192.6	17
Services	\$108.3	\$125.0	\$164.0	\$234.8	\$258.5	\$180.3	52
Health Care	---	\$119.2	\$161.8	\$211.1	---	\$164.4	5
<b>Revenue Size</b>							
Under \$500 Million	---	\$121.8	\$167.4	\$227.1	---	\$171.6	6
\$500 Million - \$1 Billion	\$32.6	\$116.9	\$130.3	\$157.0	\$275.0	\$139.1	14
\$1 Billion - \$3 Billion	\$114.4	\$138.2	\$158.8	\$194.7	\$258.5	\$178.7	82
\$3 Billion - \$6 Billion	\$111.0	\$136.2	\$163.7	\$210.0	\$268.9	\$179.2	63
\$6 Billion - \$10 Billion	\$46.3	\$122.4	\$151.5	\$177.1	\$231.1	\$152.3	32
\$10 Billion - \$20 Billion	\$96.6	\$118.9	\$151.0	\$203.1	\$238.8	\$160.5	52
\$20 Billion or More	\$119.0	\$136.3	\$169.7	\$238.0	\$295.0	\$194.6	55

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>NUMBER OF EMPLOYEES ELIGIBLE FOR GRANTS</b>					
	25th	Median	75th	Average	# of Responses
<b>Total Sample</b>	150	407	1,421	3,579	514
<b>Industry Sector</b>					
Energy Services	65	189	668	570	67
Financial Services	202	508	2,500	2,629	73
High Tech	194	600	3,750	9,851	97
Manufacturing	169	446	2,000	2,843	221
Media/Entertainment	106	190	1,120	587	19
Pharmaceutical/Biotechnology	765	3,182	12,866	6,959	33
Retail/Wholesale Trade	87	298	861	4,978	33
Services	156	444	1,350	7,223	110
Health Care	231	400	3,036	2,259	10
<b>Revenue Size</b>					
Under \$500 Million	43	199	392	224	13
\$500 Million - \$1 Billion	75	225	393	302	30
\$1 Billion - \$3 Billion	78	172	445	615	124
\$3 Billion - \$6 Billion	145	300	640	885	101
\$6 Billion - \$10 Billion	300	800	2,262	3,145	59
\$10 Billion - \$20 Billion	226	710	2,800	2,073	90
\$20 Billion or More	500	2,000	7,364	13,300	97

<b>NUMBER OF EMPLOYEES RECEIVING GRANTS</b>					
	25th	Median	75th	Average	# of Responses
<b>Total Sample</b>	128	300	967	1,597	514
<b>Industry Sector</b>					
Energy Services	65	163	500	408	67
Financial Services	162	339	1,378	983	73
High Tech	157	446	1,580	3,619	97
Manufacturing	144	386	1,258	1,838	221
Media/Entertainment	106	190	869	542	19
Pharmaceutical/Biotechnology	591	2,400	6,150	4,500	33
Retail/Wholesale Trade	65	265	783	2,299	33
Services	130	322	810	2,067	110
Health Care	151	256	2,632	1,245	10
<b>Revenue Size</b>					
Under \$500 Million	26	85	311	150	13
\$500 Million - \$1 Billion	74	124	241	196	30
\$1 Billion - \$3 Billion	77	147	285	312	124
\$3 Billion - \$6 Billion	132	228	580	486	101
\$6 Billion - \$10 Billion	250	500	1,352	1,472	59
\$10 Billion - \$20 Billion	226	620	1,650	1,382	90
\$20 Billion or More	434	1,500	4,534	5,301	97

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

PERCENT OF EMPLOYEES ELIGIBLE FOR GRANTS							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	1.0%	2.0%	4.0%	14.0%	40.0%	13.3%	439
<b>Industry Sector</b>							
Energy Services	1.0%	2.0%	4.0%	10.0%	36.6%	10.5%	57
Financial Services	2.0%	3.8%	9.5%	18.5%	30.9%	13.9%	70
High Tech	1.0%	2.0%	4.0%	15.0%	80.8%	18.2%	87
Manufacturing	1.0%	2.0%	5.0%	15.0%	42.6%	14.2%	193
Media/Entertainment	1.0%	1.0%	3.5%	9.0%	22.6%	7.4%	18
Pharmaceutical/Biotechnology	3.4%	9.0%	16.0%	39.0%	89.4%	28.6%	31
Retail/Wholesale Trade	1.0%	1.0%	2.0%	4.5%	9.6%	4.2%	21
Services	1.0%	1.0%	4.0%	12.0%	84.0%	16.1%	89
Health Care	---	1.0%	3.0%	5.0%	---	3.1%	9
<b>Revenue Size</b>							
Under \$500 Million	1.0%	7.0%	14.0%	35.5%	89.6%	25.7%	13
\$500 Million - \$1 Billion	1.0%	3.8%	10.5%	19.3%	36.4%	15.4%	26
\$1 Billion - \$3 Billion	1.0%	2.0%	4.0%	10.0%	35.6%	11.3%	106
\$3 Billion - \$6 Billion	1.0%	2.0%	4.0%	8.0%	22.9%	9.4%	90
\$6 Billion - \$10 Billion	1.0%	2.0%	3.0%	13.8%	58.0%	15.3%	54
\$10 Billion - \$20 Billion	1.0%	1.0%	5.0%	13.0%	33.0%	11.9%	75
\$20 Billion or More	1.0%	2.0%	5.0%	20.0%	75.2%	18.2%	75

PERCENT OF EMPLOYEES RECEIVING GRANTS							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	1.0%	2.0%	4.0%	8.0%	21.0%	9.0%	444
<b>Industry Sector</b>							
Energy Services	1.0%	2.0%	3.5%	6.3%	33.1%	8.3%	58
Financial Services	2.0%	3.0%	6.0%	12.0%	18.0%	8.3%	69
High Tech	1.0%	2.0%	3.0%	7.0%	36.9%	11.1%	90
Manufacturing	1.0%	2.0%	4.0%	8.0%	26.2%	10.2%	196
Media/Entertainment	1.0%	1.0%	3.5%	9.0%	17.0%	6.4%	18
Pharmaceutical/Biotechnology	3.2%	6.0%	13.0%	19.0%	80.4%	20.3%	31
Retail/Wholesale Trade	1.0%	1.0%	1.5%	4.3%	24.0%	5.2%	22
Services	1.0%	1.0%	3.0%	7.0%	29.0%	9.2%	91
Health Care	---	1.0%	2.5%	3.0%	---	2.3%	8
<b>Revenue Size</b>							
Under \$500 Million	1.0%	4.5%	6.0%	23.5%	74.2%	17.6%	13
\$500 Million - \$1 Billion	1.0%	3.3%	7.0%	15.5%	27.3%	13.4%	28
\$1 Billion - \$3 Billion	1.0%	2.0%	4.0%	7.0%	15.0%	7.1%	109
\$3 Billion - \$6 Billion	1.0%	2.0%	3.0%	6.0%	20.6%	7.9%	91
\$6 Billion - \$10 Billion	1.0%	2.0%	3.0%	9.5%	19.0%	8.8%	56
\$10 Billion - \$20 Billion	1.0%	1.0%	4.0%	8.0%	27.6%	9.2%	73
\$20 Billion or More	1.0%	2.0%	4.0%	10.8%	25.0%	10.1%	74

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>GRANT FREQUENCY</b>				
	% of Responses			# of Responses
	Annual	Biennial	3 Years or More	
<b>Total Sample</b>	98.7%	1.0%	0.3%	606
<b>Industry Sector</b>				
Energy Services	100.0%	0.0%	0.0%	71
Financial Services	98.9%	0.0%	1.1%	90
High Tech	98.3%	1.7%	0.0%	118
Manufacturing	99.2%	0.4%	0.4%	261
Media/Entertainment	95.5%	4.5%	0.0%	22
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	36
Retail/Wholesale Trade	100.0%	0.0%	0.0%	46
Services	96.0%	4.0%	0.0%	126
Health Care	100.0%	0.0%	0.0%	12
<b>Revenue Size</b>				
Under \$500 Million	100.0%	0.0%	0.0%	16
\$500 Million - \$1 Billion	100.0%	0.0%	0.0%	36
\$1 Billion - \$3 Billion	98.6%	0.0%	1.4%	145
\$3 Billion - \$6 Billion	98.3%	1.7%	0.0%	118
\$6 Billion - \$10 Billion	100.0%	0.0%	0.0%	68
\$10 Billion - \$20 Billion	99.1%	0.9%	0.0%	108
\$20 Billion or More	97.4%	2.6%	0.0%	115

<b>VESTING SCHEDULE</b>				
	% of Responses			# of Responses
	Cliff Vesting	Graded Vesting	Immediate Vesting	
<b>Total Sample</b>	40.3%	59.7%	0.0%	606
<b>Industry Sector</b>				
Energy Services	47.9%	52.1%	0.0%	71
Financial Services	33.3%	66.7%	0.0%	90
High Tech	34.7%	65.3%	0.0%	118
Manufacturing	45.2%	54.8%	0.0%	261
Media/Entertainment	36.4%	63.6%	0.0%	22
Pharmaceutical/Biotechnology	44.4%	55.6%	0.0%	36
Retail/Wholesale Trade	30.4%	69.6%	0.0%	46
Services	37.3%	62.7%	0.0%	126
Health Care	8.3%	91.7%	0.0%	12
<b>Revenue Size</b>				
Under \$500 Million	18.8%	81.3%	0.0%	16
\$500 Million - \$1 Billion	27.8%	72.2%	0.0%	36
\$1 Billion - \$3 Billion	40.7%	59.3%	0.0%	145
\$3 Billion - \$6 Billion	35.6%	64.4%	0.0%	118
\$6 Billion - \$10 Billion	39.7%	60.3%	0.0%	68
\$10 Billion - \$20 Billion	40.7%	59.3%	0.0%	108
\$20 Billion or More	51.3%	48.7%	0.0%	115

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

GRADED VESTING SCHEDULES						
	% of Responses					# of Responses
	20% Per Year	25% Per Year	33% Per Year	50% Per Year	Other	
<b>Total Sample</b>	5.2%	32.3%	53.0%	6.9%	2.5%	362
<b>Industry Sector</b>						
Energy Services	8.1%	24.3%	59.5%	2.7%	5.4%	37
Financial Services	1.7%	28.3%	56.7%	10.0%	3.3%	60
High Tech	7.8%	35.1%	46.8%	7.8%	2.6%	77
Manufacturing	5.6%	30.8%	55.9%	6.3%	1.4%	143
Media/Entertainment	7.1%	50.0%	21.4%	14.3%	7.1%	14
Pharmaceutical/Biotechnology	5.0%	50.0%	40.0%	5.0%	0.0%	20
Retail/Wholesale Trade	3.1%	37.5%	50.0%	9.4%	0.0%	32
Services	7.6%	36.7%	44.3%	7.6%	3.8%	79
Health Care	0.0%	54.5%	45.5%	0.0%	0.0%	11
<b>Revenue Size</b>						
Under \$500 Million	7.7%	30.8%	38.5%	7.7%	15.4%	13
\$500 Million - \$1 Billion	3.8%	26.9%	65.4%	3.8%	0.0%	26
\$1 Billion - \$3 Billion	7.0%	31.4%	51.2%	8.1%	2.3%	86
\$3 Billion - \$6 Billion	3.9%	32.9%	55.3%	6.6%	1.3%	76
\$6 Billion - \$10 Billion	7.3%	36.6%	46.3%	7.3%	2.4%	41
\$10 Billion - \$20 Billion	3.1%	34.4%	56.3%	4.7%	1.6%	64
\$20 Billion or More	5.4%	30.4%	51.8%	8.9%	3.6%	56

TOTAL TIME UNTIL 100% VESTED							
	% of Organizations						# of Responses
	1 Year or Less	2 Years	3 Years	4 Years	5 Years	More Than 5 Years	
<b>Total Sample</b>	0.5%	2.0%	67.5%	23.4%	6.1%	0.5%	603
<b>Industry Sector</b>							
Energy Services	0.0%	1.4%	76.1%	16.9%	5.6%	0.0%	71
Financial Services	1.1%	1.1%	62.9%	27.0%	7.9%	0.0%	89
High Tech	0.8%	0.8%	62.7%	27.1%	7.6%	0.8%	118
Manufacturing	0.8%	0.8%	72.3%	20.4%	5.0%	0.8%	260
Media/Entertainment	0.0%	4.5%	40.9%	45.5%	9.1%	0.0%	22
Pharmaceutical/Biotechnology	0.0%	0.0%	69.4%	27.8%	2.8%	0.0%	36
Retail/Wholesale Trade	0.0%	4.3%	63.0%	26.1%	6.5%	0.0%	46
Services	0.0%	4.8%	58.4%	28.0%	8.0%	0.0%	125
Health Care	0.0%	0.0%	58.3%	41.7%	0.0%	0.0%	12
<b>Revenue Size</b>							
Under \$500 Million	0.0%	13.3%	26.7%	40.0%	20.0%	0.0%	15
\$500 Million - \$1 Billion	0.0%	0.0%	72.2%	22.2%	5.6%	0.0%	36
\$1 Billion - \$3 Billion	0.7%	2.1%	71.0%	18.6%	6.2%	1.4%	145
\$3 Billion - \$6 Billion	0.0%	2.6%	66.7%	27.4%	3.4%	0.0%	117
\$6 Billion - \$10 Billion	0.0%	0.0%	69.1%	22.1%	8.8%	0.0%	68
\$10 Billion - \$20 Billion	0.0%	2.8%	65.7%	25.9%	5.6%	0.0%	108
\$20 Billion or More	1.8%	0.9%	68.4%	21.9%	6.1%	0.9%	114



**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>PERFORMANCE CRITERIA REQUIRED IN ORDER FOR RESTRICTIONS TO LAPSE*</b>			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	36	6.0%	603
<b>Industry Sector</b>			
Energy Services	6	8.5%	71
Financial Services	5	5.6%	90
High Tech	11	9.4%	117
Manufacturing	12	4.6%	259
Media/Entertainment	0	0.0%	22
Pharmaceutical/Biotechnology	1	2.8%	36
Retail/Wholesale Trade	5	10.9%	46
Services	5	4.0%	125
Health Care	3	25.0%	12
<b>Revenue Size</b>			
Under \$500 Million	0	0.0%	16
\$500 Million - \$1 Billion	1	2.8%	36
\$1 Billion - \$3 Billion	8	5.5%	145
\$3 Billion - \$6 Billion	11	9.4%	117
\$6 Billion - \$10 Billion	4	5.9%	68
\$10 Billion - \$20 Billion	6	5.7%	106
\$20 Billion or More	6	5.2%	115

\*In addition to the organizations included in the above summary, 33 organizations grant restricted stock/stock units with performance criteria to a limited number of key executives in addition to time-based restricted awards. The classification of restricted stock/stock units with performance criteria and performance shares is blurry. For purposes of classifying the plans in this report, plans providing for payout percentages that can be less than or greater than target were classified as performance share plans.

**CONSEQUENCES IF PERFORMANCE CRITERIA ARE NOT MET**

	% of Responses			# of Responses
	Shares are Forfeited	Shares Automatically Vest at the End of a Specified Number of Years	Other	
<b>Total Sample</b>	91.2%	5.9%	2.9%	34

**REVENUE/PROFIT PERFORMANCE METRICS USED**

	% of Responses						# of Responses
	Revenues	EPS	Net Income	EBIT/ Operating Income	EBITDA	Other	
<b>Total Sample</b>	8.7%	17.4%	13.0%	8.7%	19.6%	17.4%	46

**ACCOUNTING RETURN/MARGIN PERFORMANCE METRICS USED**

	% of Responses						# of Responses
	ROIC/RONA	ROE	Operating Margin	Net Profit Margin	Gross Margin	Other	
<b>Total Sample</b>	6.5%	8.7%	0.0%	0.0%	0.0%	4.3%	46

## LTI Plan Design

### Restricted Stock/Stock Units (continued)

SHAREHOLDER VALUE METRICS								
	% of Responses							# of Responses
	Stock Price Appreciation	Total Shareholder Return (TSR)	EVA/CVA/Economic Profit	CFROI	Operating Cash Flow	Free Cash Flow	Other	
<b>Total Sample</b>	2.2%	8.7%	2.2%	0.0%	4.3%	2.2%	6.5%	46

STRATEGIC PERFORMANCE METRICS USED							
	% of Responses						# of Responses
	Market Share	Quality	Customer Satisfaction/Service	Employee Metrics	Strategic Milestones	Other	
<b>Total Sample</b>	0.0%	0.0%	0.0%	2.2%	2.2%	6.5%	46

UNVESTED RESTRICTED STOCK/STOCK UNITS - TREATMENT UPON TERMINATION						
	% of Responses				# of Responses	
	100% Vested	Portion of Award	Forfeited	Discretion		
<b>TOTAL SAMPLE</b>						
Normal Retirement	43.1%	29.3%	24.1%	3.6%	557	
Early Retirement	22.2%	25.2%	47.6%	4.9%	531	
Death	66.5%	20.6%	10.8%	2.1%	567	
Disability	60.1%	21.6%	13.8%	4.5%	559	
Resignation	0.5%	1.6%	96.5%	1.4%	566	
Termination for Cause	0.5%	0.5%	97.4%	1.6%	568	
Involuntary Termination	12.6%	23.4%	54.8%	9.1%	547	
<b>INDUSTRY SECTOR</b>						
<b>Energy Services</b>						
Normal Retirement	30.9%	45.6%	22.1%	1.5%	68	
Early Retirement	22.4%	34.3%	37.3%	6.0%	67	
Death	60.3%	35.3%	2.9%	1.5%	68	
Disability	56.7%	35.8%	4.5%	3.0%	67	
Resignation	0.0%	0.0%	98.6%	1.4%	69	
Termination for Cause	0.0%	0.0%	100.0%	0.0%	69	
Involuntary Termination	16.2%	23.5%	45.6%	14.7%	68	
<b>Financial Services</b>						
Normal Retirement	54.2%	28.9%	13.3%	3.6%	83	
Early Retirement	27.2%	28.4%	38.3%	6.2%	81	
Death	75.3%	15.3%	8.2%	1.2%	85	
Disability	70.6%	15.3%	9.4%	4.7%	85	
Resignation	1.2%	2.4%	95.3%	1.2%	85	
Termination for Cause	2.4%	0.0%	97.6%	0.0%	85	
Involuntary Termination	15.5%	21.4%	53.6%	9.5%	84	

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**LTI Plan Design**

**Restricted Stock/Stock Units (continued)**

	% of Responses				# of Responses
	100% Vested	Portion of Award	Forfeited	Discretion	
<b>UNVESTED RESTRICTED STOCK/STOCK UNITS - TREATMENT UPON TERMINATION (continued)</b>					
<b>INDUSTRY SECTOR (continued)</b>					
<b>High Tech</b>					
Normal Retirement	41.1%	29.0%	27.1%	2.8%	107
Early Retirement	24.8%	23.8%	49.5%	2.0%	101
Death	64.2%	22.0%	11.9%	1.8%	109
Disability	58.1%	22.9%	15.2%	3.8%	105
Resignation	0.9%	3.8%	94.3%	0.9%	106
Termination for Cause	0.0%	0.9%	99.1%	0.0%	107
Involuntary Termination	11.8%	27.5%	58.8%	2.0%	102
<b>Manufacturing</b>					
Normal Retirement	46.9%	28.0%	22.6%	2.5%	239
Early Retirement	23.6%	28.4%	44.4%	3.6%	225
Death	69.3%	22.1%	7.0%	1.6%	244
Disability	61.3%	23.5%	10.9%	4.2%	238
Resignation	0.4%	2.5%	95.9%	1.2%	241
Termination for Cause	0.4%	0.8%	97.5%	1.2%	243
Involuntary Termination	13.8%	27.6%	52.6%	6.0%	232
<b>Media/Entertainment</b>					
Normal Retirement	45.5%	22.7%	27.3%	4.5%	22
Early Retirement	36.4%	22.7%	36.4%	4.5%	22
Death	63.6%	18.2%	18.2%	0.0%	22
Disability	59.1%	18.2%	22.7%	0.0%	22
Resignation	0.0%	4.5%	95.5%	0.0%	22
Termination for Cause	0.0%	0.0%	100.0%	0.0%	22
Involuntary Termination	14.3%	19.0%	61.9%	4.8%	21
<b>Pharmaceutical/Biotechnology</b>					
Normal Retirement	51.4%	20.0%	28.6%	0.0%	35
Early Retirement	26.5%	20.6%	52.9%	0.0%	34
Death	63.9%	22.2%	13.9%	0.0%	36
Disability	57.1%	22.9%	17.1%	2.9%	35
Resignation	0.0%	0.0%	94.4%	5.6%	36
Termination for Cause	0.0%	0.0%	94.4%	5.6%	36
Involuntary Termination	20.0%	25.7%	48.6%	5.7%	35

Table continues on next page.

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

	% of Responses				# of Responses
	100% Vested	Portion of Award	Forfeited	Discretion	
<b>UNVESTED RESTRICTED STOCK/STOCK UNITS - TREATMENT UPON TERMINATION (continued)</b>					
<b>INDUSTRY SECTOR (continued)</b>					
<b>Retail/Wholesale Trade</b>					
Normal Retirement	45.0%	22.5%	32.5%	0.0%	40
Early Retirement	16.2%	13.5%	67.6%	2.7%	37
Death	67.5%	12.5%	17.5%	2.5%	40
Disability	55.0%	12.5%	27.5%	5.0%	40
Resignation	0.0%	0.0%	100.0%	0.0%	40
Termination for Cause	0.0%	0.0%	95.0%	5.0%	40
Involuntary Termination	10.5%	13.2%	68.4%	7.9%	38
<b>Services</b>					
Normal Retirement	36.5%	25.2%	32.2%	6.1%	115
Early Retirement	20.2%	17.4%	56.0%	6.4%	109
Death	59.3%	17.8%	20.3%	2.5%	118
Disability	55.6%	18.8%	21.4%	4.3%	117
Resignation	0.8%	0.8%	96.6%	1.7%	119
Termination for Cause	0.0%	0.8%	96.6%	2.5%	119
Involuntary Termination	7.1%	20.4%	61.1%	11.5%	113
<b>Health Care</b>					
Normal Retirement	16.7%	25.0%	33.3%	25.0%	12
Early Retirement	0.0%	0.0%	91.7%	8.3%	12
Death	50.0%	0.0%	33.3%	16.7%	12
Disability	41.7%	8.3%	33.3%	16.7%	12
Resignation	0.0%	0.0%	91.7%	8.3%	12
Termination for Cause	0.0%	0.0%	91.7%	8.3%	12
Involuntary Termination	8.3%	16.7%	58.3%	16.7%	12
<b>REVENUE SIZE</b>					
<b>Under \$500 Million</b>					
Normal Retirement	33.3%	20.0%	40.0%	6.7%	15
Early Retirement	6.7%	33.3%	53.3%	6.7%	15
Death	66.7%	6.7%	26.7%	0.0%	15
Disability	60.0%	0.0%	33.3%	6.7%	15
Resignation	0.0%	0.0%	100.0%	0.0%	15
Termination for Cause	0.0%	0.0%	100.0%	0.0%	15
Involuntary Termination	23.1%	15.4%	46.2%	15.4%	13

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**LTI Plan Design**

**Restricted Stock/Stock Units (continued)**

	% of Responses				# of Responses
	100% Vested	Portion of Award	Forfeited	Discretion	
<b>UNVESTED RESTRICTED STOCK/STOCK UNITS - TREATMENT UPON TERMINATION (continued)</b>					
<b>REVENUE SIZE (continued)</b>					
<b>\$500 Million - \$1 Billion</b>					
Normal Retirement	32.3%	25.8%	32.3%	9.7%	31
Early Retirement	12.9%	19.4%	51.6%	16.1%	31
Death	56.3%	21.9%	15.6%	6.3%	32
Disability	50.0%	21.9%	18.8%	9.4%	32
Resignation	0.0%	0.0%	97.1%	2.9%	34
Termination for Cause	0.0%	0.0%	100.0%	0.0%	34
Involuntary Termination	6.7%	10.0%	73.3%	10.0%	30
<b>\$1 Billion - \$3 Billion</b>					
Normal Retirement	41.4%	28.1%	27.3%	3.1%	128
Early Retirement	23.4%	23.4%	50.8%	2.4%	124
Death	61.1%	22.9%	13.7%	2.3%	131
Disability	55.4%	23.8%	16.2%	4.6%	130
Resignation	0.8%	3.1%	96.2%	0.0%	131
Termination for Cause	0.0%	0.8%	98.5%	0.8%	131
Involuntary Termination	8.5%	23.3%	60.5%	7.8%	129
<b>\$3 Billion - \$6 Billion</b>					
Normal Retirement	31.8%	40.0%	25.5%	2.7%	110
Early Retirement	12.9%	31.7%	51.5%	4.0%	101
Death	62.8%	27.4%	8.0%	1.8%	113
Disability	59.3%	26.5%	9.7%	4.4%	113
Resignation	0.0%	1.8%	95.5%	2.7%	111
Termination for Cause	0.9%	0.0%	97.3%	1.8%	112
Involuntary Termination	11.1%	19.4%	60.2%	9.3%	108
<b>\$6 Billion - \$10 Billion</b>					
Normal Retirement	34.4%	36.1%	23.0%	6.6%	61
Early Retirement	16.4%	29.1%	47.3%	7.3%	55
Death	64.5%	24.2%	9.7%	1.6%	62
Disability	63.8%	22.4%	10.3%	3.4%	58
Resignation	0.0%	0.0%	98.4%	1.6%	62
Termination for Cause	0.0%	0.0%	98.4%	1.6%	62
Involuntary Termination	13.3%	26.7%	48.3%	11.7%	60

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**LTI Plan Design**

**Restricted Stock/Stock Units (continued)**

<b>UNVESTED RESTRICTED STOCK/STOCK UNITS - TREATMENT UPON TERMINATION (continued)</b>					
	% of Responses				# of Responses
	100% Vested	Portion of Award	Forfeited	Discretion	
<b>REVENUE SIZE (continued)</b>					
<b>\$10 Billion - \$20 Billion</b>					
Normal Retirement	51.0%	21.2%	24.0%	3.8%	104
Early Retirement	21.6%	22.5%	52.0%	3.9%	102
Death	68.6%	17.1%	12.4%	1.9%	105
Disability	54.3%	21.9%	20.0%	3.8%	105
Resignation	1.9%	1.0%	94.2%	2.9%	103
Termination for Cause	1.0%	1.0%	94.2%	3.8%	104
Involuntary Termination	12.9%	25.7%	53.5%	7.9%	101
<b>\$20 Billion or More</b>					
Normal Retirement	58.3%	25.9%	14.8%	0.9%	108
Early Retirement	38.8%	22.3%	34.0%	4.9%	103
Death	78.9%	13.8%	5.5%	1.8%	109
Disability	73.6%	16.0%	6.6%	3.8%	106
Resignation	0.0%	1.8%	98.2%	0.0%	110
Termination for Cause	0.9%	0.9%	97.3%	0.9%	110
Involuntary Termination	18.9%	28.3%	43.4%	9.4%	106

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>TREATMENT OF OUTSTANDING UNVESTED AWARDS UPON CHANGE-IN-CONTROL</b>					
	% of Responses				# of Responses
	"Single Trigger" Vesting	"Double Trigger" Vesting	No Impact	Other	
<b>Total Sample</b>	29.4%	48.9%	12.5%	9.2%	513
<b>Industry Sector</b>					
Energy Services	30.2%	57.1%	6.3%	6.3%	63
Financial Services	20.3%	50.6%	19.0%	10.1%	79
High Tech	24.5%	53.9%	15.7%	5.9%	102
Manufacturing	31.2%	46.2%	11.8%	10.9%	221
Media/Entertainment	47.4%	26.3%	15.8%	10.5%	19
Pharmaceutical/Biotechnology	37.9%	44.8%	3.4%	13.8%	29
Retail/Wholesale Trade	34.3%	40.0%	17.1%	8.6%	35
Services	31.1%	49.5%	12.6%	6.8%	103
Health Care	25.0%	66.7%	0.0%	8.3%	12
<b>Revenue Size</b>					
Under \$500 Million	27.3%	63.6%	0.0%	9.1%	11
\$500 Million - \$1 Billion	38.2%	38.2%	14.7%	8.8%	34
\$1 Billion - \$3 Billion	31.5%	53.1%	6.2%	9.2%	130
\$3 Billion - \$6 Billion	30.4%	43.1%	12.7%	13.7%	102
\$6 Billion - \$10 Billion	27.8%	61.1%	7.4%	3.7%	54
\$10 Billion - \$20 Billion	27.7%	51.1%	11.7%	9.6%	94
\$20 Billion or More	25.0%	42.0%	26.1%	6.8%	88

**LTI Plan Design****Restricted Stock/Stock Units (continued)**

<b>ORGANIZATIONS HAVING A MANDATORY SHARE RETENTION RATIO</b>			
	No	Yes	# of Responses
<b>Total Sample</b>	72.0%	28.0%	517
<b>Industry Sector</b>			
Energy Services	72.1%	27.9%	61
Financial Services	63.6%	36.4%	77
High Tech	76.0%	24.0%	100
Manufacturing	77.2%	22.8%	219
Media/Entertainment	89.5%	10.5%	19
Pharmaceutical/Biotechnology	93.9%	6.1%	33
Retail/Wholesale Trade	68.4%	31.6%	38
Services	70.9%	29.1%	110
Health Care	50.0%	50.0%	12
<b>Revenue Size</b>			
Under \$500 Million	92.9%	7.1%	14
\$500 Million - \$1 Billion	65.7%	34.3%	35
\$1 Billion - \$3 Billion	80.9%	19.1%	131
\$3 Billion - \$6 Billion	74.8%	25.2%	103
\$6 Billion - \$10 Billion	75.5%	24.5%	53
\$10 Billion - \$20 Billion	67.8%	32.2%	87
\$20 Billion or More	57.4%	42.6%	94

<b>SHARES WHICH MUST BE RETAINED IF SHARE RETENTION IS REQUIRED</b>			
	All shares after taxes are paid must be retained	Only a percentage of share profit must be retained	# of Responses
<b>Total Sample</b>	27.8%	72.2%	144
<b>Industry Sector</b>			
Energy Services	35.3%	64.7%	17
Financial Services	25.9%	74.1%	27
High Tech	37.5%	62.5%	24
Manufacturing	36.0%	64.0%	50
Media/Entertainment	0.0%	100.0%	2
Pharmaceutical/Biotechnology	0.0%	100.0%	2
Retail/Wholesale Trade	9.1%	90.9%	11
Services	21.2%	78.8%	33
Health Care	16.7%	83.3%	6
<b>Revenue Size</b>			
Under \$500 Million	0.0%	100.0%	1
\$500 Million - \$1 Billion	50.0%	50.0%	12
\$1 Billion - \$3 Billion	28.0%	72.0%	25
\$3 Billion - \$6 Billion	36.0%	64.0%	25
\$6 Billion - \$10 Billion	38.5%	61.5%	13
\$10 Billion - \$20 Billion	10.3%	89.7%	29
\$20 Billion or More	25.6%	74.4%	39



**LTI Plan Design**

**Restricted Stock/Stock Units (continued)**

<b>TIME PERIOD SHARES MUST BE RETAINED</b>				
	% of Responses			# of Responses
	Until Ownership Guideline is Met	Specified Period of Time	Until Retirement	
<b>Total Sample</b>	76.0%	17.8%	6.2%	146
<b>Industry Sector</b>				
Energy Services	76.5%	11.8%	11.8%	17
Financial Services	65.5%	27.6%	6.9%	29
High Tech	83.3%	16.7%	0.0%	24
Manufacturing	72.0%	22.0%	6.0%	50
Media/Entertainment	100.0%	0.0%	0.0%	2
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	2
Retail/Wholesale Trade	90.9%	9.1%	0.0%	11
Services	84.8%	9.1%	6.1%	33
Health Care	83.3%	16.7%	0.0%	6
<b>Revenue Size</b>				
Under \$500 Million	0.0%	100.0%	0.0%	1
\$500 Million - \$1 Billion	66.7%	33.3%	0.0%	12
\$1 Billion - \$3 Billion	73.1%	7.7%	19.2%	26
\$3 Billion - \$6 Billion	84.6%	7.7%	7.7%	26
\$6 Billion - \$10 Billion	84.6%	7.7%	7.7%	13
\$10 Billion - \$20 Billion	72.4%	24.1%	3.4%	29
\$20 Billion or More	76.9%	23.1%	0.0%	39

**LTI Plan Design****Performance Plan Awards**

<b>ORGANIZATIONS GRANTING DURING MOST RECENT ANNUAL LTI GRANT</b>			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	724	80.2%	903
<b>Industry Sector</b>			
Energy Services	94	86.2%	109
Financial Services	128	81.0%	158
High Tech	126	76.8%	164
Manufacturing	308	79.6%	387
Media/Entertainment	21	84.0%	25
Pharmaceutical/Biotechnology	34	64.2%	53
Retail/Wholesale Trade	49	76.6%	64
Services	126	76.4%	165
Health Care	19	95.0%	20
<b>Revenue Size</b>			
Under \$500 Million	23	56.1%	41
\$500 Million - \$1 Billion	35	67.3%	52
\$1 Billion - \$3 Billion	162	78.3%	207
\$3 Billion - \$6 Billion	137	81.1%	169
\$6 Billion - \$10 Billion	86	90.5%	95
\$10 Billion - \$20 Billion	120	82.8%	145
\$20 Billion or More	161	83.0%	194

<b>TYPE OF AWARDS</b>				
	% of Responses			# of Responses
	Performance Units	Performance Cash	Performance Shares	
<b>Total Sample</b>	3.9%	25.3%	70.8%	727
<b>Industry Sector</b>				
Energy Services	3.2%	20.2%	76.6%	94
Financial Services	7.8%	32.8%	59.4%	128
High Tech	2.4%	22.2%	75.4%	126
Manufacturing	3.6%	22.0%	74.4%	309
Media/Entertainment	4.8%	23.8%	71.4%	21
Pharmaceutical/Biotechnology	5.9%	8.8%	85.3%	34
Retail/Wholesale Trade	0.0%	28.0%	72.0%	50
Services	1.6%	25.2%	73.2%	127
Health Care	10.5%	47.4%	42.1%	19
<b>Revenue Size</b>				
Under \$500 Million	13.0%	56.5%	30.4%	23
\$500 Million - \$1 Billion	2.9%	17.1%	80.0%	35
\$1 Billion - \$3 Billion	2.5%	30.1%	67.5%	163
\$3 Billion - \$6 Billion	2.9%	23.2%	73.9%	138
\$6 Billion - \$10 Billion	3.5%	17.4%	79.1%	86
\$10 Billion - \$20 Billion	1.7%	20.0%	78.3%	120
\$20 Billion or More	6.8%	27.8%	65.4%	162

**LTI Plan Design****Performance Plan Awards (continued)****CRITERIA USED TO DETERMINE ELIGIBILITY**

	% of Responses					# of Responses
	Base/ Midpoint/ Grade	Discretionary Judgment	Position or Title	All Employees	Other	
<b>Total Sample</b>	42.2%	20.6%	65.5%	1.6%	11.5%	685
<b>Industry Sector</b>						
Energy Services	34.5%	21.8%	71.3%	0.0%	18.4%	87
Financial Services	36.1%	23.0%	72.1%	0.8%	9.0%	122
High Tech	48.7%	18.3%	64.3%	1.7%	10.4%	115
Manufacturing	52.9%	22.9%	54.6%	2.7%	13.3%	293
Media/Entertainment	35.0%	25.0%	80.0%	0.0%	5.0%	20
Pharmaceutical/Biotechnology	55.9%	11.8%	35.3%	2.9%	17.6%	34
Retail/Wholesale Trade	26.7%	6.7%	82.2%	0.0%	6.7%	45
Services	36.1%	18.5%	71.4%	1.7%	5.0%	119
Health Care	26.3%	10.5%	89.5%	0.0%	21.1%	19
<b>Revenue Size</b>						
Under \$500 Million	20.0%	25.0%	85.0%	0.0%	10.0%	20
\$500 Million - \$1 Billion	3.2%	16.1%	90.3%	6.5%	3.2%	31
\$1 Billion - \$3 Billion	34.9%	21.7%	73.7%	1.3%	13.2%	152
\$3 Billion - \$6 Billion	44.9%	22.0%	66.1%	1.6%	10.2%	127
\$6 Billion - \$10 Billion	46.2%	23.1%	55.1%	2.6%	16.7%	78
\$10 Billion - \$20 Billion	43.7%	16.8%	65.5%	0.8%	9.2%	119
\$20 Billion or More	54.4%	20.3%	55.1%	1.3%	12.0%	158

**LOWEST MIDPOINT ELIGIBLE**

	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$95.9	\$129.7	\$166.3	\$237.1	\$303.8	\$193.6	427
<b>Industry Sector</b>							
Energy Services	\$97.3	\$127.1	\$146.9	\$176.4	\$229.5	\$155.6	60
Financial Services	\$102.8	\$129.8	\$162.2	\$229.5	\$330.0	\$195.4	66
High Tech	\$85.6	\$140.0	\$179.9	\$250.0	\$309.8	\$210.6	71
Manufacturing	\$86.3	\$127.5	\$171.8	\$250.0	\$310.0	\$197.3	198
Media/Entertainment	\$141.0	\$189.5	\$255.0	\$496.5	\$690.0	\$335.0	13
Pharmaceutical/Biotechnology	\$90.2	\$130.8	\$202.1	\$298.0	\$319.7	\$213.3	20
Retail/Wholesale Trade	\$92.7	\$135.7	\$180.6	\$203.8	\$298.6	\$184.2	24
Services	\$104.0	\$136.0	\$183.3	\$255.0	\$405.6	\$221.1	71
Health Care	---	\$102.9	\$141.2	\$226.8	---	\$158.7	8
<b>Revenue Size</b>							
Under \$500 Million	\$68.2	\$96.5	\$142.4	\$171.3	\$188.6	\$134.6	12
\$500 Million - \$1 Billion	\$81.2	\$125.0	\$150.0	\$221.0	\$360.0	\$181.0	15
\$1 Billion - \$3 Billion	\$75.0	\$123.1	\$156.2	\$229.0	\$274.8	\$182.3	102
\$3 Billion - \$6 Billion	\$97.4	\$128.1	\$160.3	\$210.9	\$263.1	\$178.1	82
\$6 Billion - \$10 Billion	\$93.6	\$128.0	\$166.2	\$200.0	\$263.9	\$174.3	47
\$10 Billion - \$20 Billion	\$110.5	\$135.0	\$190.0	\$256.4	\$300.0	\$196.7	67
\$20 Billion or More	\$118.1	\$136.0	\$191.2	\$267.5	\$371.0	\$233.1	102

**LTI Plan Design****Performance Plan Awards (continued)**

<b>MIDPOINT OF 100% PARTICIPATION LEVEL</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$125.9	\$150.1	\$212.2	\$279.5	\$372.4	\$234.3	316
<b>Industry Sector</b>							
Energy Services	\$126.0	\$137.3	\$166.6	\$218.8	\$300.0	\$187.9	44
Financial Services	\$116.0	\$165.5	\$238.5	\$312.3	\$395.0	\$256.2	41
High Tech	\$139.2	\$173.5	\$234.2	\$300.0	\$383.5	\$251.4	57
Manufacturing	\$126.3	\$150.8	\$213.7	\$274.9	\$329.2	\$230.2	160
Media/Entertainment	\$152.5	\$219.3	\$252.5	\$656.3	\$697.5	\$386.4	10
Pharmaceutical/Biotechnology	\$100.6	\$136.0	\$170.0	\$261.9	\$365.4	\$207.6	15
Retail/Wholesale Trade	\$124.8	\$185.6	\$256.0	\$380.0	\$420.0	\$273.6	13
Services	\$128.0	\$159.5	\$234.2	\$333.3	\$472.0	\$262.5	53
Health Care	---	\$126.5	\$179.5	\$261.3	---	\$191.0	5
<b>Revenue Size</b>							
Under \$500 Million	---	\$112.0	\$157.2	\$237.1	---	\$177.7	6
\$500 Million - \$1 Billion	\$127.3	\$160.0	\$336.5	\$374.9	\$383.0	\$284.6	11
\$1 Billion - \$3 Billion	\$125.8	\$147.9	\$175.0	\$251.8	\$334.6	\$215.6	73
\$3 Billion - \$6 Billion	\$124.7	\$140.0	\$201.6	\$250.0	\$339.5	\$217.8	62
\$6 Billion - \$10 Billion	\$120.8	\$161.5	\$204.7	\$246.0	\$306.3	\$210.5	40
\$10 Billion - \$20 Billion	\$125.1	\$150.2	\$241.8	\$300.0	\$375.0	\$234.4	50
\$20 Billion or More	\$133.5	\$170.8	\$252.6	\$317.0	\$410.0	\$276.4	74

<b>NUMBER OF EMPLOYEES ELIGIBLE FOR GRANTS</b>						
	25th	Median	75th	Average	# of Responses	
<b>Total Sample</b>	25	70	241	596	570	
<b>Industry Sector</b>						
Energy Services	25	65	162	445	81	
Financial Services	14	48	251	251	97	
High Tech	26	60	259	621	92	
Manufacturing	31	72	240	856	247	
Media/Entertainment	9	21	148	296	18	
Pharmaceutical/Biotechnology	51	145	449	610	29	
Retail/Wholesale Trade	25	100	183	160	31	
Services	20	96	412	602	101	
Health Care	17	42	316	184	13	
<b>Revenue Size</b>						
Under \$500 Million	9	20	35	111	14	
\$500 Million - \$1 Billion	7	24	87	176	28	
\$1 Billion - \$3 Billion	15	57	166	320	134	
\$3 Billion - \$6 Billion	29	59	161	189	113	
\$6 Billion - \$10 Billion	44	131	387	498	66	
\$10 Billion - \$20 Billion	25	67	200	526	95	
\$20 Billion or More	53	188	699	1,554	120	

**LTI Plan Design****Performance Plan Awards (continued)**

<b>NUMBER OF EMPLOYEES RECEIVING GRANTS</b>					
	25th	Median	75th	Average	# of Responses
<b>Total Sample</b>	24	65	200	282	570
<b>Industry Sector</b>					
Energy Services	25	60	151	173	81
Financial Services	14	48	190	228	97
High Tech	26	60	241	290	92
Manufacturing	31	65	200	357	247
Media/Entertainment	9	19	137	292	18
Pharmaceutical/Biotechnology	35	145	440	583	29
Retail/Wholesale Trade	20	64	167	111	31
Services	19	93	322	305	101
Health Care	17	37	304	178	13
<b>Revenue Size</b>					
Under \$500 Million	9	20	35	101	14
\$500 Million - \$1 Billion	7	24	77	129	28
\$1 Billion - \$3 Billion	15	52	121	117	134
\$3 Billion - \$6 Billion	29	55	159	144	113
\$6 Billion - \$10 Billion	38	97	293	205	66
\$10 Billion - \$20 Billion	23	64	200	281	95
\$20 Billion or More	53	171	652	698	120

<b>PERCENT OF EMPLOYEES ELIGIBLE TO RECEIVE GRANTS</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	0.6%	0.9%	1.9%	4.1%	8.2%	5.3%	337
<b>Industry Sector</b>							
Energy Services	0.6%	1.2%	2.6%	4.5%	15.2%	9.0%	67
Financial Services	0.6%	0.8%	2.4%	5.1%	8.4%	3.5%	64
High Tech	0.6%	1.1%	1.9%	3.5%	13.8%	7.5%	42
Manufacturing	0.6%	0.9%	1.8%	3.2%	6.6%	4.6%	136
Media/Entertainment	---	0.8%	1.3%	5.4%	---	2.9%	9
Pharmaceutical/Biotechnology	0.7%	0.9%	1.8%	4.1%	17.0%	4.8%	17
Retail/Wholesale Trade	0.5%	0.8%	1.5%	1.8%	4.9%	1.8%	12
Services	0.5%	0.6%	1.5%	3.6%	9.8%	6.0%	53
Health Care	---	1.1%	1.2%	3.1%	---	1.9%	5
<b>Revenue Size</b>							
Under \$500 Million	0.7%	1.0%	3.0%	5.8%	53.8%	10.1%	14
\$500 Million - \$1 Billion	0.6%	0.9%	1.5%	3.3%	8.4%	2.9%	22
\$1 Billion - \$3 Billion	0.6%	0.8%	2.0%	4.3%	10.0%	6.5%	98
\$3 Billion - \$6 Billion	0.6%	0.9%	1.9%	3.2%	5.5%	4.8%	72
\$6 Billion - \$10 Billion	0.6%	0.7%	2.3%	4.9%	11.8%	4.4%	42
\$10 Billion - \$20 Billion	0.5%	0.7%	2.0%	4.2%	8.0%	5.9%	39
\$20 Billion or More	0.5%	0.9%	1.6%	3.1%	8.7%	4.0%	50

**LTI Plan Design****Performance Plan Awards (continued)**

<b>PERCENT OF EMPLOYEES RECEIVING GRANTS</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	0.6%	0.9%	1.8%	3.3%	6.2%	3.7%	335
<b>Industry Sector</b>							
Energy Services	0.6%	1.2%	2.5%	3.9%	9.3%	5.2%	66
Financial Services	0.6%	0.8%	2.3%	4.7%	8.1%	3.2%	63
High Tech	0.6%	0.9%	1.7%	2.8%	5.8%	2.7%	41
Manufacturing	0.6%	0.9%	1.8%	3.1%	5.4%	3.5%	134
Media/Entertainment	---	0.8%	1.1%	5.3%	---	2.8%	9
Pharmaceutical/Biotechnology	0.7%	0.9%	1.7%	4.6%	18.2%	4.8%	16
Retail/Wholesale Trade	0.6%	0.8%	1.4%	1.7%	4.2%	1.5%	11
Services	0.5%	0.6%	1.6%	3.0%	7.7%	3.3%	56
Health Care	---	1.0%	1.2%	2.8%	---	1.7%	5
<b>Revenue Size</b>							
Under \$500 Million	0.7%	1.0%	3.0%	4.2%	52.1%	9.5%	14
\$500 Million - \$1 Billion	0.6%	0.8%	1.6%	3.6%	10.4%	3.0%	23
\$1 Billion - \$3 Billion	0.6%	0.8%	1.8%	3.8%	7.2%	3.2%	101
\$3 Billion - \$6 Billion	0.6%	0.9%	1.8%	2.8%	4.7%	3.8%	71
\$6 Billion - \$10 Billion	0.6%	0.7%	2.0%	3.9%	7.8%	3.3%	40
\$10 Billion - \$20 Billion	0.5%	0.8%	2.0%	3.6%	4.8%	3.1%	37
\$20 Billion or More	0.5%	0.9%	1.6%	2.9%	8.9%	3.7%	49

**GRANT FREQUENCY**

	% of Responses				# of Responses
	Annual	Every 2 Years	Every 3 Years	Every 4 Years or More	
<b>Total Sample</b>	97.8%	0.8%	1.4%	0.0%	727
<b>Industry Sector</b>					
Energy Services	97.9%	0.0%	2.1%	0.0%	94
Financial Services	99.2%	0.0%	0.8%	0.0%	128
High Tech	95.2%	1.6%	3.2%	0.0%	126
Manufacturing	97.7%	0.6%	1.6%	0.0%	309
Media/Entertainment	95.2%	4.8%	0.0%	0.0%	21
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	0.0%	34
Retail/Wholesale Trade	100.0%	0.0%	0.0%	0.0%	50
Services	95.3%	3.1%	1.6%	0.0%	127
Health Care	100.0%	0.0%	0.0%	0.0%	19
<b>Revenue Size</b>					
Under \$500 Million	95.7%	0.0%	4.3%	0.0%	23
\$500 Million - \$1 Billion	97.1%	0.0%	2.9%	0.0%	35
\$1 Billion - \$3 Billion	97.5%	1.2%	1.2%	0.0%	163
\$3 Billion - \$6 Billion	99.3%	0.7%	0.0%	0.0%	138
\$6 Billion - \$10 Billion	97.7%	0.0%	2.3%	0.0%	86
\$10 Billion - \$20 Billion	99.2%	0.0%	0.8%	0.0%	120
\$20 Billion or More	96.3%	1.9%	1.9%	0.0%	162

## LTI Plan Design

### Performance Plan Awards (continued)

LENGTH OF PERFORMANCE CYCLE					
	% of Responses				# of Responses
	1 Year	2 Years	3 Years	4 Years or More	
<b>Total Sample</b>	7.6%	4.4%	84.3%	3.7%	727
<b>Industry Sector</b>					
Energy Services	6.4%	1.1%	90.4%	2.1%	94
Financial Services	6.3%	0.8%	88.3%	4.7%	128
High Tech	10.3%	6.3%	78.6%	4.8%	126
Manufacturing	6.5%	4.5%	84.8%	4.2%	309
Media/Entertainment	0.0%	4.8%	90.5%	4.8%	21
Pharmaceutical/Biotechnology	5.9%	2.9%	85.3%	5.9%	34
Retail/Wholesale Trade	10.0%	8.0%	82.0%	0.0%	50
Services	11.8%	8.7%	74.8%	4.7%	127
Health Care	5.3%	5.3%	89.5%	0.0%	19
<b>Revenue Size</b>					
Under \$500 Million	13.0%	13.0%	69.6%	4.3%	23
\$500 Million - \$1 Billion	11.4%	5.7%	82.9%	0.0%	35
\$1 Billion - \$3 Billion	4.9%	5.5%	87.1%	2.5%	163
\$3 Billion - \$6 Billion	10.1%	2.2%	84.8%	2.9%	138
\$6 Billion - \$10 Billion	5.8%	5.8%	87.2%	1.2%	86
\$10 Billion - \$20 Billion	6.7%	4.2%	85.8%	3.3%	120
\$20 Billion or More	8.0%	3.1%	80.9%	8.0%	162

DIVIDENDS (OR DIVIDEND EQUIVALENTS)			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	261	51.0%	512
<b>Industry Sector</b>			
Energy Services	54	75.0%	72
Financial Services	43	56.6%	76
High Tech	44	46.3%	95
Manufacturing	106	46.3%	229
Media/Entertainment	6	40.0%	15
Pharmaceutical/Biotechnology	8	27.6%	29
Retail/Wholesale Trade	15	42.9%	35
Services	40	43.5%	92
Health Care	3	37.5%	8
<b>Revenue Size</b>			
Under \$500 Million	6	85.7%	7
\$500 Million - \$1 Billion	14	50.0%	28
\$1 Billion - \$3 Billion	50	46.3%	108
\$3 Billion - \$6 Billion	48	47.5%	101
\$6 Billion - \$10 Billion	30	44.1%	68
\$10 Billion - \$20 Billion	52	55.3%	94
\$20 Billion or More	61	57.5%	106

**LTI Plan Design****Performance Plan Awards (continued)**

	% of Responses				# of Responses
	Paid Currently	Accrued with Interest	Accrued with No Interest	Reinvested in Additional Shares	
<b>Total Sample</b>	8.9%	2.8%	45.2%	43.1%	248
<b>Industry Sector</b>					
Energy Services	1.9%	1.9%	41.5%	54.7%	53
Financial Services	9.5%	2.4%	45.2%	42.9%	42
High Tech	12.2%	2.4%	39.0%	46.3%	41
Manufacturing	10.9%	4.0%	47.5%	37.6%	101
Media/Entertainment	33.3%	0.0%	50.0%	16.7%	6
Pharmaceutical/Biotechnology	0.0%	0.0%	42.9%	57.1%	7
Retail/Wholesale Trade	15.4%	0.0%	30.8%	53.8%	13
Services	11.1%	0.0%	47.2%	41.7%	36
Health Care	0.0%	33.3%	66.7%	0.0%	3
<b>Revenue Size</b>					
Under \$500 Million	0.0%	0.0%	83.3%	16.7%	6
\$500 Million - \$1 Billion	7.1%	0.0%	35.7%	57.1%	14
\$1 Billion - \$3 Billion	10.4%	2.1%	39.6%	47.9%	48
\$3 Billion - \$6 Billion	9.8%	4.9%	56.1%	29.3%	41
\$6 Billion - \$10 Billion	6.7%	3.3%	56.7%	33.3%	30
\$10 Billion - \$20 Billion	3.9%	0.0%	39.2%	56.9%	51
\$20 Billion or More	13.8%	5.2%	39.7%	41.4%	58

**NUMBER OF PERFORMANCE MEASURES USED**

	% of Responses				# of Responses
	1 Measure	2 Measures	3 Measures	More Than 3 Measures	
<b>Total Sample</b>	39.3%	36.4%	17.3%	7.0%	700
<b>Industry Sector</b>					
Energy Services	42.6%	24.5%	18.1%	14.9%	94
Financial Services	28.3%	37.5%	23.3%	10.8%	120
High Tech	42.7%	39.3%	15.4%	2.6%	117
Manufacturing	43.1%	37.4%	14.8%	4.7%	297
Media/Entertainment	40.0%	30.0%	25.0%	5.0%	20
Pharmaceutical/Biotechnology	35.3%	38.2%	17.6%	8.8%	34
Retail/Wholesale Trade	40.8%	40.8%	14.3%	4.1%	49
Services	40.5%	41.3%	16.5%	1.7%	121
Health Care	21.1%	31.6%	26.3%	21.1%	19
<b>Revenue Size</b>					
Under \$500 Million	31.8%	22.7%	22.7%	22.7%	22
\$500 Million - \$1 Billion	53.1%	31.3%	6.3%	9.4%	32
\$1 Billion - \$3 Billion	45.2%	35.7%	14.6%	4.5%	157
\$3 Billion - \$6 Billion	43.3%	33.6%	15.7%	7.5%	134
\$6 Billion - \$10 Billion	38.3%	38.3%	18.5%	4.9%	81
\$10 Billion - \$20 Billion	38.7%	34.5%	18.5%	8.4%	119
\$20 Billion or More	29.0%	43.2%	21.3%	6.5%	155



**LTI Plan Design****Performance Plan Awards (continued)****PERFORMANCE MEASURED IN DETERMINING PAYOUT**

	% of Responses				# of Responses
	Corporate	Divisional/Group	Individual	Other	
<b>Total Sample</b>	97.3%	12.4%	6.8%	3.2%	711
<b>Industry Sector</b>					
Energy Services	96.8%	9.7%	5.4%	6.5%	93
Financial Services	99.2%	7.9%	9.5%	3.2%	126
High Tech	96.7%	10.8%	4.2%	3.3%	120
Manufacturing	97.4%	12.2%	4.9%	2.3%	304
Media/Entertainment	100.0%	19.0%	0.0%	0.0%	21
Pharmaceutical/Biotechnology	100.0%	2.9%	5.9%	2.9%	34
Retail/Wholesale Trade	95.5%	25.0%	9.1%	2.3%	44
Services	96.8%	12.0%	4.0%	3.2%	125
Health Care	94.7%	31.6%	36.8%	5.3%	19
<b>Revenue Size</b>					
Under \$500 Million	100.0%	13.0%	21.7%	8.7%	23
\$500 Million - \$1 Billion	100.0%	8.8%	2.9%	2.9%	34
\$1 Billion - \$3 Billion	97.5%	11.2%	6.2%	2.5%	161
\$3 Billion - \$6 Billion	97.8%	12.7%	3.0%	0.7%	134
\$6 Billion - \$10 Billion	96.3%	12.2%	8.5%	3.7%	82
\$10 Billion - \$20 Billion	95.0%	8.4%	5.0%	5.0%	119
\$20 Billion or More	98.1%	17.1%	9.5%	3.8%	158

**REVENUE/PROFIT PERFORMANCE METRICS USED**

	% of Responses						# of Responses
	Revenues	EPS	Net Income	EBIT/ Operating Income	EBITDA	Other	
<b>Total Sample</b>	15.6%	21.2%	6.9%	7.4%	11.0%	22.6%	712
<b>Industry Sector</b>							
Energy Services	5.3%	13.8%	4.3%	1.1%	9.6%	23.4%	94
Financial Services	17.9%	17.1%	9.8%	6.5%	3.3%	32.5%	123
High Tech	23.3%	25.8%	7.5%	6.7%	6.7%	23.3%	120
Manufacturing	16.8%	23.1%	6.3%	7.3%	10.6%	20.5%	303
Media/Entertainment	20.0%	45.0%	5.0%	10.0%	15.0%	20.0%	20
Pharmaceutical/Biotechnology	32.4%	29.4%	5.9%	0.0%	2.9%	26.5%	34
Retail/Wholesale Trade	18.4%	26.5%	10.2%	18.4%	18.4%	18.4%	49
Services	17.6%	21.6%	6.4%	8.8%	16.0%	21.6%	125
Health Care	11.1%	38.9%	5.6%	11.1%	22.2%	5.6%	18
<b>Revenue Size</b>							
Under \$500 Million	9.5%	4.8%	0.0%	4.8%	4.8%	19.0%	21
\$500 Million - \$1 Billion	11.4%	22.9%	5.7%	0.0%	5.7%	8.6%	35
\$1 Billion - \$3 Billion	14.6%	19.6%	8.2%	7.6%	15.2%	22.2%	158
\$3 Billion - \$6 Billion	14.8%	25.2%	5.9%	9.6%	11.1%	22.2%	135
\$6 Billion - \$10 Billion	14.1%	21.2%	5.9%	2.4%	14.1%	20.0%	85
\$10 Billion - \$20 Billion	15.8%	24.2%	6.7%	10.0%	12.5%	25.8%	120
\$20 Billion or More	19.6%	19.0%	8.2%	8.2%	5.7%	25.9%	158

**LTI Plan Design****Performance Plan Awards (continued)**

ACCOUNTING RETURN/MARGIN PERFORMANCE METRICS USED							
	% of Responses						# of Responses
	ROIC/RONA	ROE	Operating Margin	Net Profit Margin	Gross Margin	Other	
<b>Total Sample</b>	15.2%	9.0%	2.7%	0.4%	0.4%	11.1%	712
<b>Industry Sector</b>							
Energy Services	5.3%	9.6%	1.1%	0.0%	0.0%	7.4%	94
Financial Services	4.9%	31.7%	3.3%	0.0%	0.8%	21.1%	123
High Tech	20.8%	0.0%	0.0%	0.8%	0.0%	10.8%	120
Manufacturing	21.5%	2.6%	1.7%	0.7%	0.3%	9.6%	303
Media/Entertainment	0.0%	5.0%	0.0%	0.0%	0.0%	5.0%	20
Pharmaceutical/Biotechnology	20.6%	2.9%	0.0%	2.9%	0.0%	5.9%	34
Retail/Wholesale Trade	24.5%	6.1%	4.1%	0.0%	0.0%	8.2%	49
Services	13.6%	1.6%	3.2%	0.8%	0.8%	9.6%	125
Health Care	16.7%	16.7%	16.7%	0.0%	0.0%	5.6%	18
<b>Revenue Size</b>							
Under \$500 Million	9.5%	14.3%	4.8%	0.0%	0.0%	4.8%	21
\$500 Million - \$1 Billion	8.6%	8.6%	5.7%	2.9%	0.0%	2.9%	35
\$1 Billion - \$3 Billion	15.2%	7.6%	1.9%	0.0%	0.6%	10.8%	158
\$3 Billion - \$6 Billion	15.6%	6.7%	1.5%	0.7%	0.0%	13.3%	135
\$6 Billion - \$10 Billion	16.5%	10.6%	3.5%	0.0%	0.0%	7.1%	85
\$10 Billion - \$20 Billion	12.5%	8.3%	1.7%	0.8%	0.0%	10.0%	120
\$20 Billion or More	18.4%	11.4%	3.8%	0.0%	1.3%	15.2%	158

SHAREHOLDER VALUE PERFORMANCE METRICS USED							
	% of Responses						# of Responses
	Total Shareholder Return (TSR)	EVA/CVA/ Economic Profit	CFROI	Operating Cash Flow	Free Cash Flow	Other	
<b>Total Sample</b>	40.4%	2.2%	0.3%	3.5%	3.9%	9.7%	712
<b>Industry Sector</b>							
Energy Services	72.3%	0.0%	0.0%	2.1%	1.1%	10.6%	94
Financial Services	25.2%	0.8%	0.0%	1.6%	0.0%	11.4%	123
High Tech	40.0%	4.2%	0.8%	5.0%	5.0%	10.8%	120
Manufacturing	43.6%	4.0%	0.7%	4.3%	4.3%	9.2%	303
Media/Entertainment	50.0%	0.0%	0.0%	10.0%	30.0%	5.0%	20
Pharmaceutical/Biotechnology	50.0%	5.9%	0.0%	2.9%	5.9%	11.8%	34
Retail/Wholesale Trade	10.2%	2.0%	0.0%	2.0%	6.1%	8.2%	49
Services	39.2%	1.6%	0.0%	4.8%	8.0%	9.6%	125
Health Care	16.7%	0.0%	0.0%	5.6%	5.6%	5.6%	18
<b>Revenue Size</b>							
Under \$500 Million	23.8%	0.0%	0.0%	0.0%	0.0%	9.5%	21
\$500 Million - \$1 Billion	45.7%	2.9%	2.9%	0.0%	0.0%	11.4%	35
\$1 Billion - \$3 Billion	38.0%	1.9%	0.0%	2.5%	3.2%	10.1%	158
\$3 Billion - \$6 Billion	41.5%	3.0%	0.7%	4.4%	5.9%	5.2%	135
\$6 Billion - \$10 Billion	51.8%	0.0%	0.0%	2.4%	2.4%	17.6%	85
\$10 Billion - \$20 Billion	42.5%	1.7%	0.0%	1.7%	5.8%	8.3%	120
\$20 Billion or More	35.4%	3.8%	0.0%	7.0%	3.8%	9.5%	158

## LTI Plan Design

### Performance Plan Awards (continued)

#### STRATEGIC PERFORMANCE METRICS USED

	% of Responses						# of Responses
	Market Share	Quality	Customer Satisfaction/Service	Employee Metrics	Strategic Milestones	Other	
<b>Total Sample</b>	2.1%	2.0%	3.8%	2.8%	2.8%	8.3%	712
<b>Industry Sector</b>							
Energy Services	1.1%	4.3%	11.7%	4.3%	8.5%	19.1%	94
Financial Services	4.1%	2.4%	5.7%	6.5%	4.1%	13.0%	123
High Tech	0.8%	0.8%	1.7%	1.7%	0.8%	1.7%	120
Manufacturing	1.7%	1.0%	1.0%	1.3%	1.3%	4.6%	303
Media/Entertainment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20
Pharmaceutical/Biotechnology	0.0%	2.9%	0.0%	0.0%	5.9%	5.9%	34
Retail/Wholesale Trade	2.0%	0.0%	2.0%	6.1%	0.0%	6.1%	49
Services	1.6%	0.8%	3.2%	0.8%	1.6%	2.4%	125
Health Care	5.6%	16.7%	5.6%	0.0%	5.6%	27.8%	18
<b>Revenue Size</b>							
Under \$500 Million	9.5%	9.5%	33.3%	14.3%	23.8%	33.3%	21
\$500 Million - \$1 Billion	5.7%	2.9%	11.4%	5.7%	5.7%	17.1%	35
\$1 Billion - \$3 Billion	1.3%	1.9%	1.3%	1.9%	3.8%	6.3%	158
\$3 Billion - \$6 Billion	0.7%	1.5%	2.2%	0.7%	0.7%	5.2%	135
\$6 Billion - \$10 Billion	2.4%	2.4%	2.4%	2.4%	0.0%	4.7%	85
\$10 Billion - \$20 Billion	1.7%	1.7%	2.5%	1.7%	3.3%	8.3%	120
\$20 Billion or More	2.5%	1.3%	3.8%	4.4%	1.3%	9.5%	158

#### MAXIMUM PAYOUT AS % OF TARGET

	% of Responses						# of Responses
	Less Than 150%	150%	151% - 199%	200%	More Than 200%	No Maximum	
<b>Total Sample</b>	9.5%	21.8%	3.3%	57.2%	7.6%	0.7%	726
<b>Industry Sector</b>							
Energy Services	7.4%	23.4%	5.3%	62.8%	1.1%	0.0%	94
Financial Services	12.5%	28.1%	3.1%	46.9%	7.8%	1.6%	128
High Tech	7.9%	20.6%	4.8%	61.1%	5.6%	0.0%	126
Manufacturing	5.8%	16.9%	3.6%	63.6%	9.4%	0.6%	308
Media/Entertainment	19.0%	14.3%	0.0%	61.9%	4.8%	0.0%	21
Pharmaceutical/Biotechnology	9.1%	21.2%	0.0%	48.5%	18.2%	3.0%	33
Retail/Wholesale Trade	16.0%	22.0%	4.0%	50.0%	8.0%	0.0%	50
Services	14.2%	25.2%	1.6%	49.6%	8.7%	0.8%	127
Health Care	10.5%	26.3%	0.0%	63.2%	0.0%	0.0%	19
<b>Revenue Size</b>							
Under \$500 Million	21.7%	43.5%	4.3%	17.4%	13.0%	0.0%	23
\$500 Million - \$1 Billion	17.1%	22.9%	5.7%	45.7%	8.6%	0.0%	35
\$1 Billion - \$3 Billion	9.8%	21.5%	2.5%	57.7%	8.6%	0.0%	163
\$3 Billion - \$6 Billion	9.5%	22.6%	4.4%	58.4%	4.4%	0.7%	137
\$6 Billion - \$10 Billion	8.1%	23.3%	1.2%	58.1%	8.1%	1.2%	86
\$10 Billion - \$20 Billion	3.3%	21.7%	2.5%	65.0%	7.5%	0.0%	120
\$20 Billion or More	11.1%	17.3%	4.3%	57.4%	8.0%	1.9%	162

**LTI Plan Design****Performance Plan Awards (continued)**

<b>THRESHOLD PAYOUT AS % OF TARGET</b>						
	% of Responses					# of Responses
	Less Than 25%	25%	26% - 49%	50%	More Than 50%	
<b>Total Sample</b>	28.4%	18.2%	8.3%	39.1%	6.1%	726
<b>Industry Sector</b>						
Energy Services	22.3%	21.3%	10.6%	38.3%	7.4%	94
Financial Services	35.2%	11.7%	6.3%	40.6%	6.3%	128
High Tech	27.8%	19.0%	10.3%	34.9%	7.9%	126
Manufacturing	31.2%	18.8%	9.7%	35.4%	4.9%	308
Media/Entertainment	23.8%	9.5%	9.5%	42.9%	14.3%	21
Pharmaceutical/Biotechnology	30.3%	18.2%	12.1%	33.3%	6.1%	33
Retail/Wholesale Trade	28.0%	28.0%	0.0%	38.0%	6.0%	50
Services	19.7%	18.1%	9.4%	44.1%	8.7%	127
Health Care	26.3%	10.5%	0.0%	63.2%	0.0%	19
<b>Revenue Size</b>						
Under \$500 Million	30.4%	4.3%	4.3%	47.8%	13.0%	23
\$500 Million - \$1 Billion	22.9%	17.1%	8.6%	42.9%	8.6%	35
\$1 Billion - \$3 Billion	23.9%	17.8%	9.2%	45.4%	3.7%	163
\$3 Billion - \$6 Billion	24.1%	16.8%	5.8%	47.4%	5.8%	137
\$6 Billion - \$10 Billion	31.4%	22.1%	12.8%	27.9%	5.8%	86
\$10 Billion - \$20 Billion	26.7%	19.2%	8.3%	42.5%	3.3%	120
\$20 Billion or More	37.0%	19.1%	7.4%	27.2%	9.3%	162

<b>PERFORMANCE RELATIVE TO PEER GROUP OR INDEX</b>			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	330	49.2%	671
<b>Industry Sector</b>			
Energy Services	68	73.1%	93
Financial Services	52	44.4%	117
High Tech	54	47.4%	114
Manufacturing	144	51.4%	280
Media/Entertainment	10	50.0%	20
Pharmaceutical/Biotechnology	19	61.3%	31
Retail/Wholesale Trade	9	20.5%	44
Services	53	44.2%	120
Health Care	4	23.5%	17
<b>Revenue Size</b>			
Under \$500 Million	7	33.3%	21
\$500 Million - \$1 Billion	18	51.4%	35
\$1 Billion - \$3 Billion	66	44.0%	150
\$3 Billion - \$6 Billion	66	51.2%	129
\$6 Billion - \$10 Billion	46	58.2%	79
\$10 Billion - \$20 Billion	59	54.6%	108
\$20 Billion or More	68	45.6%	149

**LTI Plan Design****Performance Plan Awards (continued)**

PEER GROUP OR INDEXES USED TO MEASURE PERFORMANCE						
	% of Responses					# of Responses
	Custom Peer Group	S&P 500 Index	Russell 2000 Index	Industry Index	Other	
<b>Total Sample</b>	50.8%	13.8%	1.2%	16.6%	17.5%	325
<b>Industry Sector</b>						
Energy Services	52.9%	2.9%	0.0%	38.2%	5.9%	68
Financial Services	62.0%	14.0%	2.0%	10.0%	12.0%	50
High Tech	35.8%	20.8%	1.9%	18.9%	22.6%	53
Manufacturing	52.1%	14.8%	2.1%	9.9%	21.1%	142
Media/Entertainment	40.0%	50.0%	0.0%	0.0%	10.0%	10
Pharmaceutical/Biotechnology	55.6%	5.6%	5.6%	5.6%	27.8%	18
Retail/Wholesale Trade	44.4%	33.3%	0.0%	0.0%	22.2%	9
Services	38.5%	19.2%	0.0%	15.4%	26.9%	52
Health Care	0.0%	50.0%	0.0%	25.0%	25.0%	4
<b>Revenue Size</b>						
Under \$500 Million	71.4%	14.3%	0.0%	14.3%	0.0%	7
\$500 Million - \$1 Billion	23.5%	5.9%	0.0%	47.1%	23.5%	17
\$1 Billion - \$3 Billion	43.1%	10.8%	3.1%	23.1%	20.0%	65
\$3 Billion - \$6 Billion	52.3%	12.3%	1.5%	16.9%	16.9%	65
\$6 Billion - \$10 Billion	57.4%	19.1%	0.0%	10.6%	12.8%	47
\$10 Billion - \$20 Billion	58.9%	12.5%	1.8%	16.1%	10.7%	56
\$20 Billion or More	50.0%	17.6%	0.0%	7.4%	25.0%	68

**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>PERFORMANCE VS. PEERS AND PAYOUT LEVELS</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>TOTAL SAMPLE</b>							
Performance at 90th Percentile	150.0%	175.0%	200.0%	200.0%	200.0%	187.4%	229
Performance at 75th Percentile	125.0%	150.0%	150.0%	200.0%	200.0%	162.5%	229
Performance at 50th Percentile	80.0%	100.0%	100.0%	100.0%	100.0%	96.0%	229
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	27.2%	229
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	229
<b>INDUSTRY SECTOR</b>							
<b>Energy Services</b>							
Performance at 90th Percentile	150.0%	183.0%	200.0%	200.0%	200.0%	190.6%	57
Performance at 75th Percentile	148.0%	150.0%	150.0%	172.5%	200.0%	160.2%	57
Performance at 50th Percentile	96.0%	100.0%	100.0%	100.0%	100.0%	98.1%	57
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	23.4%	57
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	57
<b>Financial Services</b>							
Performance at 90th Percentile	125.0%	150.0%	200.0%	200.0%	200.0%	174.7%	29
Performance at 75th Percentile	120.0%	150.0%	150.0%	179.0%	200.0%	157.9%	29
Performance at 50th Percentile	100.0%	100.0%	100.0%	100.0%	100.0%	101.0%	29
Performance at 25th Percentile	0.0%	25.0%	50.0%	50.0%	62.0%	36.9%	29
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	50.0%	7.4%	29
<b>High Tech</b>							
Performance at 90th Percentile	150.0%	170.5%	200.0%	200.0%	200.0%	184.4%	36
Performance at 75th Percentile	125.0%	141.0%	175.0%	200.0%	200.0%	167.6%	36
Performance at 50th Percentile	76.4%	100.0%	100.0%	100.0%	100.0%	96.2%	36
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	29.2%	36
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	36
<b>Manufacturing</b>							
Performance at 90th Percentile	150.0%	181.5%	200.0%	200.0%	200.0%	190.2%	101
Performance at 75th Percentile	121.0%	150.0%	165.0%	200.0%	200.0%	165.2%	101
Performance at 50th Percentile	75.0%	100.0%	100.0%	100.0%	100.0%	93.9%	101
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	28.1%	101
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	101
<b>Media/Entertainment</b>							
Performance at 90th Percentile	---	200.0%	200.0%	200.0%	---	194.3%	7
Performance at 75th Percentile	---	136.0%	163.0%	200.0%	---	158.9%	7
Performance at 50th Percentile	---	100.0%	100.0%	100.0%	---	90.0%	7
Performance at 25th Percentile	---	0.0%	0.0%	30.0%	---	14.1%	7
Performance at 10th Percentile	---	0.0%	0.0%	0.0%	---	2.4%	7

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**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>PERFORMANCE VS. PEERS AND PAYOUT LEVELS (continued)</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>INDUSTRY SECTOR (continued)</b>							
<b>Pharmaceutical/Biotechnology</b>							
Performance at 90th Percentile	120.5%	143.8%	200.0%	200.0%	200.0%	179.5%	10
Performance at 75th Percentile	78.5%	140.0%	157.5%	177.5%	200.0%	153.8%	10
Performance at 50th Percentile	30.4%	94.8%	100.0%	100.0%	100.0%	90.4%	10
Performance at 25th Percentile	0.0%	15.0%	29.0%	50.0%	86.0%	32.8%	10
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	72.0%	8.0%	10
<b>Retail/Wholesale Trade</b>							
Performance at 90th Percentile	---	168.8%	190.0%	200.0%	---	184.2%	6
Performance at 75th Percentile	---	150.0%	150.0%	162.5%	---	158.3%	6
Performance at 50th Percentile	---	83.3%	100.0%	100.0%	---	93.8%	6
Performance at 25th Percentile	---	0.0%	12.5%	25.8%	---	13.0%	6
Performance at 10th Percentile	---	0.0%	0.0%	0.0%	---	0.0%	6
<b>Services</b>							
Performance at 90th Percentile	150.0%	150.0%	200.0%	200.0%	200.0%	184.8%	35
Performance at 75th Percentile	125.0%	150.0%	150.0%	200.0%	200.0%	161.7%	35
Performance at 50th Percentile	82.8%	100.0%	100.0%	100.0%	100.0%	95.4%	35
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	25.5%	35
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	35
<b>Health Care</b>							
Performance at 90th Percentile	---	---	---	---	---	---	1
Performance at 75th Percentile	---	---	---	---	---	---	1
Performance at 50th Percentile	---	---	---	---	---	---	1
Performance at 25th Percentile	---	---	---	---	---	---	1
Performance at 10th Percentile	---	---	---	---	---	---	1
<b>REVENUE SIZE</b>							
<b>Under \$500 Million</b>							
Performance at 90th Percentile	---	150.0%	175.0%	250.0%	---	189.3%	7
Performance at 75th Percentile	---	145.0%	150.0%	200.0%	---	162.9%	7
Performance at 50th Percentile	---	80.0%	100.0%	100.0%	---	92.9%	7
Performance at 25th Percentile	---	0.0%	25.0%	50.0%	---	25.0%	7
Performance at 10th Percentile	---	0.0%	0.0%	20.0%	---	10.0%	7
<b>\$500 Million - \$1 Billion</b>							
Performance at 90th Percentile	---	150.0%	187.5%	200.0%	---	185.6%	8
Performance at 75th Percentile	---	150.0%	150.0%	178.0%	---	158.9%	8
Performance at 50th Percentile	---	100.0%	100.0%	100.0%	---	101.0%	8
Performance at 25th Percentile	---	0.0%	12.5%	50.0%	---	23.4%	8
Performance at 10th Percentile	---	0.0%	0.0%	0.0%	---	0.0%	8

Table continues on next page.

**LTI Plan Design****Performance Plan Awards (continued)**

<b>PERFORMANCE VS. PEERS AND PAYOUT LEVELS (continued)</b>							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>REVENUE SIZE (continued)</b>							
<b>\$1 Billion - \$3 Billion</b>							
Performance at 90th Percentile	150.0%	200.0%	200.0%	200.0%	200.0%	194.0%	45
Performance at 75th Percentile	138.4%	150.0%	167.0%	200.0%	200.0%	167.9%	45
Performance at 50th Percentile	98.0%	100.0%	100.0%	100.0%	100.0%	97.7%	45
Performance at 25th Percentile	0.0%	0.0%	25.0%	47.0%	50.0%	23.4%	45
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	45
<b>\$3 Billion - \$6 Billion</b>							
Performance at 90th Percentile	150.0%	175.0%	200.0%	200.0%	200.0%	185.3%	47
Performance at 75th Percentile	124.0%	150.0%	150.0%	200.0%	200.0%	161.6%	47
Performance at 50th Percentile	74.0%	100.0%	100.0%	100.0%	100.0%	96.0%	47
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	30.0%	47
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	47
<b>\$6 Billion - \$10 Billion</b>							
Performance at 90th Percentile	140.0%	175.0%	200.0%	200.0%	220.0%	187.8%	35
Performance at 75th Percentile	134.0%	150.0%	150.0%	200.0%	200.0%	165.1%	35
Performance at 50th Percentile	75.0%	100.0%	100.0%	100.0%	100.0%	95.7%	35
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	21.9%	35
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	35
<b>\$10 Billion - \$20 Billion</b>							
Performance at 90th Percentile	150.0%	200.0%	200.0%	200.0%	200.0%	192.5%	44
Performance at 75th Percentile	137.5%	150.0%	150.0%	200.0%	200.0%	164.9%	44
Performance at 50th Percentile	100.0%	100.0%	100.0%	100.0%	100.0%	98.9%	44
Performance at 25th Percentile	0.0%	14.0%	25.0%	50.0%	50.0%	30.8%	44
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	44
<b>\$20 Billion or More</b>							
Performance at 90th Percentile	135.0%	150.0%	200.0%	200.0%	200.0%	177.2%	43
Performance at 75th Percentile	116.0%	150.0%	150.0%	175.0%	200.0%	153.8%	43
Performance at 50th Percentile	75.0%	88.0%	100.0%	100.0%	100.0%	91.2%	43
Performance at 25th Percentile	0.0%	0.0%	25.0%	50.0%	50.0%	29.6%	43
Performance at 10th Percentile	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	43



**LTI Plan Design****Performance Plan Awards (continued)****PEER GROUP PLAN HAS AN ABSOLUTE PERFORMANCE THRESHOLD**

	% of Responses		# of Responses
	No	Yes	
<b>Total Sample</b>	84.1%	15.9%	289
<b>Industry Sector</b>			
Energy Services	84.4%	15.6%	64
Financial Services	79.5%	20.5%	44
High Tech	76.6%	23.4%	47
Manufacturing	85.6%	14.4%	125
Media/Entertainment	62.5%	37.5%	8
Pharmaceutical/Biotechnology	87.5%	12.5%	16
Retail/Wholesale Trade	100.0%	0.0%	8
Services	80.4%	19.6%	46
Health Care	100.0%	0.0%	2
<b>Revenue Size</b>			
Under \$500 Million	83.3%	16.7%	6
\$500 Million - \$1 Billion	80.0%	20.0%	15
\$1 Billion - \$3 Billion	84.7%	15.3%	59
\$3 Billion - \$6 Billion	82.8%	17.2%	58
\$6 Billion - \$10 Billion	78.0%	22.0%	41
\$10 Billion - \$20 Billion	83.6%	16.4%	55
\$20 Billion or More	90.9%	9.1%	55

**FORM OF AWARD PAYMENT**

	% of Responses			# of Responses
	All Cash	All Shares	Both Cash and Shares	
<b>Total Sample</b>	34.9%	57.7%	7.4%	688
<b>Industry Sector</b>				
Energy Services	40.2%	45.7%	14.1%	92
Financial Services	48.4%	47.5%	4.1%	122
High Tech	27.6%	64.7%	7.8%	116
Manufacturing	29.8%	61.3%	8.9%	292
Media/Entertainment	28.6%	71.4%	0.0%	21
Pharmaceutical/Biotechnology	20.6%	76.5%	2.9%	34
Retail/Wholesale Trade	26.7%	68.9%	4.4%	45
Services	30.8%	65.8%	3.3%	120
Health Care	47.1%	47.1%	5.9%	17
<b>Revenue Size</b>				
Under \$500 Million	68.2%	31.8%	0.0%	22
\$500 Million - \$1 Billion	25.0%	75.0%	0.0%	32
\$1 Billion - \$3 Billion	34.9%	59.9%	5.3%	152
\$3 Billion - \$6 Billion	33.1%	52.8%	14.2%	127
\$6 Billion - \$10 Billion	30.1%	62.7%	7.2%	83
\$10 Billion - \$20 Billion	29.8%	64.0%	6.1%	114
\$20 Billion or More	39.9%	52.5%	7.6%	158

**LTI Plan Design****Performance Plan Awards (continued)**

<b>AWARD PAYOUT DEFERRAL PROVIDED</b>				
	% of Responses			# of Responses
	No	Yes, Mandatory Deferrals	Yes, Voluntary Participant Deferrals	
<b>Total Sample</b>	66.2%	13.5%	20.4%	683
<b>Industry Sector</b>				
Energy Services	59.8%	7.6%	32.6%	92
Financial Services	61.2%	10.7%	28.1%	121
High Tech	70.9%	14.5%	14.5%	117
Manufacturing	70.6%	11.9%	17.5%	286
Media/Entertainment	70.0%	15.0%	15.0%	20
Pharmaceutical/Biotechnology	67.6%	11.8%	20.6%	34
Retail/Wholesale Trade	72.3%	19.1%	8.5%	47
Services	61.7%	20.8%	17.5%	120
Health Care	76.5%	23.5%	0.0%	17
<b>Revenue Size</b>				
Under \$500 Million	47.8%	30.4%	21.7%	23
\$500 Million - \$1 Billion	68.6%	17.1%	14.3%	35
\$1 Billion - \$3 Billion	70.3%	12.8%	16.9%	148
\$3 Billion - \$6 Billion	65.1%	14.0%	20.9%	129
\$6 Billion - \$10 Billion	70.0%	11.3%	18.8%	80
\$10 Billion - \$20 Billion	69.1%	11.8%	19.1%	110
\$20 Billion or More	61.4%	12.7%	25.9%	158

<b>FORM OF COMPENSATION USED IN DETERMINING GRANTS FOR PERFORMANCE CASH PLANS</b>					
	% of Responses				# of Responses
	Base Salary	Base Salary Midpoint	Total Annual Cash Compensation	Other	
<b>Total Sample</b>	67.0%	7.4%	5.1%	20.5%	176
<b>Industry Sector</b>					
Energy Services	89.5%	0.0%	0.0%	10.5%	19
Financial Services	70.0%	7.5%	2.5%	20.0%	40
High Tech	56.0%	12.0%	12.0%	20.0%	25
Manufacturing	69.4%	9.7%	6.5%	14.5%	62
Media/Entertainment	20.0%	20.0%	20.0%	40.0%	5
Pharmaceutical/Biotechnology	50.0%	0.0%	0.0%	50.0%	2
Retail/Wholesale Trade	57.1%	14.3%	0.0%	28.6%	14
Services	46.9%	6.3%	9.4%	37.5%	32
Health Care	77.8%	0.0%	11.1%	11.1%	9
<b>Revenue Size</b>					
Under \$500 Million	84.6%	7.7%	0.0%	7.7%	13
\$500 Million - \$1 Billion	100.0%	0.0%	0.0%	0.0%	6
\$1 Billion - \$3 Billion	66.7%	8.3%	6.3%	18.8%	48
\$3 Billion - \$6 Billion	67.7%	9.7%	3.2%	19.4%	31
\$6 Billion - \$10 Billion	53.8%	7.7%	7.7%	30.8%	13
\$10 Billion - \$20 Billion	73.9%	4.3%	4.3%	17.4%	23
\$20 Billion or More	57.1%	7.1%	7.1%	28.6%	42

**LTI Plan Design****Performance Plan Awards (continued)****PAYOUT DETERMINATION FOR PERFORMANCE CASH PLANS**

	% of Responses				# of Responses
	Compensation at the Beginning of the Cycle	Compensation at the End of the Cycle	Average Compensation Over the Cycle	Aggregate Compensation Over the Cycle	
<b>Total Sample</b>	70.9%	19.2%	9.9%	0.0%	182
<b>Industry Sector</b>					
Energy Services	47.4%	31.6%	21.1%	0.0%	19
Financial Services	61.9%	26.2%	11.9%	0.0%	42
High Tech	74.1%	18.5%	7.4%	0.0%	27
Manufacturing	74.6%	17.9%	7.5%	0.0%	67
Media/Entertainment	100.0%	0.0%	0.0%	0.0%	5
Pharmaceutical/Biotechnology	100.0%	0.0%	0.0%	0.0%	3
Retail/Wholesale Trade	100.0%	0.0%	0.0%	0.0%	14
Services	78.1%	15.6%	6.3%	0.0%	32
Health Care	62.5%	12.5%	25.0%	0.0%	8
<b>Revenue Size</b>					
Under \$500 Million	53.8%	23.1%	23.1%	0.0%	13
\$500 Million - \$1 Billion	50.0%	33.3%	16.7%	0.0%	6
\$1 Billion - \$3 Billion	80.9%	17.0%	2.1%	0.0%	47
\$3 Billion - \$6 Billion	68.8%	15.6%	15.6%	0.0%	32
\$6 Billion - \$10 Billion	73.3%	20.0%	6.7%	0.0%	15
\$10 Billion - \$20 Billion	66.7%	16.7%	16.7%	0.0%	24
\$20 Billion or More	71.1%	22.2%	6.7%	0.0%	45

**AWARD PAYOUT AS % OF TARGET FOR MOST RECENT CYCLE END**

	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	60.0%	95.0%	116.0%	153.0%	200.0%	125.7%	411
<b>Industry Sector</b>							
Energy Services	50.0%	96.8%	114.0%	150.0%	174.4%	116.9%	62
Financial Services	79.0%	100.0%	116.0%	150.8%	200.0%	136.4%	74
High Tech	55.5%	90.3%	111.5%	152.3%	200.0%	121.2%	64
Manufacturing	60.0%	91.0%	122.0%	168.0%	200.0%	127.6%	179
Media/Entertainment	37.4%	96.3%	100.0%	157.0%	194.6%	113.3%	12
Pharmaceutical/Biotechnology	34.8%	82.0%	122.0%	141.0%	190.4%	116.0%	23
Retail/Wholesale Trade	47.2%	70.3%	103.0%	144.0%	195.1%	110.5%	20
Services	49.5%	80.5%	100.0%	152.3%	200.0%	117.9%	64
Health Care	81.4%	102.8%	132.0%	200.0%	200.0%	142.3%	12
<b>Revenue Size</b>							
Under \$500 Million	99.0%	100.0%	103.5%	140.3%	150.0%	116.4%	14
\$500 Million - \$1 Billion	49.1%	97.8%	122.5%	178.8%	200.0%	134.1%	20
\$1 Billion - \$3 Billion	54.0%	85.0%	100.0%	150.0%	194.0%	122.7%	89
\$3 Billion - \$6 Billion	63.7%	88.8%	121.5%	168.3%	200.0%	130.1%	66
\$6 Billion - \$10 Billion	65.0%	93.0%	110.0%	160.0%	200.0%	124.5%	49
\$10 Billion - \$20 Billion	48.4%	88.0%	114.0%	150.5%	200.0%	119.7%	65
\$20 Billion or More	67.5%	97.8%	125.5%	171.5%	200.0%	129.1%	108

**LTI Plan Design****Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TREATMENT UPON TERMINATION</b>						
	% of Responses					# of Responses
	Target			Actual		
	Forfeit	Full	Pro Rata	Full	Pro Rata	
<b>TOTAL SAMPLE</b>						
Normal Retirement	15.3%	14.9%	30.8%	9.2%	29.8%	652
Early Retirement	34.2%	9.1%	27.6%	5.5%	23.7%	617
Death	9.4%	25.0%	33.5%	9.1%	23.0%	660
Disability	11.2%	22.3%	32.6%	9.2%	24.7%	651
Resignation	95.2%	0.5%	2.3%	0.3%	1.8%	662
Termination for Cause	96.8%	0.3%	1.5%	0.5%	0.9%	662
Involuntary Termination	50.7%	5.1%	22.0%	2.3%	19.8%	641
<b>INDUSTRY SECTOR</b>						
<b>Energy Services</b>						
Normal Retirement	3.4%	13.8%	51.7%	6.9%	24.1%	87
Early Retirement	19.3%	9.6%	43.4%	3.6%	24.1%	83
Death	2.3%	25.0%	46.6%	5.7%	20.5%	88
Disability	5.7%	21.8%	43.7%	8.0%	20.7%	87
Resignation	96.6%	0.0%	0.0%	0.0%	3.4%	89
Termination for Cause	96.6%	1.1%	0.0%	1.1%	1.1%	89
Involuntary Termination	51.2%	7.0%	27.9%	1.2%	12.8%	86
<b>Financial Services</b>						
Normal Retirement	8.1%	23.4%	24.3%	12.6%	31.5%	111
Early Retirement	29.7%	13.9%	22.8%	8.9%	24.8%	101
Death	5.3%	32.7%	25.7%	11.5%	24.8%	113
Disability	8.3%	30.3%	26.6%	11.0%	23.9%	109
Resignation	95.5%	1.8%	0.0%	0.9%	1.8%	112
Termination for Cause	98.2%	0.0%	0.0%	0.9%	0.9%	112
Involuntary Termination	42.1%	5.6%	26.2%	2.8%	23.4%	107
<b>High Tech</b>						
Normal Retirement	22.2%	8.3%	32.4%	5.6%	31.5%	108
Early Retirement	38.8%	5.8%	26.2%	4.9%	24.3%	103
Death	9.8%	28.6%	33.0%	4.5%	24.1%	112
Disability	11.8%	23.6%	32.7%	4.5%	27.3%	110
Resignation	94.6%	0.0%	3.6%	0.0%	1.8%	111
Termination for Cause	96.4%	0.0%	1.8%	0.0%	1.8%	111
Involuntary Termination	58.7%	4.8%	16.3%	3.8%	16.3%	104

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**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TREATMENT UPON TERMINATION (continued)</b>						
	% of Responses					# of Responses
	Target			Actual		
	Forfeit	Full	Pro Rata	Full	Pro Rata	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Manufacturing</b>						
Normal Retirement	14.3%	14.3%	30.4%	7.7%	33.2%	286
Early Retirement	32.2%	9.3%	28.1%	4.1%	26.3%	270
Death	8.7%	26.0%	33.0%	6.9%	25.3%	288
Disability	10.1%	23.8%	31.1%	7.0%	28.0%	286
Resignation	96.2%	0.3%	2.4%	0.3%	0.7%	287
Termination for Cause	96.9%	0.3%	1.7%	0.0%	1.0%	289
Involuntary Termination	48.0%	5.7%	20.3%	2.1%	23.8%	281
<b>Media/Entertainment</b>						
Normal Retirement	25.0%	10.0%	45.0%	10.0%	10.0%	20
Early Retirement	35.0%	5.0%	40.0%	10.0%	10.0%	20
Death	25.0%	10.0%	45.0%	10.0%	10.0%	20
Disability	30.0%	10.0%	45.0%	5.0%	10.0%	20
Resignation	100.0%	0.0%	0.0%	0.0%	0.0%	20
Termination for Cause	100.0%	0.0%	0.0%	0.0%	0.0%	20
Involuntary Termination	60.0%	5.0%	20.0%	5.0%	10.0%	20
<b>Pharmaceutical/Biotechnology</b>						
Normal Retirement	6.3%	12.5%	43.8%	18.8%	18.8%	32
Early Retirement	34.4%	9.4%	25.0%	6.3%	25.0%	32
Death	6.3%	28.1%	43.8%	9.4%	12.5%	32
Disability	9.4%	25.0%	37.5%	9.4%	18.8%	32
Resignation	100.0%	0.0%	0.0%	0.0%	0.0%	33
Termination for Cause	100.0%	0.0%	0.0%	0.0%	0.0%	33
Involuntary Termination	48.5%	9.1%	18.2%	0.0%	24.2%	33
<b>Retail/Wholesale Trade</b>						
Normal Retirement	32.5%	20.0%	17.5%	7.5%	22.5%	40
Early Retirement	44.4%	16.7%	19.4%	2.8%	16.7%	36
Death	20.0%	22.5%	32.5%	7.5%	17.5%	40
Disability	22.5%	20.0%	30.0%	7.5%	20.0%	40
Resignation	90.2%	0.0%	4.9%	0.0%	4.9%	41
Termination for Cause	95.0%	0.0%	2.5%	0.0%	2.5%	40
Involuntary Termination	65.9%	4.9%	17.1%	2.4%	9.8%	41

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**LTI Plan Design****Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TREATMENT UPON TERMINATION (continued)</b>						
	% of Responses					# of Responses
	Target			Actual		
	Forfeit	Full	Pro Rata	Full	Pro Rata	
<b>INDUSTRY SECTOR (continued)</b>						
<b>Services</b>						
Normal Retirement	28.2%	5.5%	27.3%	12.7%	26.4%	110
Early Retirement	47.7%	2.8%	21.1%	9.2%	19.3%	109
Death	14.2%	18.6%	31.9%	14.2%	21.2%	113
Disability	15.3%	14.4%	34.2%	14.4%	21.6%	111
Resignation	96.5%	0.0%	1.7%	0.0%	1.7%	115
Termination for Cause	97.4%	0.0%	1.8%	0.9%	0.0%	114
Involuntary Termination	60.6%	2.8%	18.3%	3.7%	14.7%	109
<b>Health Care</b>						
Normal Retirement	16.7%	22.2%	27.8%	5.6%	27.8%	18
Early Retirement	55.6%	0.0%	27.8%	0.0%	16.7%	18
Death	27.8%	5.6%	38.9%	16.7%	11.1%	18
Disability	22.2%	5.6%	33.3%	11.1%	27.8%	18
Resignation	72.2%	0.0%	22.2%	0.0%	5.6%	18
Termination for Cause	88.9%	0.0%	11.1%	0.0%	0.0%	18
Involuntary Termination	47.1%	0.0%	29.4%	0.0%	23.5%	17
<b>REVENUE SIZE</b>						
<b>Under \$500 Million</b>						
Normal Retirement	9.1%	18.2%	36.4%	9.1%	27.3%	22
Early Retirement	35.0%	10.0%	30.0%	10.0%	15.0%	20
Death	4.5%	13.6%	45.5%	13.6%	22.7%	22
Disability	4.8%	14.3%	47.6%	14.3%	19.0%	21
Resignation	90.5%	0.0%	0.0%	4.8%	4.8%	21
Termination for Cause	90.5%	0.0%	0.0%	4.8%	4.8%	21
Involuntary Termination	40.0%	5.0%	35.0%	5.0%	15.0%	20
<b>\$500 Million - \$1 Billion</b>						
Normal Retirement	25.0%	17.9%	17.9%	14.3%	25.0%	28
Early Retirement	44.4%	11.1%	18.5%	7.4%	18.5%	27
Death	12.9%	25.8%	19.4%	16.1%	25.8%	31
Disability	16.7%	20.0%	20.0%	20.0%	23.3%	30
Resignation	96.8%	0.0%	3.2%	0.0%	0.0%	31
Termination for Cause	96.8%	0.0%	3.2%	0.0%	0.0%	31
Involuntary Termination	67.9%	7.1%	10.7%	3.6%	10.7%	28

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**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TREATMENT UPON TERMINATION (continued)</b>						
	% of Responses					# of Responses
	Target			Actual		
	Forfeit	Full	Pro Rata	Full	Pro Rata	
<b>REVENUE SIZE (continued)</b>						
<b>\$1 Billion - \$3 Billion</b>						
Normal Retirement	19.3%	14.5%	26.2%	6.9%	33.1%	145
Early Retirement	41.0%	5.8%	25.2%	4.3%	23.7%	139
Death	16.2%	17.6%	29.7%	8.8%	27.7%	148
Disability	17.7%	15.6%	29.3%	7.5%	29.9%	147
Resignation	95.3%	0.7%	2.0%	0.0%	2.0%	148
Termination for Cause	98.0%	0.0%	1.4%	0.0%	0.7%	148
Involuntary Termination	59.2%	3.4%	14.3%	1.4%	21.8%	147
<b>\$3 Billion - \$6 Billion</b>						
Normal Retirement	19.2%	6.7%	34.2%	11.7%	28.3%	120
Early Retirement	39.5%	3.5%	27.2%	5.3%	24.6%	114
Death	11.6%	21.5%	35.5%	8.3%	23.1%	121
Disability	13.2%	22.3%	31.4%	7.4%	25.6%	121
Resignation	95.8%	0.0%	1.7%	0.8%	1.7%	119
Termination for Cause	96.7%	0.8%	1.6%	0.0%	0.8%	122
Involuntary Termination	56.3%	5.0%	19.3%	0.0%	19.3%	119
<b>\$6 Billion - \$10 Billion</b>						
Normal Retirement	17.7%	7.6%	34.2%	6.3%	34.2%	79
Early Retirement	38.4%	8.2%	28.8%	2.7%	21.9%	73
Death	11.5%	24.4%	37.2%	6.4%	20.5%	78
Disability	11.8%	19.7%	36.8%	5.3%	26.3%	76
Resignation	96.3%	0.0%	3.8%	0.0%	0.0%	80
Termination for Cause	97.5%	0.0%	2.5%	0.0%	0.0%	80
Involuntary Termination	46.7%	1.3%	29.3%	1.3%	21.3%	75
<b>\$10 Billion - \$20 Billion</b>						
Normal Retirement	12.7%	18.2%	36.4%	10.0%	22.7%	110
Early Retirement	30.1%	9.7%	35.9%	5.8%	18.4%	103
Death	5.4%	27.9%	40.5%	9.0%	17.1%	111
Disability	11.0%	23.9%	38.5%	9.2%	17.4%	109
Resignation	94.7%	0.0%	2.7%	0.0%	2.7%	113
Termination for Cause	96.4%	0.0%	1.8%	0.9%	0.9%	111
Involuntary Termination	52.8%	2.8%	24.5%	2.8%	17.0%	106

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**LTI Plan Design****Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TREATMENT UPON TERMINATION (continued)</b>						
	% of Responses					# of Responses
	Target			Actual		
	Forfeit	Full	Pro Rata	Full	Pro Rata	
<b>REVENUE SIZE (continued)</b>						
<b>\$20 Billion or More</b>						
Normal Retirement	8.1%	22.3%	28.4%	9.5%	31.8%	148
Early Retirement	22.0%	16.3%	24.8%	7.1%	29.8%	141
Death	2.7%	34.9%	29.5%	9.4%	23.5%	149
Disability	2.7%	30.6%	30.6%	11.6%	24.5%	147
Resignation	94.7%	1.3%	2.0%	0.0%	2.0%	150
Termination for Cause	96.6%	0.7%	0.7%	0.7%	1.3%	149
Involuntary Termination	36.3%	10.3%	26.7%	4.8%	21.9%	146

**UNVESTED PERFORMANCE PLAN AWARDS - TIMING OF PAYMENT UPON VARIOUS TERMINATIONS**

	At time of termination	End of cycle when results are known	Other	# of Responses
<b>Total Sample</b>				
Normal Retirement	15.4%	80.0%	4.6%	370
Early Retirement	16.0%	76.2%	7.8%	294
Death	36.6%	56.6%	6.8%	396
Disability	30.1%	64.4%	5.5%	382
Involuntary Termination	25.4%	61.6%	12.9%	232
<b>INDUSTRY SECTOR</b>				
<b>Energy Services</b>				
Normal Retirement	9.4%	81.1%	9.4%	53
Early Retirement	12.2%	77.6%	10.2%	49
Death	30.9%	56.4%	12.7%	55
Disability	22.6%	66.0%	11.3%	53
Involuntary Termination	35.3%	47.1%	17.6%	34
<b>Financial Services</b>				
Normal Retirement	16.0%	82.7%	1.3%	75
Early Retirement	19.4%	77.4%	3.2%	62
Death	32.5%	62.3%	5.2%	77
Disability	28.2%	71.8%	0.0%	71
Involuntary Termination	31.3%	60.4%	8.3%	48
<b>High Tech</b>				
Normal Retirement	15.4%	78.8%	5.8%	52
Early Retirement	12.5%	75.0%	12.5%	40
Death	39.3%	54.1%	6.6%	61
Disability	33.9%	58.9%	7.1%	56
Involuntary Termination	20.0%	56.7%	23.3%	30

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**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TIMING OF PAYMENT UPON VARIOUS TERMINATIONS (continued)</b>				
	At time of termination	End of cycle when results are known	Other	# of Responses
<b>INDUSTRY SECTOR (continued)</b>				
<b>Manufacturing</b>				
Normal Retirement	12.4%	85.1%	2.5%	161
Early Retirement	14.0%	81.0%	5.0%	121
Death	36.1%	59.8%	4.1%	169
Disability	28.5%	67.9%	3.6%	165
Involuntary Termination	15.2%	71.4%	13.3%	105
<b>Media/Entertainment</b>				
Normal Retirement	45.5%	45.5%	9.1%	11
Early Retirement	33.3%	44.4%	22.2%	9
Death	45.5%	45.5%	9.1%	11
Disability	50.0%	40.0%	10.0%	10
Involuntary Termination	33.3%	50.0%	16.7%	6
<b>Pharmaceutical/ Biotechnology</b>				
Normal Retirement	10.0%	85.0%	5.0%	20
Early Retirement	8.3%	91.7%	0.0%	12
Death	50.0%	40.0%	10.0%	20
Disability	40.0%	50.0%	10.0%	20
Involuntary Termination	23.1%	61.5%	15.4%	13
<b>Retail/Wholesale Trade</b>				
Normal Retirement	26.7%	60.0%	13.3%	15
Early Retirement	25.0%	58.3%	16.7%	12
Death	38.9%	50.0%	11.1%	18
Disability	38.9%	50.0%	11.1%	18
Involuntary Termination	55.6%	44.4%	0.0%	9
<b>Services</b>				
Normal Retirement	21.8%	70.9%	7.3%	55
Early Retirement	14.3%	71.4%	14.3%	42
Death	45.5%	48.5%	6.1%	66
Disability	39.1%	53.1%	7.8%	64
Involuntary Termination	28.6%	57.1%	14.3%	28
<b>Health Care</b>				
Normal Retirement	36.4%	54.5%	9.1%	11
Early Retirement	37.5%	37.5%	25.0%	8
Death	45.5%	27.3%	27.3%	11
Disability	36.4%	45.5%	18.2%	11
Involuntary Termination	37.5%	37.5%	25.0%	8

Table continues on next page.

**LTI Plan Design****Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TIMING OF PAYMENT UPON VARIOUS TERMINATIONS (continued)</b>				
	At time of termination	End of cycle when results are known	Other	# of Responses
<b>Revenue Size</b>				
<b>Under \$500 Million</b>				
Normal Retirement	25.0%	75.0%	0.0%	12
Early Retirement	42.9%	57.1%	0.0%	7
Death	35.7%	64.3%	0.0%	14
Disability	38.5%	61.5%	0.0%	13
Involuntary Termination	37.5%	50.0%	12.5%	8
<b>\$500 Million - \$1 Billion</b>				
Normal Retirement	18.8%	75.0%	6.3%	16
Early Retirement	25.0%	66.7%	8.3%	12
Death	28.6%	52.4%	19.0%	21
Disability	30.0%	65.0%	5.0%	20
Involuntary Termination	20.0%	50.0%	30.0%	10
<b>\$1 Billion - \$3 Billion</b>				
Normal Retirement	12.3%	82.7%	4.9%	81
Early Retirement	11.5%	77.0%	11.5%	61
Death	22.7%	65.9%	11.4%	88
Disability	20.0%	72.9%	7.1%	85
Involuntary Termination	21.2%	61.5%	17.3%	52
<b>\$3 Billion - \$6 Billion</b>				
Normal Retirement	17.1%	80.0%	2.9%	70
Early Retirement	17.0%	77.4%	5.7%	53
Death	41.7%	54.2%	4.2%	72
Disability	36.1%	61.1%	2.8%	72
Involuntary Termination	25.0%	56.8%	18.2%	44
<b>\$6 Billion - \$10 Billion</b>				
Normal Retirement	11.9%	81.0%	7.1%	42
Early Retirement	12.9%	80.6%	6.5%	31
Death	41.9%	48.8%	9.3%	43
Disability	29.3%	63.4%	7.3%	41
Involuntary Termination	26.9%	53.8%	19.2%	26

**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>UNVESTED PERFORMANCE PLAN AWARDS - TIMING OF PAYMENT UPON VARIOUS TERMINATIONS (continued)</b>				
	At time of termination	End of cycle when results are known	Other	# of Responses
<b>Revenue Size (continued)</b>				
<b>\$10 Billion - \$20 Billion</b>				
Normal Retirement	15.0%	78.3%	6.7%	60
Early Retirement	16.3%	73.5%	10.2%	49
Death	40.3%	58.1%	1.6%	62
Disability	36.7%	60.0%	3.3%	60
Involuntary Termination	40.0%	60.0%	0.0%	35
<b>\$20 Billion or More</b>				
Normal Retirement	16.9%	79.8%	3.4%	89
Early Retirement	16.0%	77.8%	6.2%	81
Death	42.7%	52.1%	5.2%	96
Disability	29.7%	62.6%	7.7%	91
Involuntary Termination	19.3%	73.7%	7.0%	57

**LTI Plan Design****Performance Plan Awards (continued)**

<b>TREATMENT OF OUTSTANDING UNVESTED AWARDS UPON CHANGE-IN-CONTROL</b>					
	% of Responses				# of Responses
	"Single Trigger" Vesting	"Double Trigger" Vesting	No Impact	Other	
<b>Total Sample</b>	26.9%	44.6%	17.9%	10.6%	558
<b>Industry Sector</b>					
Energy Services	26.6%	50.6%	11.4%	11.4%	79
Financial Services	15.1%	41.9%	31.4%	11.6%	86
High Tech	29.7%	46.5%	13.9%	9.9%	101
Manufacturing	32.9%	43.1%	14.2%	9.8%	246
Media/Entertainment	33.3%	26.7%	20.0%	20.0%	15
Pharmaceutical/Biotechnology	35.7%	35.7%	17.9%	10.7%	28
Retail/Wholesale Trade	26.5%	41.2%	17.6%	14.7%	34
Services	23.8%	45.5%	20.8%	9.9%	101
Health Care	16.7%	58.3%	16.7%	8.3%	12
<b>Revenue Size</b>					
Under \$500 Million	33.3%	16.7%	41.7%	8.3%	12
\$500 Million - \$1 Billion	19.4%	38.7%	29.0%	12.9%	31
\$1 Billion - \$3 Billion	30.5%	48.1%	11.5%	9.9%	131
\$3 Billion - \$6 Billion	30.3%	38.5%	17.4%	13.8%	109
\$6 Billion - \$10 Billion	27.8%	55.6%	8.3%	8.3%	72
\$10 Billion - \$20 Billion	23.1%	56.0%	9.9%	11.0%	91
\$20 Billion or More	23.2%	34.8%	33.0%	8.9%	112

**LTI Plan Design**

**Performance Plan Awards (continued)**

<b>CHANGE-IN-CONTROL SINGLE TRIGGER VESTING</b>						
	% of Responses					# of Responses
	Pay Full Target	Pay Pro Rata Target	Pay Full Maximum	Pay Pro Rata Actual	Pay Full Actual	
<b>Total Sample</b>	55.8%	31.8%	1.9%	7.1%	3.2%	154
<b>Industry Sector</b>						
Energy Services	66.7%	14.3%	4.8%	14.3%	0.0%	21
Financial Services	58.3%	25.0%	8.3%	8.3%	0.0%	12
High Tech	50.0%	46.7%	0.0%	3.3%	0.0%	30
Manufacturing	57.3%	34.1%	1.2%	4.9%	2.4%	82
Media/Entertainment	66.7%	33.3%	0.0%	0.0%	0.0%	6
Pharmaceutical/Biotechnology	50.0%	40.0%	0.0%	0.0%	10.0%	10
Retail/Wholesale Trade	62.5%	25.0%	0.0%	12.5%	0.0%	8
Services	37.9%	44.8%	0.0%	6.9%	10.3%	29
Health Care	100.0%	0.0%	0.0%	0.0%	0.0%	2
<b>Revenue Size</b>						
Under \$500 Million	0.0%	33.3%	0.0%	66.7%	0.0%	3
\$500 Million - \$1 Billion	33.3%	16.7%	0.0%	33.3%	16.7%	6
\$1 Billion - \$3 Billion	51.4%	34.3%	0.0%	8.6%	5.7%	35
\$3 Billion - \$6 Billion	66.7%	24.2%	0.0%	6.1%	3.0%	33
\$6 Billion - \$10 Billion	66.7%	33.3%	0.0%	0.0%	0.0%	21
\$10 Billion - \$20 Billion	71.4%	19.0%	4.8%	4.8%	0.0%	21
\$20 Billion or More	42.9%	45.7%	5.7%	2.9%	2.9%	35

**LTI Plan Design**

**Performance Plan Awards (continued)**

	% of Responses					# of Responses
	Pay Full Target	Pay Pro Rata Target	Pay Full Maximum	Pay Pro Rata Actual	Pay Full Actual	
<b>CHANGE-IN-CONTROL DOUBLE TRIGGER VESTING</b>						
<b>Total Sample</b>	50.5%	27.7%	5.5%	9.5%	6.8%	220
<b>Industry Sector</b>						
Energy Services	47.4%	39.5%	2.6%	7.9%	2.6%	38
Financial Services	59.4%	21.9%	0.0%	9.4%	9.4%	32
High Tech	40.5%	29.7%	8.1%	10.8%	10.8%	37
Manufacturing	54.9%	23.1%	7.7%	7.7%	6.6%	91
Media/Entertainment	100.0%	0.0%	0.0%	0.0%	0.0%	2
Pharmaceutical/Biotechnology	36.4%	27.3%	0.0%	9.1%	27.3%	11
Retail/Wholesale Trade	41.7%	41.7%	0.0%	16.7%	0.0%	12
Services	38.5%	28.2%	10.3%	12.8%	10.3%	39
Health Care	50.0%	25.0%	0.0%	12.5%	12.5%	8
<b>Revenue Size</b>						
Under \$500 Million	66.7%	33.3%	0.0%	0.0%	0.0%	3
\$500 Million - \$1 Billion	40.0%	40.0%	10.0%	0.0%	10.0%	10
\$1 Billion - \$3 Billion	49.2%	23.7%	8.5%	11.9%	6.8%	59
\$3 Billion - \$6 Billion	48.6%	37.8%	8.1%	2.7%	2.7%	37
\$6 Billion - \$10 Billion	55.6%	22.2%	2.8%	8.3%	11.1%	36
\$10 Billion - \$20 Billion	57.1%	28.6%	2.4%	9.5%	2.4%	42
\$20 Billion or More	42.4%	24.2%	3.0%	18.2%	12.1%	33

## LTI Plan Design

### Stock Appreciation Rights (SARs)

#### ORGANIZATIONS GRANTING SARs DURING MOST RECENT ANNUAL LTI GRANT

	SARs Granted During Most Recent Annual LTI Grant		# of Responses
	# of Organizations	% of Organizations	
<b>Total Sample</b>	59	6.5%	903
<b>Industry Sector</b>			
Energy Services	0	0.0%	109
Financial Services	9	5.7%	158
High Tech	10	6.1%	164
Manufacturing	35	9.0%	387
Media/Entertainment	2	8.0%	25
Pharmaceutical/Biotechnology	6	11.3%	53
Retail/Wholesale Trade	3	4.7%	64
Services	10	6.1%	165
Health Care	2	10.0%	20
<b>Revenue Size</b>			
Under \$500 Million	3	7.3%	41
\$500 Million - \$1 Billion	1	1.9%	52
\$1 Billion - \$3 Billion	13	6.3%	207
\$3 Billion - \$6 Billion	15	8.9%	169
\$6 Billion - \$10 Billion	7	7.4%	95
\$10 Billion - \$20 Billion	12	8.3%	145
\$20 Billion or More	8	4.1%	194

#### TYPE OF ORGANIZATIONS GRANTING SARs

	% of Responses				# of Responses
	Public Company	Private Company	Subsidiary	Foreign-Owned	
<b>Total Sample</b>	58.3%	31.7%	1.7%	8.3%	60
<b>Industry Sector</b>					
Energy Services	---	---	---	---	0
Financial Services	66.7%	33.3%	0.0%	0.0%	9
High Tech	90.0%	10.0%	0.0%	0.0%	10
Manufacturing	58.3%	27.8%	0.0%	13.9%	36
Media/Entertainment	100.0%	0.0%	0.0%	0.0%	2
Pharmaceutical/Biotechnology	33.3%	0.0%	0.0%	66.7%	6
Retail/Wholesale Trade	33.3%	66.7%	0.0%	0.0%	3
Services	60.0%	40.0%	0.0%	0.0%	10
Health Care	50.0%	0.0%	50.0%	0.0%	2
<b>Revenue Size</b>					
Under \$500 Million	33.3%	66.7%	0.0%	0.0%	3
\$500 Million - \$1 Billion	0.0%	100.0%	0.0%	0.0%	1
\$1 Billion - \$3 Billion	61.5%	38.5%	0.0%	0.0%	13
\$3 Billion - \$6 Billion	50.0%	43.8%	0.0%	6.3%	16
\$6 Billion - \$10 Billion	71.4%	28.6%	0.0%	0.0%	7
\$10 Billion - \$20 Billion	66.7%	16.7%	0.0%	16.7%	12
\$20 Billion or More	62.5%	0.0%	12.5%	25.0%	8

**LTI Plan Design****Stock Appreciation Rights (SARs) (continued)**

CRITERIA USED TO DETERMINE ELIGIBILITY FOR SARs GRANTS						
	% of Responses					
	Base/ Midpoint/ Grade	Discretionary Judgment	Position or Title	All Employees	Other	# of Responses
<b>Total Sample</b>	56.9%	31.0%	50.0%	1.7%	17.2%	58
<b>Industry Sector</b>						
Energy Services	---	---	---	---	---	0
Financial Services	44.4%	33.3%	55.6%	0.0%	11.1%	9
High Tech	77.8%	11.1%	44.4%	0.0%	11.1%	9
Manufacturing	65.7%	25.7%	45.7%	2.9%	22.9%	35
Media/Entertainment	0.0%	50.0%	50.0%	0.0%	0.0%	2
Pharmaceutical/Biotechnology	83.3%	33.3%	50.0%	0.0%	16.7%	6
Retail/Wholesale Trade	0.0%	0.0%	100.0%	0.0%	0.0%	3
Services	44.4%	55.6%	55.6%	0.0%	11.1%	9
Health Care	100.0%	50.0%	0.0%	0.0%	0.0%	2
<b>Revenue Size</b>						
Under \$500 Million	33.3%	66.7%	66.7%	0.0%	0.0%	3
\$500 Million - \$1 Billion	100.0%	100.0%	100.0%	0.0%	0.0%	1
\$1 Billion - \$3 Billion	30.8%	46.2%	53.8%	0.0%	7.7%	13
\$3 Billion - \$6 Billion	60.0%	26.7%	60.0%	6.7%	20.0%	15
\$6 Billion - \$10 Billion	57.1%	0.0%	42.9%	0.0%	28.6%	7
\$10 Billion - \$20 Billion	63.6%	18.2%	63.6%	0.0%	18.2%	11
\$20 Billion or More	87.5%	37.5%	0.0%	0.0%	25.0%	8

**LOWEST MIDPOINT ELIGIBLE**

	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$60.0	\$100.0	\$143.0	\$179.1	\$230.0	\$145.7	39

**MIDPOINT OF 100% PARTICIPATION LEVEL**

	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$133.2	\$150.0	\$174.0	\$215.0	\$248.2	\$181.1	27

**NUMBER OF EMPLOYEES ELIGIBLE FOR GRANTS**

	25th	Median	75th	Average	# of Responses
<b>Total Sample</b>	16	70	249	229	26

**NUMBER OF EMPLOYEES RECEIVING GRANTS**

	25th	Median	75th	Average	# of Responses
<b>Total Sample</b>	16	70	249	229	26



**LTI Plan Design****Stock Appreciation Rights (SARs) (continued)****PERCENT OF EMPLOYEES ELIGIBLE FOR GRANTS**

	10th	25th	Median	75th	90th	Average	# of Responses
Total Sample	0.5%	0.8%	1.6%	2.8%	7.7%	2.8%	17

**PERCENT OF EMPLOYEES RECEIVING GRANTS**

	10th	25th	Median	75th	90th	Average	# of Responses
Total Sample	0.5%	0.8%	1.6%	2.8%	7.7%	2.8%	17

**GRANT FREQUENCY OF SARs**

	% of Responses			# of Responses
	Annual	Biennial	3 Years or More	
Total Sample	93.3%	1.7%	5.0%	60

**STOCK PRICE DETERMINATION FOR SARs**

	% of Responses				# of Responses
	Public Company Stock Price	Third-Party Appraised Value	Formula Value	Other	
Total Sample	69.5%	16.9%	10.2%	3.4%	59

**LIMIT ON THE AMOUNT OF APPRECIATION RECOGNIZED FOR PAYMENT PURPOSES**

	% of Responses				# of Responses
	No Limit	100% Appreciation	200% Appreciation	Other	
Total Sample	91.7%	3.3%	1.7%	3.3%	60

**EXERCISE TERM**

	% of Responses						# of Responses
	10 Years	8 Years	7 Years	6 Years	5 Years	4 Years or Less	
Total Sample	56.7%	1.7%	21.7%	1.7%	10.0%	8.3%	60

**DETERMINATION OF EXERCISE/SETTLEMENT DATES**

	% of Responses			# of Responses
	Participant Selects After Vesting	Company Specified	At Retirement	
Total Sample	86.4%	13.6%	0.0%	59

**FORM OF SETTLEMENT**

	% of Responses			# of Responses
	All Cash	All Shares	Both Cash and Shares	
Total Sample	46.4%	48.2%	5.4%	56

## LTI Plan Design

### Stock Appreciation Rights (SARs) (continued)

VESTING SCHEDULE				
	% of Responses			# of Responses
	Cliff Vesting	Graded Vesting	Immediate Vesting	
Total Sample	28.3%	70.0%	1.7%	60

GRADED VESTING SCHEDULES						
	% of Responses					# of Responses
	20% Per Year	25% Per Year	33% Per Year	50% Per Year	Other	
Total Sample	11.9%	40.5%	38.1%	4.8%	4.8%	42

TOTAL TIME UNTIL 100% VESTED						
	% of Responses					# of Responses
	1 Year or Less	2 Years	3 Years	4 Years	5 Years or More	
Total Sample	3.4%	1.7%	52.5%	25.4%	17.0%	59

PERFORMANCE FEATURES INCLUDED IN SARs				
	% of Responses			# of Responses
	No Performance Features Included	SARs Will Only Vest if Certain Performance Conditions are Met	SARs Vesting is Accelerated if Specified Performance Conditions are Met	
Total Sample	94.7%	5.3%	0.0%	57

VESTED SARs - POST-TERMINATION EXERCISE PERIODS							
	% of Responses						# of Responses
	0 Months	1 - 3 Months	4 - 23 Months	2 - 3 Years	4 - 5 Years	Full Remaining Term	
<b>TOTAL SAMPLE</b>							
Normal Retirement	9.6%	1.9%	11.5%	21.2%	15.4%	40.4%	52
Early Retirement	17.6%	17.6%	11.8%	15.7%	13.7%	23.5%	51
Death	5.6%	9.3%	31.5%	24.1%	7.4%	22.2%	54
Disability	7.5%	5.7%	22.6%	26.4%	9.4%	28.3%	53
Resignation	28.3%	64.2%	3.8%	1.9%	0.0%	1.9%	53
Termination for Cause	71.7%	24.5%	0.0%	1.9%	0.0%	1.9%	53
Involuntary Termination	17.6%	54.9%	15.7%	2.0%	3.9%	5.9%	51

**LTI Plan Design**

**Stock Appreciation Rights (SARs) (continued)**

UNVESTED SARs - TREATMENT UPON TERMINATION						
	% of Responses					# of Responses
	Vesting Accelerated	Normal Vested Continued During Term	Prorated Vesting	Forfeited	Discretion	
<b>TOTAL SAMPLE</b>						
Normal Retirement	25.9%	29.6%	25.9%	16.7%	1.9%	54
Early Retirement	15.4%	13.5%	26.9%	42.3%	1.9%	52
Death	51.9%	7.4%	22.2%	16.7%	1.9%	54
Disability	42.6%	16.7%	20.4%	14.8%	5.6%	54
Resignation	1.9%	0.0%	3.7%	94.4%	0.0%	54
Termination for Cause	0.0%	0.0%	3.7%	96.3%	0.0%	54
Involuntary Termination	5.7%	13.2%	13.2%	62.3%	5.7%	53

TREATMENT OF OUTSTANDING UNVESTED AWARDS UPON CHANGE-IN-CONTROL					
	% of Responses				# of Responses
	"Single Trigger" Vesting	"Double Trigger" Vesting	No Impact	Other	
<b>Total Sample</b>	47.8%	30.4%	4.3%	17.4%	46



# Stock Ownership and Restrictive Covenants

## Stock Ownership and Restrictive Covenants Highlights

### Stock Ownership

Overall, 77% of organizations have executive stock ownership guidelines, and 63% have outside director guidelines. Larger companies are more likely to have stock ownership guidelines, as shown in the following table.

PREVALENCE OF GUIDELINES		
Company Size	Executive	Outside Director
All Company	77%	63%
\$6B - \$10B	90%	76%
\$500M - \$1B	74%	67%

### Basis for Guidelines

Almost all companies (93%) set stock ownership guidelines for executive officers as a multiple of pay (salary) rather than fixed shares. For outside directors, 12% have fixed share guidelines, 11% have a flat dollar amount, and 77% prefer a multiple of pay (retainer).

For companies with executive stock ownership guidelines the median lowest paid eligible participant's midpoint at which those stock ownership guidelines typically apply is \$225,000.

### Restrictive Covenants - Non-compete Provisions

Thirty-one percent of the respondents include some form of restrictive covenants in their more recent grants. Restrictive covenants are most likely included with Restricted Stock/Stock Unit Awards (79%) and apply to all recipients (84%).

## Stock Ownership and Restrictive Covenants

### Stock Ownership

#### FORMAL STOCK OWNERSHIP GUIDELINES

	% of Responses			# of Responses
	Executive Officers	Outside Directors	None	
<b>Total Sample</b>	76.7%	63.2%	22.1%	791
<b>Industry Sector</b>				
Energy Services	75.5%	67.0%	21.3%	94
Financial Services	69.6%	55.6%	29.6%	135
High Tech	79.2%	63.9%	20.8%	144
Manufacturing	80.4%	64.0%	19.0%	347
Media/Entertainment	52.2%	43.5%	47.8%	23
Pharmaceutical/Biotechnology	75.0%	59.1%	25.0%	44
Retail/Wholesale Trade	82.4%	72.5%	15.7%	51
Services	73.5%	62.6%	25.2%	147
Health Care	76.5%	64.7%	23.5%	17
<b>Revenue Size</b>				
Under \$500 Million	32.3%	35.5%	61.3%	31
\$500 Million - \$1 Billion	73.9%	67.4%	26.1%	46
\$1 Billion - \$3 Billion	81.3%	66.5%	18.2%	176
\$3 Billion - \$6 Billion	78.1%	65.2%	20.0%	155
\$6 Billion - \$10 Billion	90.4%	75.9%	8.4%	83
\$10 Billion - \$20 Billion	81.1%	66.7%	19.7%	132
\$20 Billion or More	69.6%	53.0%	28.6%	168

#### DETERMINATION OF GUIDELINES

	% of Responses			# of Responses
	Multiple of Pay	Fixed Shares	\$ Value	
<b>TOTAL SAMPLE</b>				
Executives	92.9%	6.3%	0.8%	602
Outside Directors	77.0%	12.2%	10.8%	483
<b>INDUSTRY SECTOR</b>				
<b>Energy Services</b>				
Executives	95.7%	4.3%	0.0%	70
Outside Directors	81.7%	11.7%	6.7%	60
<b>Financial Services</b>				
Executives	92.5%	6.5%	1.1%	93
Outside Directors	74.0%	8.2%	17.8%	73
<b>High Tech</b>				
Executives	92.1%	7.9%	0.0%	114
Outside Directors	78.9%	14.4%	6.7%	90

Table continues on next page.

**Stock Ownership and Restrictive Covenants****Stock Ownership (continued)**

<b>DETERMINATION OF GUIDELINES (continued)</b>				
	% of Responses			# of Responses
	Multiple of Pay	Fixed Shares	\$ Value	
<b>INDUSTRY SECTOR (continued)</b>				
<b>Manufacturing</b>				
Executives	93.6%	5.0%	1.4%	280
Outside Directors	75.0%	13.9%	11.1%	216
<b>Media/Entertainment</b>				
Executives	91.7%	8.3%	0.0%	12
Outside Directors	60.0%	40.0%	0.0%	10
<b>Pharmaceutical/Biotechnology</b>				
Executives	93.9%	6.1%	0.0%	33
Outside Directors	80.0%	8.0%	12.0%	25
<b>Retail/Wholesale Trade</b>				
Executives	92.3%	7.7%	0.0%	39
Outside Directors	80.6%	8.3%	11.1%	36
<b>Services</b>				
Executives	88.8%	11.2%	0.0%	107
Outside Directors	80.7%	12.5%	6.8%	88
<b>Health Care</b>				
Executives	100.0%	0.0%	0.0%	13
Outside Directors	70.0%	20.0%	10.0%	10
<b>REVENUE SIZE</b>				
<b>Under \$500 Million</b>				
Executives	90.0%	0.0%	10.0%	10
Outside Directors	63.6%	9.1%	27.3%	11
<b>\$500 Million - \$1 Billion</b>				
Executives	97.1%	0.0%	2.9%	34
Outside Directors	70.0%	10.0%	20.0%	30
<b>\$1 Billion - \$3 Billion</b>				
Executives	94.3%	5.7%	0.0%	140
Outside Directors	82.5%	7.0%	10.5%	114
<b>\$3 Billion - \$6 Billion</b>				
Executives	93.4%	6.6%	0.0%	121
Outside Directors	83.2%	12.6%	4.2%	95
<b>\$6 Billion - \$10 Billion</b>				
Executives	93.3%	6.7%	0.0%	75
Outside Directors	70.5%	11.5%	18.0%	61
<b>\$10 Billion - \$20 Billion</b>				
Executives	93.4%	6.6%	0.0%	106
Outside Directors	80.5%	16.1%	3.4%	87
<b>\$20 Billion or More</b>				
Executives	88.8%	8.6%	2.6%	116
Outside Directors	68.2%	16.5%	15.3%	85



## Stock Ownership and Restrictive Covenants

### Stock Ownership (continued)

OWNERSHIP TARGETS - AS A MULTIPLE OF PAY							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>TOTAL SAMPLE</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.2	362
CEO	3.0	5.0	5.0	6.0	6.0	5.3	559
EVP	2.0	3.0	3.0	3.0	4.0	3.0	518
SVP	1.0	2.0	2.0	3.0	3.0	2.3	443
VP	1.0	1.0	1.0	2.0	3.0	1.6	276
<b>INDUSTRY SECTOR</b>							
<b>Energy Services</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.3	46
CEO	3.0	5.0	5.0	6.0	6.0	5.1	67
EVP	2.0	3.0	3.0	3.0	4.0	3.0	62
SVP	1.3	2.0	2.5	3.0	3.0	2.4	64
VP	1.0	1.0	1.0	2.0	2.5	1.5	59
<b>Financial Services</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.2	50
CEO	4.8	5.0	5.0	6.0	7.0	5.4	87
EVP	2.5	3.0	3.0	3.0	4.0	3.2	80
SVP	1.0	2.0	2.0	3.0	3.0	2.1	58
VP	1.0	1.0	1.0	2.0	3.0	1.5	23
<b>High Tech</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.2	70
CEO	4.0	5.0	5.0	6.0	6.5	5.5	104
EVP	2.0	3.0	3.0	3.0	4.0	2.9	93
SVP	1.0	2.0	2.0	3.0	3.0	2.3	83
VP	1.0	1.0	1.5	2.0	3.0	1.6	51
<b>Manufacturing</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.2	158
CEO	4.0	5.0	5.0	6.0	6.0	5.4	262
EVP	2.0	3.0	3.0	3.0	4.0	3.0	244
SVP	1.0	2.0	2.0	3.0	3.0	2.3	214
VP	1.0	1.0	1.1	2.0	3.0	1.7	142
<b>Media/Entertainment</b>							
Outside Directors	---	3.0	3.0	5.0	---	3.7	6
CEO	3.0	5.0	5.0	6.0	7.6	5.2	11
EVP	---	2.0	2.3	3.0	---	2.4	8
SVP	---	1.0	2.0	2.5	---	1.8	7
VP	---	---	---	---	---	---	1

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## Stock Ownership and Restrictive Covenants

### Stock Ownership (continued)

OWNERSHIP TARGETS - AS A MULTIPLE OF PAY (continued)							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>INDUSTRY SECTOR (continued)</b>							
<b>Pharmaceutical/Biotechnology</b>							
Outside Directors	3.0	4.0	5.0	5.0	5.2	4.6	17
CEO	3.0	5.0	6.0	6.0	6.0	5.2	33
EVP	2.0	2.0	3.0	3.0	4.0	2.8	31
SVP	1.0	1.8	2.0	3.0	3.0	2.2	26
VP	---	1.0	1.0	2.8	---	1.6	8
<b>Retail/Wholesale Trade</b>							
Outside Directors	3.0	3.0	4.0	5.0	5.0	4.1	27
CEO	3.0	3.0	5.0	6.0	6.4	4.9	35
EVP	1.0	2.0	3.0	3.0	3.6	2.6	33
SVP	1.0	1.0	2.0	2.0	3.0	2.0	23
VP	---	1.0	1.0	2.0	---	1.7	7
<b>Services</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.2	74
CEO	3.0	5.0	5.0	6.0	6.0	5.2	95
EVP	1.5	2.0	3.0	3.0	4.0	2.9	86
SVP	1.0	1.0	2.0	3.0	3.0	2.2	72
VP	1.0	1.0	1.0	3.0	3.0	1.6	40
<b>Health Care</b>							
Outside Directors	---	5.0	5.0	5.0	---	5.0	7
CEO	3.4	5.0	5.0	6.0	9.2	5.5	13
EVP	2.0	2.0	3.0	3.3	5.2	3.0	13
SVP	1.2	2.0	2.5	3.0	5.3	2.7	12
VP	---	1.0	2.0	4.0	---	2.4	5
<b>REVENUE SIZE</b>							
<b>Under \$500 Million</b>							
Outside Directors	---	2.6	3.0	3.5	---	3.1	6
CEO	---	3.0	4.0	5.0	---	3.9	9
EVP	---	2.0	2.5	3.0	---	2.5	6
SVP	---	2.0	2.0	3.0	---	2.4	5
VP	---	---	---	---	---	---	4
<b>\$500 Million - \$1 Billion</b>							
Outside Directors	3.0	3.0	3.0	5.0	5.0	3.8	23
CEO	3.0	4.0	5.0	5.3	6.0	4.7	34
EVP	1.8	2.0	3.0	3.0	3.2	2.6	27
SVP	1.0	1.5	2.0	3.0	3.0	2.0	24
VP	1.0	1.0	2.0	3.0	3.0	1.9	11

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## Stock Ownership and Restrictive Covenants

### Stock Ownership (continued)

OWNERSHIP TARGETS - AS A MULTIPLE OF PAY (continued)							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>REVENUE SIZE (continued)</b>							
<b>\$1 Billion - \$3 Billion</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.2	92
CEO	3.0	5.0	5.0	6.0	6.0	5.0	132
EVP	2.0	2.0	3.0	3.0	3.6	2.7	118
SVP	1.0	1.5	2.0	3.0	3.0	2.1	100
VP	1.0	1.0	1.0	2.0	2.3	1.4	64
<b>\$3 Billion - \$6 Billion</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.0	4.1	77
CEO	3.0	5.0	5.0	6.0	6.0	5.1	113
EVP	1.5	2.0	3.0	3.0	3.0	2.7	105
SVP	1.0	2.0	2.0	3.0	3.0	2.2	96
VP	1.0	1.0	1.0	2.0	3.0	1.6	65
<b>\$6 Billion - \$10 Billion</b>							
Outside Directors	2.1	4.0	5.0	5.0	5.0	4.4	40
CEO	4.0	5.0	5.0	6.0	6.0	5.3	69
EVP	2.0	3.0	3.0	3.0	4.0	3.0	67
SVP	1.0	2.0	2.0	3.0	3.0	2.3	59
VP	1.0	1.0	1.0	2.0	3.0	1.5	37
<b>\$10 Billion - \$20 Billion</b>							
Outside Directors	3.0	3.8	5.0	5.0	6.0	4.5	66
CEO	5.0	5.0	6.0	6.0	7.0	5.8	99
EVP	2.0	3.0	3.0	3.0	4.0	3.1	96
SVP	1.0	2.0	2.0	3.0	3.0	2.4	80
VP	1.0	1.0	1.5	2.6	3.0	1.8	50
<b>\$20 Billion or More</b>							
Outside Directors	3.0	3.0	5.0	5.0	5.1	4.4	58
CEO	3.0	5.0	6.0	6.0	8.0	5.8	103
EVP	2.5	3.0	3.0	4.0	5.0	3.5	99
SVP	1.0	2.0	2.0	3.0	4.0	2.5	79
VP	1.0	1.0	2.0	2.0	3.4	2.0	45

**Stock Ownership and Restrictive Covenants****Stock Ownership (continued)**

LOWEST MIDPOINT ELIGIBLE AT WHICH STOCK OWNERSHIP GUIDELINES APPLY							
	10th	25th	Median	75th	90th	Average	# of Responses
<b>Total Sample</b>	\$118,641	\$158,038	\$225,000	\$316,200	\$400,000	\$248,494	186
<b>Industry Sector</b>							
Energy Services	\$98,350	\$137,500	\$170,250	\$227,190	\$336,200	\$193,369	30
Financial Services	\$100,640	\$171,000	\$252,400	\$318,000	\$690,000	\$282,517	15
High Tech	\$130,760	\$167,500	\$213,700	\$280,500	\$400,000	\$235,239	33
Manufacturing	\$119,803	\$165,000	\$242,000	\$325,000	\$400,000	\$257,903	95
Media/Entertainment	---	---	---	---	---	---	4
Pharmaceutical/Biotechnology	\$112,440	\$165,000	\$325,000	\$425,201	\$513,580	\$314,439	13
Retail/Wholesale Trade	---	\$212,500	\$350,000	\$435,000	---	\$325,261	9
Services	\$112,200	\$155,000	\$215,000	\$285,300	\$399,700	\$233,977	33
Health Care	---	---	---	---	---	---	4
<b>Revenue Size</b>							
Under \$500 Million	---	---	---	---	---	---	2
\$500 Million - \$1 Billion	---	---	---	---	---	---	8
\$1 Billion - \$3 Billion	\$116,829	\$152,975	\$198,000	\$278,801	\$438,481	\$238,986	52
\$3 Billion - \$6 Billion	\$111,760	\$139,672	\$211,697	\$275,000	\$355,000	\$217,917	43
\$6 Billion - \$10 Billion	\$126,740	\$193,850	\$277,500	\$343,550	\$400,400	\$267,750	18
\$10 Billion - \$20 Billion	\$99,569	\$154,250	\$250,475	\$338,750	\$415,000	\$252,954	26
\$20 Billion or More	\$105,600	\$169,350	\$253,656	\$400,000	\$477,500	\$284,938	37

## Stock Ownership and Restrictive Covenants

### Stock Ownership (continued)

#### SHARE PLANS INCLUDED IN THE CALCULATION OF TARGET OWNERSHIP

	% of Responses						# of Responses
	Unvested Restricted Stock/Units	Stock in Qualified DC Plan	ESPP Shares	Stock in Nonqualified Plans	Vested But Unexercised Stock Options	Unearned Performance Shares	
<b>Total Sample</b>	69.6%	66.9%	44.2%	53.3%	33.7%	14.1%	523
<b>Industry Sector</b>							
Energy Services	68.2%	75.8%	43.9%	60.6%	39.4%	15.2%	66
Financial Services	75.0%	76.3%	42.1%	51.3%	39.5%	13.2%	76
High Tech	68.0%	68.0%	53.0%	54.0%	30.0%	9.0%	100
Manufacturing	69.8%	63.7%	39.9%	51.2%	26.2%	12.5%	248
Media/Entertainment	66.7%	58.3%	50.0%	50.0%	33.3%	16.7%	12
Pharmaceutical/Biotechnology	61.3%	61.3%	38.7%	48.4%	29.0%	12.9%	31
Retail/Wholesale Trade	73.3%	60.0%	53.3%	46.7%	60.0%	30.0%	30
Services	63.3%	64.4%	52.2%	55.6%	36.7%	13.3%	90
Health Care	76.9%	61.5%	61.5%	69.2%	30.8%	15.4%	13
<b>Revenue Size</b>							
Under \$500 Million	55.6%	66.7%	11.1%	55.6%	33.3%	0.0%	9
\$500 Million - \$1 Billion	80.0%	70.0%	50.0%	43.3%	40.0%	20.0%	30
\$1 Billion - \$3 Billion	68.9%	60.7%	41.8%	48.4%	39.3%	13.9%	122
\$3 Billion - \$6 Billion	76.2%	62.4%	38.6%	51.5%	31.7%	9.9%	101
\$6 Billion - \$10 Billion	66.2%	63.2%	50.0%	57.4%	32.4%	13.2%	68
\$10 Billion - \$20 Billion	68.8%	74.0%	41.7%	56.3%	29.2%	14.6%	96
\$20 Billion or More	64.9%	74.2%	52.6%	58.8%	32.0%	18.6%	97

#### TIME TO MEET THE OWNERSHIP TARGETS - EXECUTIVE OFFICERS

	% of Responses						# of Responses
	1 Year	2 Years	3 Years	4 Years	5 Years	Other	
<b>Total Sample</b>	68.6%	3.7%	6.2%	1.4%	1.1%	19.0%	563
<b>Industry Sector</b>							
Energy Services	72.5%	1.4%	5.8%	4.3%	0.0%	15.9%	69
Financial Services	58.3%	4.8%	6.0%	0.0%	1.2%	29.8%	84
High Tech	77.9%	4.8%	1.0%	1.0%	1.9%	13.5%	104
Manufacturing	71.3%	4.2%	5.0%	0.8%	1.5%	17.2%	261
Media/Entertainment	61.5%	7.7%	23.1%	0.0%	0.0%	7.7%	13
Pharmaceutical/Biotechnology	67.7%	0.0%	9.7%	0.0%	3.2%	19.4%	31
Retail/Wholesale Trade	69.4%	0.0%	19.4%	2.8%	0.0%	8.3%	36
Services	65.3%	5.0%	5.9%	2.0%	1.0%	20.8%	101
Health Care	83.3%	0.0%	0.0%	0.0%	0.0%	16.7%	12
<b>Revenue Size</b>							
Under \$500 Million	88.9%	0.0%	0.0%	11.1%	0.0%	0.0%	9
\$500 Million - \$1 Billion	64.5%	3.2%	16.1%	0.0%	0.0%	16.1%	31
\$1 Billion - \$3 Billion	67.6%	4.4%	5.9%	0.7%	0.7%	20.6%	136
\$3 Billion - \$6 Billion	77.4%	2.6%	3.5%	0.0%	1.7%	14.8%	115
\$6 Billion - \$10 Billion	66.7%	0.0%	5.8%	4.3%	0.0%	23.2%	69
\$10 Billion - \$20 Billion	67.6%	4.9%	7.8%	1.0%	1.0%	17.6%	102
\$20 Billion or More	61.4%	5.9%	5.9%	2.0%	2.0%	22.8%	101

**Stock Ownership and Restrictive Covenants****Stock Ownership (continued)**

<b>TIME TO MEET THE OWNERSHIP TARGETS - OUTSIDE DIRECTORS</b>							
	% of Responses						# of Responses
	1 Year	2 Years	3 Years	4 Years	5 Years	Other	
<b>Total Sample</b>	67.9%	7.4%	11.9%	1.7%	0.7%	10.5%	421
<b>Industry Sector</b>							
Energy Services	69.8%	9.4%	13.2%	0.0%	0.0%	7.5%	53
Financial Services	68.3%	4.8%	11.1%	0.0%	0.0%	15.9%	63
High Tech	73.0%	6.8%	9.5%	2.7%	1.4%	6.8%	74
Manufacturing	70.1%	8.6%	9.1%	2.1%	0.5%	9.6%	187
Media/Entertainment	44.4%	11.1%	33.3%	0.0%	0.0%	11.1%	9
Pharmaceutical/Biotechnology	73.7%	0.0%	15.8%	0.0%	0.0%	10.5%	19
Retail/Wholesale Trade	55.2%	10.3%	31.0%	0.0%	0.0%	3.4%	29
Services	64.1%	5.1%	11.5%	3.8%	2.6%	12.8%	78
Health Care	81.8%	0.0%	9.1%	0.0%	0.0%	9.1%	11
<b>Revenue Size</b>							
Under \$500 Million	66.7%	11.1%	11.1%	11.1%	0.0%	0.0%	9
\$500 Million - \$1 Billion	56.0%	16.0%	24.0%	0.0%	0.0%	4.0%	25
\$1 Billion - \$3 Billion	68.0%	6.0%	11.0%	2.0%	0.0%	13.0%	100
\$3 Billion - \$6 Billion	74.4%	9.8%	8.5%	1.2%	0.0%	6.1%	82
\$6 Billion - \$10 Billion	67.3%	3.8%	9.6%	1.9%	0.0%	17.3%	52
\$10 Billion - \$20 Billion	62.2%	8.5%	17.1%	1.2%	1.2%	9.8%	82
\$20 Billion or More	71.8%	4.2%	8.5%	1.4%	2.8%	11.3%	71

<b>REVIEW OF COMPLIANCE WITH STOCK OWNERSHIP GUIDELINES</b>						
	% of Responses					# of Responses
	Annually	Semiannually	Quarterly	At Each Grant	Other	
<b>Total Sample</b>	83.5%	4.3%	5.7%	1.6%	4.9%	509
<b>Industry Sector</b>						
Energy Services	81.5%	4.6%	7.7%	3.1%	3.1%	65
Financial Services	85.3%	2.7%	6.7%	0.0%	5.3%	75
High Tech	81.9%	3.2%	7.4%	2.1%	5.3%	94
Manufacturing	82.9%	4.6%	5.8%	2.1%	4.6%	240
Media/Entertainment	83.3%	0.0%	0.0%	8.3%	8.3%	12
Pharmaceutical/Biotechnology	84.6%	7.7%	0.0%	0.0%	7.7%	26
Retail/Wholesale Trade	93.3%	3.3%	0.0%	0.0%	3.3%	30
Services	83.0%	4.5%	3.4%	1.1%	8.0%	88
Health Care	72.7%	9.1%	18.2%	0.0%	0.0%	11
<b>Revenue Size</b>						
Under \$500 Million	90.0%	10.0%	0.0%	0.0%	0.0%	10
\$500 Million - \$1 Billion	67.7%	9.7%	9.7%	3.2%	9.7%	31
\$1 Billion - \$3 Billion	84.3%	5.0%	5.0%	1.7%	4.1%	121
\$3 Billion - \$6 Billion	86.3%	2.9%	4.9%	1.0%	4.9%	102
\$6 Billion - \$10 Billion	89.2%	4.6%	3.1%	1.5%	1.5%	65
\$10 Billion - \$20 Billion	81.1%	3.3%	7.8%	0.0%	7.8%	90
\$20 Billion or More	82.2%	3.3%	6.7%	3.3%	4.4%	90

## Stock Ownership and Restrictive Covenants

### Stock Ownership (continued)

CONSEQUENCES OF FAILURE TO MEET OWNERSHIP TARGETS							
	% of Responses						# of Responses
	Evaluated on Case-by-Case Basis	Mandatory Bonus Payment in Shares	Restricted Shares/Units Must be Retained at Vesting	Stock Options Must be Retained at Exercise	Future Equity Grants are Reduced	Other	
<b>Total Sample</b>	66.5%	9.0%	30.2%	24.1%	3.3%	14.3%	490
<b>Industry Sector</b>							
Energy Services	63.2%	13.2%	39.7%	22.1%	2.9%	16.2%	68
Financial Services	72.5%	11.6%	31.9%	33.3%	7.2%	10.1%	69
High Tech	70.5%	9.1%	26.1%	15.9%	4.5%	10.2%	88
Manufacturing	69.2%	7.9%	26.0%	19.8%	2.2%	13.2%	227
Media/Entertainment	72.7%	0.0%	0.0%	0.0%	0.0%	36.4%	11
Pharmaceutical/Biotechnology	77.8%	3.7%	29.6%	25.9%	0.0%	7.4%	27
Retail/Wholesale Trade	53.6%	7.1%	32.1%	28.6%	0.0%	21.4%	28
Services	64.7%	8.2%	28.2%	25.9%	4.7%	16.5%	85
Health Care	46.2%	0.0%	53.8%	38.5%	0.0%	15.4%	13
<b>Revenue Size</b>							
Under \$500 Million	50.0%	0.0%	25.0%	25.0%	12.5%	37.5%	8
\$500 Million - \$1 Billion	84.6%	7.7%	30.8%	26.9%	0.0%	7.7%	26
\$1 Billion - \$3 Billion	70.6%	14.3%	30.3%	21.8%	0.8%	8.4%	119
\$3 Billion - \$6 Billion	67.7%	7.1%	30.3%	17.2%	6.1%	18.2%	99
\$6 Billion - \$10 Billion	66.7%	5.0%	28.3%	28.3%	3.3%	18.3%	60
\$10 Billion - \$20 Billion	63.5%	7.1%	38.8%	32.9%	3.5%	17.6%	85
\$20 Billion or More	59.1%	9.7%	23.7%	22.6%	3.2%	11.8%	93

**Stock Ownership and Restrictive Covenants****Restrictive Covenants - Non-compete Provisions**

<b>RESTRICTIVE COVENANTS IN MOST RECENT GRANT</b>			
	# of Organizations	% of Organizations	# of Responses
<b>Total Sample</b>	250	31.3%	800
<b>Industry Sector</b>			
Energy Services	17	17.2%	99
Financial Services	51	36.7%	139
High Tech	52	36.9%	141
Manufacturing	111	32.1%	346
Media/Entertainment	7	28.0%	25
Pharmaceutical/Biotechnology	5	10.4%	48
Retail/Wholesale Trade	14	29.2%	48
Services	52	34.9%	149
Health Care	5	26.3%	19
<b>Revenue Size</b>			
Under \$500 Million	7	20.0%	35
\$500 Million - \$1 Billion	11	25.0%	44
\$1 Billion - \$3 Billion	54	29.2%	185
\$3 Billion - \$6 Billion	56	36.8%	152
\$6 Billion - \$10 Billion	33	37.1%	89
\$10 Billion - \$20 Billion	35	26.7%	131
\$20 Billion or More	54	32.9%	164

<b>AWARDS THAT HAVE RESTRICTIVE COVENANTS</b>					
	% of Responses				# of Responses
	Stock Options	Restricted Stock/ Stock Units	Performance Plan Awards	SARs	
<b>Total Sample</b>	54.1%	78.9%	74.4%	14.6%	246
<b>Industry Sector</b>					
Energy Services	26.7%	73.3%	80.0%	0.0%	15
Financial Services	54.0%	84.0%	76.0%	12.0%	50
High Tech	61.5%	86.5%	65.4%	13.5%	52
Manufacturing	58.2%	75.5%	80.0%	17.3%	110
Media/Entertainment	42.9%	85.7%	57.1%	28.6%	7
Pharmaceutical/Biotechnology	80.0%	80.0%	100.0%	20.0%	5
Retail/Wholesale Trade	50.0%	71.4%	71.4%	14.3%	14
Services	53.8%	84.6%	61.5%	15.4%	52
Health Care	60.0%	80.0%	60.0%	20.0%	5
<b>Revenue Size</b>					
Under \$500 Million	37.5%	75.0%	62.5%	0.0%	8
\$500 Million - \$1 Billion	50.0%	80.0%	70.0%	10.0%	10
\$1 Billion - \$3 Billion	46.3%	79.6%	74.1%	13.0%	54
\$3 Billion - \$6 Billion	50.9%	83.0%	69.8%	20.8%	53
\$6 Billion - \$10 Billion	46.9%	68.8%	78.1%	9.4%	32
\$10 Billion - \$20 Billion	74.3%	85.7%	80.0%	17.1%	35
\$20 Billion or More	59.3%	75.9%	75.9%	14.8%	54



## Stock Ownership and Restrictive Covenants

### Restrictive Covenants - Non-compete Provisions (continued)

EMPLOYEES COVERED BY RESTRICTIVE COVENANTS				
	% of Responses			# of Responses
	All Recipients	CEO Only	Selected Senior Executives Only	
<b>Total Sample</b>	83.8%	0.8%	15.4%	241
<b>Industry Sector</b>				
Energy Services	60.0%	6.7%	33.3%	15
Financial Services	83.7%	0.0%	16.3%	49
High Tech	89.8%	0.0%	10.2%	49
Manufacturing	86.1%	0.9%	13.0%	108
Media/Entertainment	85.7%	0.0%	14.3%	7
Pharmaceutical/Biotechnology	80.0%	0.0%	20.0%	5
Retail/Wholesale Trade	78.6%	0.0%	21.4%	14
Services	86.0%	0.0%	14.0%	50
Health Care	100.0%	0.0%	0.0%	5
<b>Revenue Size</b>				
Under \$500 Million	100.0%	0.0%	0.0%	7
\$500 Million - \$1 Billion	72.7%	0.0%	27.3%	11
\$1 Billion - \$3 Billion	90.7%	0.0%	9.3%	54
\$3 Billion - \$6 Billion	80.4%	2.0%	17.6%	51
\$6 Billion - \$10 Billion	80.6%	0.0%	19.4%	31
\$10 Billion - \$20 Billion	88.6%	0.0%	11.4%	35
\$20 Billion or More	78.8%	1.9%	19.2%	52

LENGTH OF RESTRICTION PERIOD					
	% of Responses				# of Responses
	6 Months	1 Year	2 Years	3 or More Years	
<b>Total Sample</b>					
Non-Competition	6.8%	51.2%	22.9%	19.0%	205
Non-Solicitation of Employees	4.5%	55.4%	24.3%	15.8%	177
Non-Solicitation of Customers	2.5%	57.1%	25.2%	15.3%	163
Non-Disparagement	2.1%	48.5%	21.6%	27.8%	97
Inappropriate Use of Trade Secrets	4.4%	39.0%	16.2%	40.4%	136
<b>INDUSTRY SECTOR</b>					
<b>Energy Services</b>					
Non-Competition	0.0%	50.0%	30.0%	20.0%	10
Non-Solicitation of Employees	0.0%	54.5%	27.3%	18.2%	11
Non-Solicitation of Customers	0.0%	71.4%	14.3%	14.3%	7
Non-Disparagement	0.0%	60.0%	20.0%	20.0%	5
Inappropriate Use of Trade Secrets	0.0%	28.6%	0.0%	71.4%	7

Table continues on next page.

**Stock Ownership and Restrictive Covenants****Restrictive Covenants - Non-compete Provisions (continued)**

<b>LENGTH OF RESTRICTION PERIOD (continued)</b>					
	% of Responses				# of Responses
	6 Months	1 Year	2 Years	3 or More Years	
<b>INDUSTRY SECTOR (continued)</b>					
<b>Financial Services</b>					
Non-Competition	8.3%	52.8%	19.4%	19.4%	36
Non-Solicitation of Employees	4.4%	77.8%	6.7%	11.1%	45
Non-Solicitation of Customers	0.0%	80.5%	12.2%	7.3%	41
Non-Disparagement	0.0%	61.1%	16.7%	22.2%	18
Inappropriate Use of Trade Secrets	0.0%	39.1%	8.7%	52.2%	23
<b>High Tech</b>					
Non-Competition	10.9%	43.5%	26.1%	19.6%	46
Non-Solicitation of Employees	5.9%	47.1%	35.3%	11.8%	34
Non-Solicitation of Customers	8.8%	44.1%	32.4%	14.7%	34
Non-Disparagement	5.6%	44.4%	38.9%	11.1%	18
Inappropriate Use of Trade Secrets	13.3%	33.3%	33.3%	20.0%	30
<b>Manufacturing</b>					
Non-Competition	5.3%	47.4%	24.2%	23.2%	95
Non-Solicitation of Employees	2.9%	47.8%	31.9%	17.4%	69
Non-Solicitation of Customers	1.5%	49.3%	31.3%	17.9%	67
Non-Disparagement	0.0%	48.8%	22.0%	29.3%	41
Inappropriate Use of Trade Secrets	4.6%	38.5%	18.5%	38.5%	65
<b>Media/Entertainment</b>					
Non-Competition	0.0%	71.4%	14.3%	14.3%	7
Non-Solicitation of Employees	0.0%	50.0%	25.0%	25.0%	4
Non-Solicitation of Customers	0.0%	50.0%	25.0%	25.0%	4
Non-Disparagement	0.0%	33.3%	33.3%	33.3%	3
Inappropriate Use of Trade Secrets	0.0%	100.0%	0.0%	0.0%	2
<b>Pharmaceutical/Biotechnology</b>					
Non-Competition	0.0%	100.0%	0.0%	0.0%	5
Non-Solicitation of Employees	0.0%	100.0%	0.0%	0.0%	4
Non-Solicitation of Customers	0.0%	100.0%	0.0%	0.0%	4
Non-Disparagement	0.0%	100.0%	0.0%	0.0%	3
Inappropriate Use of Trade Secrets	0.0%	80.0%	0.0%	20.0%	5
<b>Retail/Wholesale Trade</b>					
Non-Competition	0.0%	64.3%	21.4%	14.3%	14
Non-Solicitation of Employees	0.0%	41.7%	33.3%	25.0%	12
Non-Solicitation of Customers	0.0%	22.2%	44.4%	33.3%	9
Non-Disparagement	0.0%	50.0%	0.0%	50.0%	8
Inappropriate Use of Trade Secrets	0.0%	40.0%	0.0%	60.0%	10

Table continues on next page.

## Stock Ownership and Restrictive Covenants

### Restrictive Covenants - Non-compete Provisions (continued)

LENGTH OF RESTRICTION PERIOD (continued)					
	% of Responses				# of Responses
	6 Months	1 Year	2 Years	3 or More Years	
<b>INDUSTRY SECTOR (continued)</b>					
<b>Services</b>					
Non-Competition	10.9%	54.3%	23.9%	10.9%	46
Non-Solicitation of Employees	8.3%	50.0%	27.8%	13.9%	36
Non-Solicitation of Customers	5.7%	54.3%	25.7%	14.3%	35
Non-Disparagement	4.8%	38.1%	38.1%	19.0%	21
Inappropriate Use of Trade Secrets	7.4%	44.4%	29.6%	18.5%	27
<b>Health Care</b>					
Non-Competition	25.0%	50.0%	0.0%	25.0%	4
Non-Solicitation of Employees	25.0%	25.0%	25.0%	25.0%	4
Non-Solicitation of Customers	25.0%	25.0%	25.0%	25.0%	4
Non-Disparagement	25.0%	25.0%	0.0%	50.0%	4
Inappropriate Use of Trade Secrets	25.0%	25.0%	0.0%	50.0%	4
<b>REVENUE SIZE</b>					
<b>Under \$500 Million</b>					
Non-Competition	20.0%	40.0%	20.0%	20.0%	5
Non-Solicitation of Employees	20.0%	60.0%	20.0%	0.0%	5
Non-Solicitation of Customers	20.0%	80.0%	0.0%	0.0%	5
Non-Disparagement	0.0%	75.0%	0.0%	25.0%	4
Inappropriate Use of Trade Secrets	25.0%	50.0%	0.0%	25.0%	4
<b>\$500 Million - \$1 Billion</b>					
Non-Competition	0.0%	66.7%	33.3%	0.0%	9
Non-Solicitation of Employees	0.0%	70.0%	30.0%	0.0%	10
Non-Solicitation of Customers	0.0%	77.8%	22.2%	0.0%	9
Non-Disparagement	0.0%	40.0%	40.0%	20.0%	5
Inappropriate Use of Trade Secrets	0.0%	42.9%	28.6%	28.6%	7
<b>\$1 Billion - \$3 Billion</b>					
Non-Competition	6.4%	46.8%	29.8%	17.0%	47
Non-Solicitation of Employees	5.0%	55.0%	25.0%	15.0%	40
Non-Solicitation of Customers	0.0%	51.4%	31.4%	17.1%	35
Non-Disparagement	0.0%	57.9%	21.1%	21.1%	19
Inappropriate Use of Trade Secrets	0.0%	42.3%	19.2%	38.5%	26
<b>\$3 Billion - \$6 Billion</b>					
Non-Competition	9.3%	48.8%	18.6%	23.3%	43
Non-Solicitation of Employees	6.3%	56.3%	18.8%	18.8%	32
Non-Solicitation of Customers	9.1%	48.5%	21.2%	21.2%	33
Non-Disparagement	12.5%	50.0%	12.5%	25.0%	16
Inappropriate Use of Trade Secrets	11.1%	33.3%	3.7%	51.9%	27

Table continues on next page.

**Stock Ownership and Restrictive Covenants****Restrictive Covenants - Non-compete Provisions (continued)**

<b>LENGTH OF RESTRICTION PERIOD (continued)</b>					
	% of Responses				# of Responses
	6 Months	1 Year	2 Years	3 or More Years	
<b>REVENUE SIZE (continued)</b>					
<b>\$6 Billion - \$10 Billion</b>					
Non-Competition	0.0%	52.0%	28.0%	20.0%	25
Non-Solicitation of Employees	4.5%	59.1%	18.2%	18.2%	22
Non-Solicitation of Customers	0.0%	60.0%	25.0%	15.0%	20
Non-Disparagement	0.0%	36.4%	45.5%	18.2%	11
Inappropriate Use of Trade Secrets	0.0%	37.5%	31.3%	31.3%	16
<b>\$10 Billion - \$20 Billion</b>					
Non-Competition	13.3%	50.0%	16.7%	20.0%	30
Non-Solicitation of Employees	6.9%	51.7%	24.1%	17.2%	29
Non-Solicitation of Customers	0.0%	58.3%	29.2%	12.5%	24
Non-Disparagement	0.0%	43.8%	31.3%	25.0%	16
Inappropriate Use of Trade Secrets	4.5%	36.4%	18.2%	40.9%	22
<b>\$20 Billion or More</b>					
Non-Competition	4.3%	56.5%	19.6%	19.6%	46
Non-Solicitation of Employees	0.0%	51.3%	30.8%	17.9%	39
Non-Solicitation of Customers	0.0%	59.5%	24.3%	16.2%	37
Non-Disparagement	0.0%	46.2%	11.5%	42.3%	26
Inappropriate Use of Trade Secrets	2.9%	41.2%	14.7%	41.2%	34

**Stock Ownership and Restrictive Covenants****Restrictive Covenants - Non-compete Provisions (continued)**

<b>CONSEQUENCES/REMEDIES FOR VIOLATING THE NON-COMPETE PROVISION</b>				
	% of Responses			# of Responses
	"Bad Boy Provisions" - Forfeit Outstanding Awards	"Clawback Provisions" - Recover Any Gains Realized Within a Specific Period Prior to Violation Of Non- compete Provision	Not Specified - Award Agreements Do Not Specify Consequences/ Remedies	
<b>Total Sample</b>	7.3%	69.4%	23.3%	232
<b>Industry Sector</b>				
Energy Services	15.4%	30.8%	53.8%	13
Financial Services	4.7%	62.8%	32.6%	43
High Tech	4.2%	79.2%	16.7%	48
Manufacturing	8.1%	72.1%	19.8%	111
Media/Entertainment	0.0%	83.3%	16.7%	6
Pharmaceutical/Biotechnology	0.0%	85.7%	14.3%	7
Retail/Wholesale Trade	7.1%	71.4%	21.4%	14
Services	4.3%	80.9%	14.9%	47
Health Care	25.0%	50.0%	25.0%	4
<b>Revenue Size</b>				
Under \$500 Million	0.0%	60.0%	40.0%	5
\$500 Million - \$1 Billion	10.0%	20.0%	70.0%	10
\$1 Billion - \$3 Billion	1.9%	72.2%	25.9%	54
\$3 Billion - \$6 Billion	4.2%	77.1%	18.8%	48
\$6 Billion - \$10 Billion	7.1%	60.7%	32.1%	28
\$10 Billion - \$20 Billion	8.6%	71.4%	20.0%	35
\$20 Billion or More	15.4%	73.1%	11.5%	52



# Glossary of Terms

## Glossary of Terms

### **Stock Options**

Stock Options are rights to purchase a fixed number of shares of a company's stock, at a stated price for a specified period of time.

### **Restricted Stock/Stock Units**

Restricted Stock/Stock Units are grants of stock or stock units at no or nominal cost. The restrictions and risk of forfeiture lapse with continued employment over a period of years and/or performance. Dividends or dividend equivalents are normally paid or accrued during the restricted period.

### **Performance Plan Awards**

Performance Plan Awards are contingent awards of cash or stock that are earned in whole or in part according to the degree of achievement of performance goals over a multi-year period (usually three years).

### **Stock Appreciation Rights**

Stock Appreciation Rights are rights to receive payment equal in value to the appreciation on a share of stock between the date on which the SAR was granted and the date on which the employee exercises his/her appreciation rights.



**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

The Electronic Application of Duke )  
Energy Kentucky, Inc., for: 1) An )  
Adjustment of the Electric Rates; 2) ) Case No. 2019-00271  
Approval of New Tariffs; 3) Approval of )  
Accounting Practices to Establish )  
Regulatory Assets and Liabilities; and 4) )  
All Other Required Approvals and Relief. )

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**DIRECT TESTIMONY OF**  
**ROGER A. MORIN, PhD**  
**ON BEHALF OF**  
**DUKE ENERGY KENTUCKY, INC.**

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September 3, 2019

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**ATTACHMENTS:**

Attachment RAM-1	Resume of Roger A. Morin
Attachment RAM-2	Investment-Grade Dividend-Paying Combination Gas and Electric Utilities
Attachment RAM-3	Peer Group for Duke Energy Kentucky
Attachment RAM-4	Investment-Grade Combination Gas & Electric Utilities DCF Analysis: Value Line Growth Projections
Attachment RAM-5	Investment-Grade Combination Gas & Electric Utilities DCF Analysis: Analysts' Growth Forecasts
Attachment RAM-6.	Combination Gas & Electric Utility Beta Estimates
Attachment RAM-7	Utility Industry Historical Risk Premium Analysis
Attachment RAM-8	Allowed Risk Premium Electric Utilities
Attachment RAM-9	Risk Premium Analysis

**APPENDICES:**

Appendix A	CAPM, Empirical CAPM
Appendix B	Flotation Cost Allowance

**I. INTRODUCTION AND SUMMARY OF RECOMMENDATION**

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**  
2 **OCCUPATION.**

3 A. My name is Dr. Roger A. Morin. My business address is Georgia State University,  
4 Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am  
5 Emeritus Professor of Finance at the Robinson College of Business, Georgia State  
6 University and Professor of Finance for Regulated Industry at the Center for the  
7 Study of Regulated Industry at Georgia State University. I am also a principal in  
8 Utility Research International, an enterprise engaged in regulatory finance and  
9 economics consulting to business and government. I am testifying on behalf of  
10 Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company).

11 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.**

12 A. I hold a Bachelor of Engineering degree and an MBA in Finance from McGill  
13 University, Montreal, Canada. I received my Ph.D. in Finance and Econometrics  
14 at the Wharton School of Finance, University of Pennsylvania.

15 **Q. PLEASE SUMMARIZE YOUR ACADEMIC AND BUSINESS CAREER.**

16 A. I have taught at the Wharton School of Finance, University of Pennsylvania, Amos  
17 Tuck School of Business at Dartmouth College, Drexel University, University of  
18 Montreal, McGill University, and Georgia State University. I was a faculty member  
19 of Advanced Management Research International, and I am currently a faculty  
20 member of The Management Exchange Inc. and Exnet, Inc. (now SNL Knowledge  
21 Center or SNL), where I continue to conduct frequent national executive-level  
22 education seminars throughout the United States and Canada. In the last 30 years,

1 I have conducted numerous national seminars on “Utility Finance,” “Utility Cost  
2 of Capital,” “Alternative Regulatory Frameworks,” and “Utility Capital  
3 Allocation,” which I have developed on behalf of The Management Exchange Inc.  
4 and SNL.

5 I have authored or co-authored several books, monographs, and articles in  
6 academic scientific journals on the subject of finance. They have appeared in a  
7 variety of journals, including The Journal of Finance, The Journal of Business  
8 Administration, International Management Review, and Public Utilities  
9 Fortnightly. I published a widely-used treatise on regulatory finance, Utilities’ Cost  
10 of Capital, Public Utilities Reports, Inc., Arlington, Va. 1984. In late 1994, the same  
11 publisher released my book, Regulatory Finance, a voluminous treatise on the  
12 application of finance to regulated utilities. A revised and expanded edition of this  
13 book, The New Regulatory Finance, was published in 2006. I have been engaged  
14 in extensive consulting activities on behalf of numerous corporations, legal firms,  
15 and regulatory bodies in matters of financial management and corporate litigation.

16 Please see Attachment RAM-1 for my professional qualifications.

17 **Q. HAVE YOU PREVIOUSLY TESTIFIED ON COST OF CAPITAL BEFORE**  
18 **UTILITY REGULATORY COMMISSIONS?**

19 A. Yes, I have been a cost of capital witness before nearly 50 regulatory bodies in  
20 North America, including the Kentucky Public Service Commission (the  
21 Commission) and the Federal Energy Regulatory Commission. I have testified  
22 before the following state, provincial, and other local regulatory commissions:

Alabama	Florida	Missouri	Oregon
Alaska	Georgia	Montana	Pennsylvania
Alberta	Hawaii	Nevada	Quebec
Arizona	Illinois	New Brunswick	South Carolina
Arkansas	Indiana	New Hampshire	South Dakota
British Columbia	Iowa	New Jersey	Tennessee
California	Kentucky	New Mexico	Texas
City of New Orleans	Louisiana	New York	Utah
Colorado	Maine	Newfoundland	Vermont
CRTC	Manitoba	North Carolina	Virginia
Delaware	Maryland	North Dakota	West Virginia
District of Columbia	Michigan	Nova Scotia	Nebraska
FCC	Minnesota	Oklahoma	
FERC	Mississippi	Ontario	
Wisconsin			

1           The details of my participation in regulatory proceedings are also provided  
2           in Attachment RAM-1.

3   **Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
4   **PROCEEDING?**

5   A.   The purpose of my testimony in this proceeding is to present an independent  
6       appraisal of the fair and reasonable rate of return on common equity (ROE) on the  
7       common equity capital invested in Duke Energy Kentucky's electric utility  
8       operations in the State Kentucky. Based upon this appraisal, I have formed my  
9       professional judgment as to a return on such capital that would:

- 1 (1) be fair to ratepayers;
- 2 (2) allow Duke Energy Kentucky to attract the capital needed for
- 3 infrastructure and reliability investments on reasonable terms;
- 4 (3) maintain Duke Energy Kentucky's financial integrity; and
- 5 (4) be comparable to returns offered on comparable risk investments.

6 **Q. PLEASE BRIEFLY IDENTIFY THE ATTACHMENTS AND APPENDICES**  
7 **ACCOMPANYING YOUR TESTIMONY.**

8 A. I have attached to my testimony Attachment RAM-1 through Attachment RAM-9,  
9 and Appendices A and B. These attachments and appendices relate directly to  
10 points in my testimony, and are described in further detail in connection with the  
11 discussion of those points in my testimony.

12 **Q. PLEASE SUMMARIZE YOUR FINDINGS CONCERNING DUKE**  
13 **ENERGY KENTUCKY'S COST OF COMMON EQUITY.**

14 A. It is my opinion that a fair, reasonable and sufficient ROE for Duke Energy  
15 Kentucky is 9.8%. This recommendation is based on the Commission's adoption  
16 of Duke Energy Kentucky's proposed common equity ratio of approximately 52%.

17 A minimum ROE of 9.8% for Duke Energy Kentucky is required in order  
18 for the Company to: (i) attract capital on reasonable terms, (ii) maintain its financial  
19 integrity, and (iii) earn a return commensurate with returns on comparable risk  
20 investments.

21 My ROE recommendation is derived from cost of capital studies that I  
22 performed using the financial models available to me and from the application of  
23 my professional judgment to the results. I applied various cost of capital

1 methodologies, including Discounted Cash Flow (DCF), Capital Asset Pricing  
2 Model (CAPM) and Risk Premium methodologies, to a group of investment-grade  
3 dividend-paying combination gas and electric utilities which are covered in Value  
4 Line's Electric Utility Composite.

5 My recommended rate of return reflects the application of my professional  
6 judgment to the results in light of the indicated returns from my DCF, CAPM, and  
7 Risk Premium analyses.

8 I do consider my recommended ROE as barebones given the relative risks  
9 of the Company by virtue of its small size, significant financing requirements, and  
10 highly concentrated generation portfolio, as discussed later.

11 **Q. WOULD IT BE IN THE BEST INTERESTS OF RATEPAYERS FOR THE**  
12 **COMMISSION TO APPROVE A ROE OF 9.8% FOR DUKE ENERGY**  
13 **KENTUCKY'S ELECTRIC UTILITY OPERATIONS?**

14 A. Yes. My analysis shows that this range fairly compensates investors, maintains  
15 Duke Energy Kentucky's credit strength, and attracts the capital needed for utility  
16 infrastructure and reliability capital investments. Adopting a lower ROE would  
17 increase costs for ratepayers.

18 **Q. PLEASE EXPLAIN HOW LOW ALLOWED ROES CAN INCREASE**  
19 **BOTH THE FUTURE COST OF EQUITY AND DEBT FINANCING.**

20 A. If a utility is authorized a ROE below the level required by equity investors, the  
21 utility or its parent will find it difficult to access equity capital. Investors will not  
22 provide equity capital at the current market price if the earnable return on equity is  
23 below the level they require given the risks of an equity investment in the utility.

1 The equity market corrects this by generating a stock price in equilibrium that  
2 reflects the valuation of the potential earnings stream from an equity investment at  
3 the risk-adjusted return equity investors require. In the case of a utility that has been  
4 authorized a return below the level investors believe is appropriate for the risk they  
5 bear, the result is a decrease in the utility's market price per share of common stock.  
6 This reduces the financial viability of equity financing in two ways. First, because  
7 the utility's price per share of common stock decreases, the net proceeds from  
8 issuing common stock are reduced. Second, since the utility's market to book ratio  
9 decreases with the decrease in the share price of common stock, the potential risk  
10 from dilution of equity investments reduces investors' inclination to purchase new  
11 issues of common stock. The ultimate effect is the utility will have to rely more on  
12 debt financing to meet its capital needs.

13 As a company relies more on debt financing, its capital structure becomes  
14 more leveraged. Because debt payments are a fixed financial obligation to the  
15 utility, and income available to common equity is subordinate to fixed charges, this  
16 decreases the operating income available for dividend and earnings growth.  
17 Consequently, equity investors face greater uncertainty about future dividends and  
18 earnings from the firm. As a result, the firm's equity becomes a riskier investment.  
19 The risk of default on a company's bonds also increases, making the utility's debt  
20 a riskier investment. This increases the cost to the utility from both debt and equity  
21 financing and increases the possibility a company will not have access to the capital  
22 markets for its outside financing needs. Ultimately, to ensure that Duke Energy



1 Kentucky has access to capital markets for its capital needs, a fair and reasonable  
2 authorized ROE of 9.8% is required.

3 Duke Energy Kentucky must secure outside funds from capital markets to  
4 finance required utility plant and equipment investments irrespective of capital  
5 market conditions, interest rate conditions and the quality consciousness of market  
6 participants. Thus, rate relief requirements and supportive regulatory treatment,  
7 including approval of my recommended ROE, are essential requirements.

## 8 **II. REGULATORY FRAMEWORK AND RATE OF RETURN**

8 **Q. PLEASE EXPLAIN HOW A REGULATED COMPANY'S RATES SHOULD**  
9 **BE SET UNDER TRADITIONAL COST OF SERVICE REGULATION.**

10 **A.** Under the traditional regulatory process, a regulated company's rates should be set  
11 so that the company recovers its costs, including taxes and depreciation, plus a fair  
12 and reasonable return on its invested capital. The allowed rate of return must  
13 necessarily reflect the cost of the funds obtained, that is, investors' return  
14 requirements. In determining a company's required rate of return, the starting point  
15 is investors' return requirements in financial markets. A rate of return can then be  
16 set at a level sufficient to enable a company to earn a return commensurate with the  
17 cost of those funds.

18 Funds can be obtained in two general forms, debt capital and equity capital.  
19 The cost of debt funds can be easily ascertained from an examination of the  
20 contractual interest payments. The cost of common equity funds (*i.e.*, investors'  
21 required rate of return) is more difficult to estimate. It is the purpose of the next

1 section of my testimony to estimate fair and reasonable ROE ranges for Duke  
2 Energy Kentucky's cost of common equity capital.

3 **Q. WHAT FUNDAMENTAL PRINCIPLES UNDERLIE THE**  
4 **DETERMINATION OF A FAIR AND REASONABLE ROE?**

5 A. The heart of utility regulation is the setting of just and reasonable rates by way of a  
6 fair and reasonable return. There are two landmark United States Supreme Court  
7 cases that define the legal principles underlying the regulation of a public utility's  
8 rate of return and provide the foundations for the notion of a fair return:

- 9 1. *Bluefield Water Works & Improvement Co. v. Public Service*  
10 *Commission of West Virginia*, 262 U.S. 679 (1923); and
- 11 2. *Federal Power Commission v. Hope Natural Gas Co.*, 320  
12 U.S. 591 (1944).

13 The *Bluefield* case set the standard against which just and reasonable rates of return  
14 are measured:

15 A public utility is entitled to such rates as will permit it to earn a  
16 return on the value of the property which it employs for the  
17 convenience of the public *equal to that generally being made at the*  
18 *same time and in the same general part of the country on*  
19 *investments in other business undertakings which are attended by*  
20 *corresponding risks and uncertainties ... The return should be*  
21 *reasonable*, sufficient to assure confidence in the financial  
22 soundness of the utility, and should be adequate, under efficient and  
23 economical management, to *maintain and support its credit* and  
24 *enable it to raise money* necessary for the proper discharge of its  
25 public duties.

26 *Bluefield Water Works & Improvement Co.*, 262 U.S. at 692 (emphasis added).

27 The *Hope* case expanded on the guidelines to be used to assess the  
28 reasonableness of the allowed return. The Court reemphasized its statements in the  
29 *Bluefield* case and recognized that revenues must cover "capital costs." The Court  
30 stated:

1 From the investor or company point of view it is important that there  
2 be enough revenue not only for operating expenses but also for the  
3 capital costs of the business. These include service on the debt and  
4 dividends on the stock ... By that standard *the return to the equity*  
5 *owner should be commensurate with returns on investments in other*  
6 *enterprises having corresponding risks.* That return, moreover,  
7 should be sufficient to *assure confidence in the financial integrity of*  
8 *the enterprise, so as to maintain its credit and attract capital.*

9 *Hope Natural Gas Co.*, 320 U.S. at 603 (emphasis added).

10 The United States Supreme Court reiterated the criteria set forth in *Hope* in  
11 *Federal Power Commission v. Memphis Light, Gas & Water Division*, 411 U.S.  
12 458 (1973); in *Permian Basin Rate Cases*, 390 U.S. 747 (1968); and, most recently,  
13 in *Duquesne Light Co. v. Barasch*, 488 U.S. 299 (1989). In the *Permian Basin Rate*  
14 *Cases*, the Supreme Court stressed that a regulatory agency's rate of return order  
15 should

16 reasonably be expected to maintain financial integrity, attract  
17 necessary capital, and fairly compensate investors for the risks they  
18 have assumed.  
19 *Permian Basin Rate Cases*, 390 U.S. at 792.

20 Therefore, the "end result" of this Commission's decision should be to  
21 allow Duke Energy Kentucky the opportunity to earn a return on equity that is:

- 22 (i) commensurate with returns on investments in other firms  
23 having corresponding risks;
- 24 (ii) sufficient to assure confidence in Duke Energy Kentucky's  
25 financial integrity; and
- 26 (iii) sufficient to maintain Duke Energy Kentucky's  
27 creditworthiness and ability to attract capital on reasonable  
28 terms.

29 **Q. HOW IS THE FAIR RATE OF RETURN DETERMINED?**

30 A. The aggregate return required by investors is called the "cost of capital." The cost  
31 of capital is the opportunity cost, expressed in percentage terms, of the total pool

1 of capital employed by the utility. It is the composite weighted cost of the various  
2 classes of capital (*e.g.*, bonds, preferred stock, common stock) used by the utility,  
3 with the weights reflecting the proportions of the total capital that each class of  
4 capital represents. The fair return in dollars is obtained by multiplying the rate of  
5 return set by the regulator by the utility's "rate base." The rate base is essentially  
6 the net book value of the utility's plant and other assets used to provide utility  
7 service in a particular jurisdiction.

8 Although utilities like Duke Energy Kentucky enjoy varying degrees of  
9 monopoly in the sale of public utility services, they (or their parent companies)  
10 must compete with everyone else in the free, open market for the input factors of  
11 production, whether labor, materials, machines, or capital, including the capital  
12 investments required to support the utility infrastructure. The prices of these inputs  
13 are set in the competitive marketplace by supply and demand, and it is these input  
14 prices that are incorporated in the cost of service computation. This is just as true  
15 for capital as for any other factor of production. Since utilities and other investor-  
16 owned businesses must go to the open capital market and sell their securities in  
17 competition with every other issuer, there is obviously a market price to pay for the  
18 capital they require (*e.g.*, the interest on debt capital or the expected return on  
19 equity). In order to attract the necessary capital, utilities must compete with  
20 alternative uses of capital and offer a return commensurate with the associated risks.

1 **Q. HOW DOES THE CONCEPT OF A FAIR RETURN RELATE TO THE**  
2 **CONCEPT OF OPPORTUNITY COST?**

3 A. The concept of a fair return is intimately related to the economic concept of  
4 “opportunity cost.” When investors supply funds to a utility by buying its stocks or  
5 bonds, they are not only postponing consumption, giving up the alternative of  
6 spending their dollars in some other way, they are also exposing their funds to risk  
7 and forgoing returns from investing their money in alternative comparable risk  
8 investments. The compensation they require is the price of capital. If there are  
9 differences in the risk of the investments, competition among firms for a limited  
10 supply of capital will bring different prices. The capital markets translate these  
11 differences in risk into differences in required return, in much the same way that  
12 differences in the characteristics of commodities are reflected in different prices.

13 The important point is that the required return on capital is set by supply  
14 and demand and is influenced by the relationship between the risk and return  
15 expected for those securities and the risks expected from the overall menu of  
16 available securities.

17 **Q. WHAT ECONOMIC AND FINANCIAL CONCEPTS HAVE GUIDED**  
18 **YOUR ASSESSMENT OF DUKE ENERGY KENTUCKY’S COST OF**  
19 **COMMON EQUITY?**

20 A. Two fundamental economic principles underlie the appraisal of Duke Energy  
21 Kentucky’s cost of equity, one relating to the supply side of capital markets, the  
22 other to the demand side.

1           On the supply side, the first principle asserts that rational investors  
2 maximize the performance of their portfolios only if they expect the returns on  
3 investments of comparable risk to be the same. If not, rational investors will switch  
4 out of those investments yielding lower returns at a given risk level in favor of those  
5 investment activities offering higher returns for the same degree of risk. This  
6 principle implies that a company will be unable to attract capital funds unless it can  
7 offer returns to capital suppliers that are comparable to those achieved on  
8 competing investments of similar risk.

9           On the demand side, the second principle asserts that a company will  
10 continue to invest in real physical assets if the return on these investments equals,  
11 or exceeds, a company's cost of capital. This principle suggests that a regulatory  
12 board should set rates at a level sufficient to create equality between the return on  
13 physical asset investments and a company's cost of capital.

14 **Q.   HOW DOES DUKE ENERGY KENTUCKY OBTAIN ITS CAPITAL AND**  
15 **HOW IS ITS OVERALL COST OF CAPITAL DETERMINED?**

16 A.   The funds employed by Duke Energy Kentucky are obtained in two general forms,  
17 debt capital and equity capital. The cost of debt funds can be ascertained easily  
18 from an examination of the contractual interest payments. The cost of common  
19 equity funds, that is, equity investors' required rate of return, is more difficult to  
20 estimate because the dividend payments received from common stock are not  
21 contractual or guaranteed in nature. They are uneven and risky, unlike interest  
22 payments. Once a cost of common equity estimate has been developed, it can then

1 easily be combined with the embedded cost of debt based on the utility's capital  
2 structure, in order to arrive at the overall cost of capital (overall rate of return).

3 **Q. WHAT IS THE MARKET REQUIRED RATE OF RETURN ON EQUITY**  
4 **CAPITAL?**

5 A. The market required rate of return on common equity, or cost of equity, is the return  
6 demanded by the equity investor. Investors establish the price for equity capital  
7 through their buying and selling decisions in capital markets. Investors set return  
8 requirements according to their perception of the risks inherent in the investment,  
9 recognizing the opportunity cost of forgone investments in other companies, and  
10 the returns available from other investments of comparable risk.

11 **Q. WHAT MUST BE CONSIDERED IN ESTIMATING A FAIR ROE?**

12 A. The basic premise is that the allowable ROE should be commensurate with returns  
13 on investments in other firms having corresponding risks. The allowed return  
14 should be sufficient to assure confidence in the financial integrity of the firm, in  
15 order to maintain creditworthiness and ability to attract capital on reasonable terms.  
16 The "attraction of capital" standard focuses on investors' return requirements that  
17 are generally determined using market value methods, such as the DCF, CAPM, or  
18 risk premium methods. These market value tests define "fair return" as the return  
19 investors anticipate when they purchase equity shares of comparable risk in the  
20 financial marketplace. This is a market rate of return, defined in terms of anticipated  
21 dividends and capital gains as determined by expected changes in stock prices, and  
22 reflects the opportunity cost of capital. The economic basis for market value tests  
23 is that new capital will be attracted to a firm only if the return expected by the

1 suppliers of funds is commensurate with that available from alternative investments  
2 of comparable risk.

3 **Q. PLEASE EXPLAIN HOW LOW ALLOWED ROES CAN INCREASE**  
4 **BOTH THE FUTURE COST OF EQUITY AND DEBT FINANCING.**

5 A. If a utility is authorized a ROE below the level required by equity investors, the  
6 utility will find it difficult to access the equity market through common stock  
7 issuance at its current market price. Investors will not provide equity capital at the  
8 current market price if the earnable return on equity is below the level they require  
9 given the risks of an equity investment in the utility. The equity market corrects this  
10 by generating a stock price in equilibrium that reflects the valuation of the potential  
11 earnings stream from an equity investment at the risk-adjusted return equity  
12 investors require. In the case of a utility that has been authorized a return below the  
13 level investors believe is appropriate for the risk they bear, the result is a decrease  
14 in the utility's market price per share of common stock. This reduces the financial  
15 viability of equity financing in two ways. First, because the utility's price per share  
16 of common stock decreases, the net proceeds from issuing common stock are  
17 reduced. Second, since the utility's market to book ratio decreases with the  
18 decrease in the share price of common stock, the potential risk from dilution of  
19 equity investments reduces investors' inclination to purchase new issues of  
20 common stock. The ultimate effect is the utility will have to rely more on debt  
21 financing to meet its capital needs.

22 As a company relies more on debt financing, its capital structure becomes  
23 more leveraged. Because debt payments are a fixed financial obligation to the



1 utility, and income available to common equity is subordinate to fixed charges, this  
2 decreases the operating income available for dividend and earnings growth.  
3 Consequently, equity investors face greater uncertainty about future dividends and  
4 earnings from the firm. As a result, the firm's equity becomes a riskier investment.  
5 The risk of default on a company's bonds also increases, making the utility's debt  
6 a riskier investment. This increases the cost to the utility from both debt and equity  
7 financing and increases the possibility the company will not have access to the  
8 capital markets for its outside financing needs.

### III. COST OF EQUITY CAPITAL ESTIMATES

9 **Q. HOW DID YOU ESTIMATE A FAIR ROE FOR DUKE ENERGY**  
10 **KENTUCKY?**

11 A. To estimate a fair ROE for Duke Energy Kentucky, I employed three  
12 methodologies:

- 13 (i) DCF methodology;
- 14 (ii) CAPM methodology; and
- 15 (iii) Risk Premium methodology.

16 All three methodologies are market-based methodologies designed to estimate the  
17 return required by investors on the common equity capital committed to Duke  
18 Energy Kentucky.

19 **Q. WHY DID YOU USE MORE THAN ONE APPROACH FOR ESTIMATING**  
20 **THE COST OF EQUITY?**

21 A. No one single method provides the necessary level of precision for determining a  
22 fair return, but each method provides useful evidence to facilitate the exercise of an  
23 informed judgment. Reliance on any single method or preset formula is

1 inappropriate when dealing with investor expectations because of possible  
2 measurement difficulties and vagaries in individual companies' market data.  
3 Examples of such vagaries include dividend suspension, insufficient or  
4 unrepresentative historical data due to a recent merger, impending merger or  
5 acquisition, and a new corporate identity due to restructuring activities. The  
6 advantage of using several different approaches is that the results of each one can  
7 be used to check the others.

8 As a general proposition, it is extremely dangerous to rely on only one  
9 generic methodology to estimate equity costs. The difficulty is compounded when  
10 only one variant of that methodology is employed. It is compounded even further  
11 when that one methodology is applied to a single company. Hence, several  
12 methodologies applied to several comparable risk companies should be employed  
13 to estimate the cost of common equity.

14 As I have stated, there are three broad generic methods available to measure  
15 the cost of equity: DCF, CAPM, and risk premium. All three of these methods are  
16 accepted and used by the financial community and firmly supported in the financial  
17 literature. The weight accorded to any one method may vary depending on unusual  
18 circumstances in capital market conditions.

19 Each methodology requires the exercise of considerable judgment on the  
20 reasonableness of the assumptions underlying the method and on the  
21 reasonableness of the proxies used to validate the theory and apply the method.  
22 Each method has its own way of examining investor behavior, its own premises,  
23 and its own set of simplifications of reality. Investors do not necessarily subscribe

1 to any one method, nor does the stock price reflect the application of any one single  
2 method by the price-setting investor. There is no guarantee that a single DCF result  
3 is necessarily the ideal predictor of the stock price and of the cost of equity reflected  
4 in that price, just as there is no guarantee that a single CAPM or risk premium result  
5 constitutes the perfect explanation of a stock's price or the cost of equity.

6 **Q. ARE THERE ANY PRACTICAL DIFFICULTIES IN APPLYING COST OF**  
7 **CAPITAL METHODOLOGIES IN ENVIRONMENTS OF VOLATILITY**  
8 **IN CAPITAL MARKETS AND ECONOMIC UNCERTAINTY?**

9 A. Yes, there are. The traditional cost of equity estimation methodologies are difficult  
10 to implement when you are dealing with the instability and volatility in the capital  
11 markets and the uncertain economy both in the U.S. and abroad. This is not only  
12 because stock prices are volatile at this time, but also because utility company  
13 historical data have become less meaningful for an industry experiencing  
14 substantial change, for example, the transition to stringent renewable standards,  
15 declining customer usage, the uncertain impact of distributed generation, and the  
16 need to secure vast amounts of external capital over the next decade, regardless of  
17 capital market conditions. Past earnings and dividend trends may simply not be  
18 indicative of the future. For example, historical growth rates of earnings and  
19 dividends have been depressed by eroding margins due to a variety of factors,  
20 including the sluggish economy, declining customer usage, restructuring, and  
21 falling margins. As a result, this historical data may not be representative of the  
22 future long-term earning power of these companies. Moreover, historical growth  
23 rates may not be necessarily representative of future trends for several electric

1 utilities involved in mergers and acquisitions, as these companies going forward  
2 are not the same companies for which historical data are available.

3 In short, given the volatility in capital markets and economic uncertainties,  
4 the utilization of multiple methodologies is critical, and reliance on a single  
5 methodology is highly hazardous.

**A. DCF Estimates**

6 **Q. PLEASE DESCRIBE THE DCF APPROACH TO ESTIMATING THE**  
7 **COST OF EQUITY CAPITAL.**

8 A. According to DCF theory, the value of any security to an investor is the expected  
9 discounted value of the future stream of dividends or other benefits. One widely  
10 used method to measure these anticipated benefits in the case of a non-static  
11 company is to examine the current dividend plus the increases in future dividend  
12 payments expected by investors. This valuation process can be represented by the  
13 following formula, which is the traditional DCF model:

$$K_e = D_1/P_0 + g$$

14 where:  $K_e$  = investors' expected return on equity

15  $D_1$  = expected dividend at the end of the coming year

16  $P_0$  = current stock price

17  $g$  = expected growth rate of dividends, earnings, stock  
18 price, and book value

19  
20 The traditional DCF formula states that under certain assumptions, which  
21 are described in the next paragraph, the equity investor's expected return ( $K_e$ ) can  
22 be viewed as the sum of an expected dividend yield ( $D_1/P_0$ ) plus the expected  
23 growth rate of future dividends and stock price ( $g$ ). The returns anticipated at a  
24 given market price are not directly observable and must be estimated from

1 statistical market information. The idea of the market value approach is to infer  $K_e$   
2 from the observed share price, the observed dividend, and an estimate of investors'  
3 expected future growth.

4 The assumptions underlying this valuation formulation are well known, and  
5 are discussed in detail in Chapter 8 of my reference text, *The New Regulatory*  
6 *Finance*. The standard DCF model requires the following main assumptions:

- 7 (i) a constant average growth trend for both dividends and  
8 earnings;
- 9 (ii) a stable dividend payout policy;
- 10 (iii) a discount rate in excess of the expected growth rate; and
- 11 (iv) a constant price-earnings multiple, which implies that  
12 growth in price is synonymous with growth in earnings and  
13 dividends.

14 The standard DCF model also assumes that dividends are paid at the end of each  
15 year when in fact dividend payments are normally made on a quarterly basis.

16 **Q. HOW DID YOU ESTIMATE DUKE ENERGY KENTUCKY'S COST OF**  
17 **EQUITY WITH THE DCF MODEL?**

18 A. In estimating Duke Energy Kentucky's cost of equity, I applied the DCF model to  
19 a group of investment-grade, dividend-paying, combination gas and electric  
20 utilities with the majority of their revenues from regulated operations that are  
21 covered in the Value Line database.

22 In order to apply the DCF model, two components are required: the  
23 expected dividend yield ( $D_1/P_0$ ), and the expected long-term growth ( $g$ ). The  
24 expected dividend ( $D_1$ ) in the annual DCF model can be obtained by multiplying  
25 the current indicated annual dividend rate by the growth factor ( $1 + g$ ).

1 **Q. HOW DID YOU ESTIMATE THE DIVIDEND YIELD COMPONENT OF**  
2 **THE DCF MODEL?**

3 A. From a conceptual viewpoint, the stock price to employ in calculating the dividend  
4 yield is the then-current price of the security at the time of estimating the cost of  
5 equity. This is because the current stock prices provide a better indication of  
6 expected future prices than any other price in an efficient market. An efficient  
7 market implies that prices adjust rapidly to the arrival of new information.  
8 Therefore, current prices reflect the fundamental economic value of a security. A  
9 considerable body of empirical evidence indicates that capital markets are efficient  
10 with respect to a broad set of information. This implies that observed current prices  
11 represent the fundamental value of a security, and that a cost of capital estimate  
12 should be based on current prices.

13 In implementing the DCF model, I have used the dividend yields reported  
14 on the Yahoo Finance Web site. Basing dividend yields on average results from a  
15 large group of companies reduces the concern that the vagaries of individual  
16 company stock prices will result in an unrepresentative dividend yield.

17 **Q. WHY DID YOU MULTIPLY THE SPOT DIVIDEND YIELD BY  $(1 + g)$**   
18 **RATHER THAN BY  $(1 + 0.5g)$ ?**

19 A. Some analysts multiply the spot dividend yield by one plus one half the expected  
20 growth rate  $(1 + 0.5g)$  rather than the conventional one plus the expected growth  
21 rate  $(1 + g)$ . This procedure understates the return expected by the investor.

22 The fundamental assumption of the basic annual DCF model is that  
23 dividends are received annually at the end of each year and that the first dividend

1 is to be received one year from now. Thus, the appropriate dividend to use in a DCF  
2 model is the full prospective dividend to be received at the end of the year. Since  
3 the appropriate dividend to use in a DCF model is the prospective dividend one  
4 year from now rather than the dividend one-half year from now, multiplying the  
5 spot dividend yield by  $(1 + 0.5g)$  understates the proper dividend yield.

6 Moreover, the basic annual DCF model ignores the time value of quarterly  
7 dividend payments and assumes dividends are paid once a year at the end of the  
8 year. Multiplying the spot dividend yield by  $(1 + g)$  is actually a conservative  
9 attempt to capture the reality of quarterly dividend payments. Use of this method  
10 is conservative in the sense that the annual DCF model fully ignores the more  
11 frequent compounding of quarterly dividends.

12 **Q. HOW DID YOU ESTIMATE THE GROWTH COMPONENT OF THE DCF**  
13 **MODEL?**

14 A. The principal difficulty in calculating the required return by the DCF approach is  
15 in ascertaining the growth rate that investors currently expect. Since no explicit  
16 estimate of expected growth is observable, proxies must be employed.

17 As proxies for expected growth, I examined the consensus growth estimate  
18 developed by professional analysts. Projected long-term growth rates actually used  
19 by institutional investors to determine the desirability of investing in different  
20 securities influence investors' growth anticipations. These forecasts are made by  
21 large reputable organizations, and the data are readily available and are  
22 representative of the consensus view of investors. Because of the dominance of  
23 institutional investors in investment management and security selection, and their

1 influence on individual investment decisions, analysts' growth forecasts influence  
2 investor growth expectations and provide a sound basis for estimating the cost of  
3 equity with the DCF model.

4 Growth rate forecasts of several analysts are available from published  
5 investment newsletters and from systematic compilations of analysts' forecasts,  
6 such as those tabulated by Yahoo Finance and Zacks Investment Research Inc. I  
7 used analysts' long-term growth forecasts reported in Yahoo Finance as proxies for  
8 investors' growth expectations in applying the DCF model. I also used Value Line's  
9 growth forecasts as additional proxies.

10 **Q. WHY DID YOU REJECT THE USE OF HISTORICAL GROWTH RATES**  
11 **IN APPLYING THE DCF MODEL TO UTILITIES?**

12 A. I have rejected historical growth rates as proxies for expected growth in the DCF  
13 calculation for two reasons. First, historical growth patterns are already  
14 incorporated in analysts' growth forecasts that should be used in the DCF model,  
15 and are therefore redundant. Second, published studies in the academic literature  
16 demonstrate that growth forecasts made by security analysts are reasonable  
17 indicators of investor expectations, and that investors rely on analysts' forecasts.  
18 This considerable literature is summarized in Chapter 9 of my most recent textbook,  
19 *The New Regulatory Finance*.

20 **Q. DID YOU CONSIDER ANY OTHER METHOD OF ESTIMATING**  
21 **EXPECTED GROWTH TO APPLY THE DCF MODEL?**

22 A. Yes, I did. I considered using the so-called "sustainable growth" method, also  
23 referred to as the "retention growth" method. According to this method, future



1 growth is estimated by multiplying the fraction of earnings expected to be retained  
2 by the company, 'b', by the expected return on book equity, ROE, as follows:

3 
$$g = b \times \text{ROE}$$

4 where: g = expected growth rate in earnings/dividends

5 b = expected retention ratio

6 ROE = expected return on book equity

7 **Q. DO YOU HAVE ANY RESERVATIONS IN REGARDS TO THE**  
8 **SUSTAINABLE GROWTH METHOD?**

9 A. Yes, I do. First, the sustainable method of predicting growth contains a logic trap:  
10 the method requires an estimate of expected return on book equity to be  
11 implemented. But if the expected return on book equity input required by the model  
12 differs from the recommended return on equity, a fundamental contradiction in  
13 logic follows. Second, the empirical finance literature demonstrates that the  
14 sustainable growth method of determining growth is not as significantly correlated  
15 to measures of value, such as stock prices and price/earnings ratios, as analysts'  
16 growth forecasts. I therefore chose not to rely on this method.

17 **Q. DID YOU CONSIDER DIVIDEND GROWTH IN APPLYING THE DCF**  
18 **MODEL?**

19 A. No, not at this time. The reason is that as a practical matter, while there is an  
20 abundance of earnings growth forecasts, there are very few forecasts of dividend  
21 growth. Moreover, it is widely expected that some utilities will continue to lower  
22 their dividend payout ratios over the next several years in response to heightened  
23 business risk and the need to fund very large construction programs over the next  
24 decade. Dividend growth has remained largely stagnant in past years as utilities are

1 increasingly conserving financial resources in order to hedge against rising business  
2 risks and finance large infrastructure investments. As a result, investors' attention  
3 has shifted from dividends to earnings. Therefore, earnings growth provides a more  
4 meaningful guide to investors' long-term growth expectations. Indeed, it is growth  
5 in earnings that will support future dividends and share prices.

6 **Q. IS THERE ANY EMPIRICAL EVIDENCE DOCUMENTING THE**  
7 **IMPORTANCE OF EARNINGS IN EVALUATING INVESTORS'**  
8 **EXPECTATIONS?**

9 A. Yes, there is an abundance of evidence attesting to the importance of earnings in  
10 assessing investors' expectations. First, the sheer volume of earnings forecasts  
11 available from the investment community relative to the scarcity of dividend  
12 forecasts attests to their importance. To illustrate, Value Line, Yahoo Finance,  
13 Zacks Investment, First Call Thompson, Reuters, and Multex provide  
14 comprehensive compilations of investors' earnings forecasts. The fact that these  
15 investment information providers focus on growth in earnings rather than growth  
16 in dividends indicates that the investment community regards earnings growth as a  
17 superior indicator of future long-term growth. Second, Value Line's principal  
18 investment rating assigned to individual stocks, Timeliness Rank, is based  
19 primarily on earnings, which accounts for 65% of the ranking.

1 **Q. HOW DID YOU APPROACH THE COMPOSITION OF COMPARABLE**  
2 **GROUPS IN ORDER TO ESTIMATE DUKE ENERGY KENTUCKY'S**  
3 **COST OF EQUITY WITH THE DCF METHOD?**

4 A. Because Duke Energy Kentucky is not publicly traded, the DCF model cannot be  
5 applied to Duke Energy Kentucky and proxies must be used. There are two possible  
6 approaches in forming proxy groups of companies.

7 The first approach is to apply cost of capital estimation techniques to a select  
8 group of companies directly comparable in risk to Duke Energy Kentucky. These  
9 companies are chosen by the application of stringent screening criteria to a universe  
10 of utility stocks in an attempt to identify companies with the same investment risk  
11 as Duke Energy Kentucky. Examples of screening criteria include bond rating, beta  
12 risk, size, percentage of revenues from utility operations, and common equity ratio.  
13 The end result is a small sample of companies with a risk profile similar to that of  
14 Duke Energy Kentucky, provided the screening criteria are defined and applied  
15 correctly.

16 The second approach is to apply cost of capital estimation techniques to a  
17 large group of utilities representative of the utility industry average and then make  
18 adjustments to account for any difference in investment risk between the company  
19 and the industry average, if any. As explained below, in view of substantial changes  
20 in circumstances in the utility industry, I have chosen the latter approach.

21 In the uncertain capital market and industry environment, it is important to  
22 select relatively large sample sizes representative of the utility industry as a whole,  
23 as opposed to small sample sizes consisting of a handful of companies. This is

1 because the equity market as a whole and utility industry capital market data are  
2 volatile. As a result of this volatility, the composition of small groups of companies  
3 is very fluid, with companies exiting the sample due to dividend suspensions or  
4 reductions, insufficient or unrepresentative historical data due to recent mergers,  
5 impending merger or acquisition, and changing corporate identities due to  
6 restructuring activities.

7 From a statistical standpoint, confidence in the reliability of the DCF model  
8 result is considerably enhanced when applying the DCF model to a large group of  
9 companies. Any distortions introduced by measurement errors in the two DCF  
10 components of equity return for individual companies, namely dividend yield and  
11 growth are mitigated. Utilizing a large portfolio of companies reduces the influence  
12 of either overestimating or underestimating the cost of equity for any one individual  
13 company. For example, in a large group of companies, positive and negative  
14 deviations from the expected growth will tend to cancel out owing to the law of  
15 large numbers, provided that the errors are independent.<sup>1</sup> The average growth rate  
16 of several companies is less likely to diverge from expected growth than is the

---

<sup>1</sup> If  $\sigma_i^2$  represents the average variance of the errors in a group of N companies, and  $\sigma_{ij}$  the average covariance between the errors, then the variance of the error for the group of N companies,  $\sigma_N^2$  is:

$$\sigma_N^2 = \frac{1}{N} \sigma_i^2 + \frac{N-1}{N} \sigma_{ij}$$

If the errors are independent, the covariance between them ( $\sigma_{ij}$ ) is zero, and the variance of the error for the group is reduced to:

$$\sigma_N^2 = \frac{1}{N} \sigma_i^2$$

As N gets progressively larger, the variance gets smaller and smaller.

1 estimate of growth for a single firm. More generally, the assumptions of the DCF  
2 model are more likely to be fulfilled for a large group of companies than for any  
3 single firm or for a small group of companies.

4 Moreover, small samples are subject to measurement error, and in violation  
5 of the Central Limit Theorem of statistics.<sup>2</sup> From a statistical standpoint, reliance  
6 on robust sample sizes mitigates the impact of possible measurement errors and  
7 vagaries in individual companies' market data. Examples of such vagaries include  
8 dividend suspension, insufficient or unrepresentative historical data due to a recent  
9 merger, impending merger or acquisition, and a new corporate identity due to  
10 restructuring.

11 The point of all this is that the use of a handful of companies in a highly  
12 fluid and unstable industry produces fragile and statistically unreliable results. A  
13 far safer procedure is to employ large sample sizes representative of the industry as  
14 a whole and apply subsequent risk adjustments to the extent that the company's risk  
15 profile differs from that of the industry average.

---

<sup>2</sup> The Central Limit Theorem describes the characteristics of the distribution of values we would obtain if we were able to draw an infinite number of random samples of a given size from a given population and we calculated the mean of each sample. The Central Limit Theorem asserts: [1] The mean of the sampling distribution of means is equal to the mean of the population from which the samples were drawn. [2] The variance of the sampling distribution of means is equal to the variance of the population from which the samples were drawn divided by the size of the samples. [3] If the original population is distributed normally, the sampling distribution of means will also be normal. If the original population is not normally distributed, the sampling distribution of means will increasingly approximate a normal distribution as sample size increases.

1 **Q. CAN YOU DESCRIBE THE PROXY GROUP FOR DUKE ENERGY**  
2 **KENTUCKY'S UTILITY BUSINESS?**

3 A. As proxies for Duke Energy Kentucky, I examined a group of investment-grade  
4 dividend-paying combination gas and electric utilities covered in Value Line's  
5 Electric Utility industry group, meaning that these companies all possess utility  
6 assets similar to Duke Energy Kentucky's. I began with all the companies  
7 designated as combination gas and electric utilities that are also covered in the  
8 Value Line Survey as shown on Attachment RAM-2. Sempra Energy was added to  
9 the group since it is a combination gas and electric utility covered in the Value Line  
10 database. Fortis was also added to the group since it owns several US combination  
11 gas and electric companies. Private partnerships, private companies, non-dividend-  
12 paying companies, and companies below investment-grade (with a Moody's bond  
13 rating below Baa3) were eliminated.

14 From the preliminary list provided in Attachment RAM-2, and as shown on  
15 the accompanying notes in the last column of that Attachment, I excluded nine  
16 companies marked with an X in column 3. Column 4 shows the rationale for  
17 exclusion.

18 The first company excluded company was Empire District Electric, which  
19 recently combined with a subsidiary of Liberty Utilities Co., the wholly owned  
20 regulated utility business subsidiary of Algonquin Power & Utilities Corp. The  
21 second excluded company was Entergy Corp., on account of its ongoing corporate  
22 restructuring and nuclear exposure. The third company was MDU Resources  
23 because its revenues from regulated electric utility operations were less than 50%.

1 The fourth excluded company was Pepco Holdings, which has been merged with  
2 Exelon. The fifth excluded company was PG&E since it has declared Chapter 11  
3 bankruptcy and has suspended dividends.

4 The sixth company excluded was SCANA on account of its nuclear  
5 construction exposure. Unitil was the seventh company excluded because it is not  
6 covered in the Value Line database. The eighth excluded company was TECO  
7 Energy, which has been acquired by Emera. Vectren was the ninth company  
8 excluded on account of its acquisition of by CenterPoint.

9 The final group of 20 companies that comprise the proxy group is shown on  
10 Attachment RAM-3. I stress that this proxy group must be viewed as a portfolio of  
11 comparable risk. It would be inappropriate to select any particular company or  
12 subset of companies from this group and infer the cost of common equity from that  
13 company or subset alone.

14 **Q. WHAT DCF RESULTS DID YOU OBTAIN FOR DUKE ENERGY**  
15 **KENTUCKY USING VALUE LINE GROWTH PROJECTIONS?**

16 A. Attachment RAM-4 displays the DCF analysis using Value Line growth projections  
17 for the twenty companies in Duke Energy Kentucky's proxy group.

18 As shown on column 3, line 22 of Attachment RAM-4, the average long-  
19 term earnings per share growth forecast obtained from Value Line is 6.65% for  
20 Duke Energy Kentucky's proxy group. Combining this growth rate with the  
21 average expected dividend yield of 3.18% shown on column 4, line 22 of  
22 Attachment RAM-4 produces an estimate of equity costs of 9.83% for Duke Energy  
23 Kentucky's proxy group, as shown on column 5, line 22 of Attachment RAM-4.

1 Recognition of flotation costs brings the cost of equity estimate to 10.00% for the  
2 group, shown in Column 6. The need for a flotation cost allowance is discussed at  
3 length later in my testimony.

4 **Q. WHAT DCF RESULTS DID YOU OBTAIN FOR DUKE ENERGY**  
5 **KENTUCKY USING ANALYSTS' CONSENSUS GROWTH FORECASTS?**

6 A. Attachment RAM-5 displays the DCF analysis using analysts' consensus growth  
7 forecasts for the twenty companies in Duke Energy Kentucky's proxy group. Please  
8 note that the growth forecasts for Exelon and Fortis were drawn from the Value  
9 Line forecast since the Yahoo Finance growth forecast were not available for these  
10 two companies.

11 As shown on column 3, line 22 of Attachment RAM-5, the average long-  
12 term earnings per share growth forecast obtained from analysts is 5.59% for Duke  
13 Energy Kentucky's proxy group. Combining this growth rate with the average  
14 expected dividend yield of 3.15% shown on column 4, line 22, produces an estimate  
15 of equity costs of 8.75% for Duke Energy Kentucky's proxy group unadjusted for  
16 flotation cost, as shown on column 5, line 22, of Attachment RAM-5. Recognition  
17 of flotation costs brings the cost of equity estimate to 8.91%, shown in Column 6,  
18 line 22.



1 Q. PLEASE SUMMARIZE THE DCF ESTIMATES FOR DUKE ENERGY  
2 KENTUCKY.

3 A. Table 1 below summarizes the DCF estimates for Duke Energy Kentucky:

**Table 1. DCF Estimates for Duke Energy Kentucky**

<u>DCF STUDY</u>	<u>ROE</u>
Electric Utilities Value Line Growth	10.00%
Electric Utilities Analysts Growth	8.91%

**B. CAPM Estimates**

4 Q. PLEASE DESCRIBE YOUR APPLICATION OF THE CAPM RISK  
5 PREMIUM APPROACH.

6 A. My first two risk premium estimates are based on the CAPM and on an empirical  
7 approximation to the CAPM (ECAPM). The CAPM is a fundamental paradigm of  
8 finance. Simply put, the fundamental idea underlying the CAPM is that risk-averse  
9 investors demand higher returns for assuming additional risk, and higher-risk  
10 securities are priced to yield higher expected returns than lower-risk securities. The  
11 CAPM quantifies the additional return, or risk premium, required for bearing  
12 incremental risk. It provides a formal risk-return relationship anchored on the basic  
13 idea that only market risk matters, as measured by beta ( $\beta$ ). According to the  
14 CAPM, securities are priced such that:

15 
$$\text{EXPECTED RETURN} = \text{RISK-FREE RATE} + \text{RISK PREMIUM}$$

16 Denoting the risk-free rate by  $R_F$  and the return on the market as a whole by  $R_M$ ,  
17 the CAPM is stated as follows:

1 
$$K = R_F + \beta \times (R_M - R_F)$$

2 where:  $K$  = investors' expected return on equity  
3  $R_F$  = risk-free rate  
4  $R_M$  = return on the market as a whole  
5  $\beta$  = systematic risk (i.e., change in a security's return  
6 relative to that of the market)

7 This is the seminal CAPM expression, which states that the return required by  
8 investors is made up of a risk-free component,  $R_F$ , plus a risk premium determined  
9 by  $\beta \times (R_M - R_F)$ . The bracketed expression ( $R_M - R_F$ ) expression is known as the  
10 market risk premium (MRP). To derive the CAPM risk premium estimate, three  
11 quantities are required: the risk-free rate ( $R_F$ ), beta ( $\beta$ ), and the MRP ( $R_M - R_F$ ).

12 For the risk-free rate ( $R_F$ ), I used 4.2%, based on forecast interest rates on  
13 long-term U.S. Treasury bonds. For beta ( $\beta$ ), I used 0.61 based on Value Line  
14 estimates. For the MRP ( $R_M - R_F$ ), I used 7.5% based on historical and prospective  
15 market risk premium studies. These inputs to the CAPM are explained below.

16 **Q. HOW DID YOU ARRIVE AT YOUR RISK-FREE RATE ESTIMATE OF**  
17 **4.2% IN YOUR CAPM ANALYSES?**

18 A. To implement the CAPM and Risk Premium methods, an estimate of the risk-free  
19 return is required as a benchmark. I relied on noted economic forecasts, which call  
20 for a rising trend in interest rates in response to the recovering economy, renewed  
21 inflation, and record high federal deficits. Value Line, IHS (formerly Global  
22 Insight), the Congressional Budget Office, the Bureau of Labor Statistics, the  
23 Economic Report of the President, the 2019 White House budget, and the U.S.  
24 Energy Information Administration all project higher long-term Treasury bond  
25 rates in the future.

1 **Q. WHY DID YOU RELY ON LONG-TERM BONDS INSTEAD OF SHORT-**  
2 **TERM BONDS?**

3 A. The appropriate proxy for the risk-free rate in the CAPM is the return on the  
4 longest-term Treasury bond possible. This is because common stocks are very long-  
5 term instruments more akin to very long-term bonds; rather than to short-term  
6 Treasury bills or intermediate-term Treasury notes. In a risk premium model, the  
7 ideal estimate for the risk-free rate has a term to maturity equal to the security being  
8 analyzed. Since common stock is a very long-term investment because the cash  
9 flows to investors in the form of dividends last indefinitely, the yield on the longest-  
10 term possible government bonds, that is the yield on 30-year Treasury bonds, is the  
11 best measure of the risk-free rate for use in the CAPM. The expected common stock  
12 return is based on very long-term cash flows, regardless of an individual's holding  
13 time period. Moreover, utility asset investments generally have very long-term  
14 useful lives and should correspondingly be matched with very long-term maturity  
15 financing instruments.

16 While long-term Treasury bonds are potentially subject to interest rate risk,  
17 this is only true if the bonds are sold prior to maturity. A substantial fraction of  
18 bond market participants, usually institutional investors with long-term liabilities  
19 (*e.g.*, pension funds and insurance companies), in fact hold bonds until they mature,  
20 and therefore are not subject to interest rate risk. Moreover, institutional  
21 bondholders neutralize the impact of interest rate changes by matching the maturity  
22 of a bond portfolio with the investment planning period. Or they engage in hedging  
23 transactions in the financial futures markets. Both academicians and practitioners

1 have extensively documented the merits and mechanics of such immunization  
2 strategies.

3 Another reason for utilizing the longest maturity Treasury bond possible is  
4 that common equity has no finite maturity. The inflation expectations embodied in  
5 its market-required rate of return will therefore be equal to the inflation rate  
6 anticipated to prevail over the very long term. The same expectation should be  
7 embodied in the risk-free rate used in applying the CAPM model. It stands to reason  
8 that the yields on 30-year Treasury bonds will more closely incorporate within their  
9 yields the inflation expectations that influence the prices of common stocks than do  
10 short-term Treasury bills or intermediate-term U.S. Treasury notes.

11 Among U.S. Treasury securities, 30-year Treasury bonds have the longest  
12 term to maturity. The yields on such securities should be used as proxies for the  
13 risk-free rate in applying the CAPM. Therefore, I have relied on the yield on 30-  
14 year Treasury bonds in implementing the CAPM and risk premium methods.

15 **Q. ARE THERE OTHER REASONS WHY YOU REJECT SHORT-TERM**  
16 **INTEREST RATES AS PROXIES FOR THE RISK-FREE RATE IN**  
17 **IMPLEMENTING THE CAPM?**

18 A. Yes. Short-term rates are volatile, fluctuate widely, and are subject to more random  
19 disturbances than are long-term rates. Short-term rates are largely administered  
20 rates. For example, Treasury bills are used by the Federal Reserve as a policy  
21 vehicle to stimulate the economy and to control the money supply. They are also  
22 used by foreign governments, companies, and individuals as a temporary safe-  
23 house for money.

1           As a practical matter, it makes no sense to match the return on common  
2           stock to the yield on 90-day Treasury bills. This is because short-term rates, such  
3           as the yield on 90-day Treasury bills, fluctuate widely, leading to volatile and  
4           unreliable equity return estimates. Moreover, yields on 90-day Treasury bills  
5           typically do not match the equity investor's planning horizon. Equity investors  
6           generally have an investment horizon far in excess of 90 days.

7           As a conceptual matter, short-term Treasury bill yields reflect the impact of  
8           factors different from those influencing the yields on long-term securities such as  
9           common stock. For example, the premium for expected inflation embedded into  
10          90-day Treasury bills may be far different than the inflationary premium embedded  
11          into long-term securities yields. On grounds of stability and consistency, the yields  
12          on long-term Treasury bonds match more closely with common stock returns.

13   **Q.   WHAT IS YOUR ESTIMATE OF THE RISK-FREE RATE IN APPLYING**  
14   **THE CAPM?**

15   A.   As discussed, all the noted interest rate forecasts that I am aware of point to  
16          significantly higher interest rates over the next several years. The table below  
17          reports the forecast yields on 30-year US Treasury bonds from several prominent  
18          sources, including the Congressional Budget Office, Bureau of Labor Statistics,  
19          U.S. Energy Information Administration, IHS (formerly Global Insight), Value  
20          Line, the 2019 White House budget, and the Economic Report of the President.

21          The average 30-year long-term bond yield forecast from the seven sources  
22          is 4.2%, and the individual forecasts are quite consistent as they are closely  
23          clustered around the average. Based on this evidence, a long-term bond yield

1 forecast of 4.2% is a reasonable estimate of the expected risk-free rate for purposes  
2 of forward-looking CAPM/ECAPM and Risk Premium analyses in the current  
3 economic environment.

**Table 2 Forecast Yields on 30-year U.S. Treasury Bonds**

<b>Source</b>	<b>Forecast</b>
Value Line Economic Forecast	4.0%
U.S. Energy Information Administration	4.6%
Bureau of Labor Statistics	4.2%
Congressional Budget Office	4.2%
Economic Report of the President 2018	4.1%
White House Budget 2019	4.2%
IHS (Global Insight)	3.8%
<b>AVERAGE</b>	<b>4.2%</b>

4 **Q. DR. MORIN, WHY DID YOU IGNORE THE CURRENT LEVEL OF**  
5 **INTEREST RATES IN DEVELOPING YOUR PROXY FOR THE RISK-**  
6 **FREE RATE IN A CAPM ANALYSIS?**

7 A. I relied on projected long-term Treasury interest rates for three reasons. First,  
8 investors price securities on the basis of long-term expectations, including interest  
9 rates. Cost of capital models, including both the CAPM and DCF models, are  
10 prospective (*i.e.*, forward-looking) in nature and must take into account current  
11 market expectations for the future because investors price securities on the basis of  
12 long-term expectations, including interest rates. As a result, in order to produce a  
13 meaningful estimate of investors' required rate of return, the CAPM must be  
14 applied using data that reflects the expectations of actual investors in the market.  
15 While investors examine history as a guide to the future, it is the expectations of  
16 future events that influence security values and the cost of capital.

1           Second, investors' required returns can and do shift over time with changes  
2 in capital market conditions, hence the importance of considering interest rate  
3 forecasts. The fact that organizations such as Value Line, IHS (Global Insight),  
4 EIA, and CBO, among many others, devote considerable expertise and resources  
5 to developing an informed view of the future – and the fact that investors are willing  
6 to purchase such expensive services – confirm the importance of  
7 economic/financial forecasts in the minds of investors. Moreover, the empirical  
8 evidence demonstrates that stock prices do indeed reflect prospective financial  
9 input data.

10           Third, given that this proceeding is to provide ROE estimates for future  
11 proceedings, forecast interest rates are far more relevant. The use of interest rate  
12 forecasts is no different than the use of projections of other financial variables, such  
13 as growth rates, in DCF analyses.

14 **Q. HOW DID YOU SELECT THE BETA FOR YOUR CAPM ANALYSIS?**

15 A. A major thrust of modern financial theory as embodied in the CAPM is that  
16 perfectly diversified investors can eliminate the company-specific component of  
17 risk, and that only market risk remains. The latter is technically known as “beta”  
18 ( $\beta$ ), or “systematic risk.” The beta coefficient measures change in a security's return  
19 relative to that of the market. The beta coefficient states the extent and direction of  
20 movement in the rate of return on a stock relative to the movement in the rate of  
21 return on the market as a whole. It indicates the change in the rate of return on a  
22 stock associated with a one percentage point change in the rate of return on the  
23 market. It measures the degree to which a particular stock shares the risk of the

1 market as a whole. Modern financial theory has established that beta incorporates  
2 several economic characteristics of a corporation that are reflected in investors'  
3 return requirements.

4 Duke Energy Kentucky is not publicly traded. Therefore, proxies must be  
5 used. In the discussion of DCF estimates of the cost of common equity earlier, I  
6 examined a sample of investment-grade dividend-paying combined electric and gas  
7 utilities covered by Value Line. The average beta for Duke Energy Kentucky's  
8 proxy group is 0.61. Please see Attachment RAM-6, for the beta estimates of the  
9 proxy group for Duke Energy Kentucky. Based on these results, I shall use 0.61 as  
10 an estimate for the beta applicable to the average company in the peer group.

11 **Q. WHAT MRP DID YOU USE IN YOUR CAPM ANALYSIS?**

12 A. For the MRP, I used 7.5%. This estimate was based on the results of both historical  
13 and prospective studies of long-term risk premiums, and on one additional check.

14 **Q. CAN YOU DESCRIBE THE HISTORICAL MRP STUDY USED IN YOUR**  
15 **CAPM ANALYSIS?**

16 A. Yes. The historical MRP estimate is based on the results obtained in Duff & Phelps'  
17 2019 Valuation Handbook (formerly published by Morningstar and earlier by  
18 Ibbotson Associates), which compiles historical returns from 1926 to 2018. This  
19 well-known study summarized on Exhibit 6.9 of the handbook shows that a very  
20 broad market sample of common stocks outperformed long-term U.S. Government  
21 bonds by 6.0%. The historical MRP over the income component of long-term U.S.  
22 Government bonds – rather than over the total return – is 6.9%.



1           The historical MRP should be computed using the income component of  
2           bond returns because the intent, even using historical data, is to identify an expected  
3           MRP. The income component of total bond return (*i.e.*, the coupon rate) is a far  
4           better estimate of expected return than the total return (*i.e.*, the coupon rate + capital  
5           gain), because both realized capital gains and realized losses are largely  
6           unanticipated by bond investors. The long-horizon (1926-2018) MRP is 6.9%.

7           As a check on the historical MRP estimate, I examined the historical return  
8           on common stocks in real terms (inflation-adjusted) over the 1926-2018 period and  
9           added current inflation expectations to arrive at a current inflation-adjusted  
10          common stock return. According to the Duff & Phelps study, the average historical  
11          return on common stocks averaged 11.9% over the 1926-2018 period, while  
12          inflation averaged 3.0% over the same period. This implies a real return of 8.9%  
13          (11.9% - 3.0% = 8.9%). With current long-term inflation expectations of 2.1%,<sup>3</sup> the  
14          inflation-adjusted return on common stock becomes 11.0% (8.9% + 2.1% = 11.0%).  
15          Given the forecast yield of 4.2%, the implied MRP is 6.8% (11.0% - 4.2% = 6.8%).  
16          This is almost identical to the 6.9% estimate.

17   **Q.   ON WHAT MATURITY BOND DOES THE DUFF & PHELPS**  
18   **HISTORICAL RISK PREMIUM DATA RELY?**

19   A.   Because 30-year bonds were not always traded or even available throughout the  
20          entire study period covered in the Duff & Phelps study of historical returns, the  
21          latter study relied on bond return data based on 20-year Treasury bonds. Given that

---

<sup>3</sup> Thirty-year U.S. Treasury bonds are currently trading at a 3.0% yield while 30-year inflation-adjusted bonds are trading at an approximate yield of 0.9%, implying a long-term inflation rate expectation of 2.1%.

1 the normal yield curve is virtually flat above maturities of 20 years for most of the  
2 period covered in the Duff & Phelps study, the difference in yield is not material.

3 **Q. WHY DID YOU USE LONG TIME PERIODS IN ARRIVING AT YOUR**  
4 **HISTORICAL MRP ESTIMATE?**

5 A. Because realized returns can be substantially different from prospective returns  
6 anticipated by investors when measured over short time periods, it is important to  
7 employ returns realized over long time periods rather than returns realized over  
8 more recent time periods when estimating the MRP with historical returns.  
9 Therefore, a risk premium study should consider the longest possible period for  
10 which data are available. Short-run periods during which investors earned a lower  
11 risk premium than expected are offset by short-run periods during which investors  
12 earned a higher risk premium than expected. Only over long-time periods will  
13 investor return expectations and realizations converge.

14 I have therefore ignored realized risk premiums measured over short time  
15 periods. Instead, I relied on results over periods of enough length to smooth out  
16 short-term aberrations, and to encompass several business and interest rate cycles.  
17 The use of the entire study period in estimating the appropriate MRP minimizes  
18 subjective judgment and encompasses many diverse regimes of inflation, interest  
19 rate cycles, and economic cycles.

20 To the extent that the estimated historical equity risk premium follows what  
21 is known in statistics as a random walk, one should expect the equity risk premium  
22 to remain at its historical mean. Since I found no evidence that the MRP in common  
23 stocks has changed over time, that is, no significant serial correlation in the Duff &

1 Phelps study prior to that time, it is reasonable to assume that these quantities will  
2 remain stable in the future.

3 **Q. SHOULD STUDIES OF HISTORICAL RISK PREMIUMS RELY ON**  
4 **ARITHMETIC AVERAGE RETURNS OR GEOMETRIC AVERAGE**  
5 **RETURNS?**

6 A. Whenever relying on historical risk premiums, only arithmetic average returns over  
7 long periods are appropriate for forecasting and estimating the cost of capital.  
8 Geometric average returns are not.<sup>4</sup>

9 **Q. PLEASE EXPLAIN HOW THE ISSUE OF WHAT IS THE PROPER**  
10 **“MEAN” ARISES IN THE CONTEXT OF ANALYZING THE COST OF**  
11 **EQUITY?**

12 A. The issue arises in applying methods that derive estimates of a utility’s cost of  
13 equity from historical relationships between bond yields and earned returns on  
14 equity for individual companies or portfolios of several companies. Those methods  
15 produce series of numbers representing the annual difference between bond yields  
16 and stock returns over long historical periods. The question is how to translate those  
17 series into a single number that can be added to a current bond yield to estimate the  
18 current cost of equity for a stock or a portfolio. Calculating geometric and  
19 arithmetic means are two ways of converting series of numbers to a single,  
20 representative figure.

---

<sup>4</sup> See Roger A. Morin, Ph.D., *The New Regulatory Finance: Utilities’ Cost of Capital*, Chapter 4 (2006); Richard A. Brealey, *et al.*, *Principles of Corporate Finance* (8th ed. 2006); Roger A. Morin, Ph.D., *Regulatory Finance: Utilities’ Cost of Capital*, Chapter 11 (1994).

1 **Q. IF BOTH ARE “REPRESENTATIVE” OF THE SERIES, WHAT IS THE**  
2 **DIFFERENCE BETWEEN THE TWO MEANS?**

3 A. Each mean represents different information about the series. The geometric mean  
4 of a series of numbers is the value which, if compounded over the period examined,  
5 would have made the starting value grow to the ending value. The arithmetic mean  
6 is simply the average of the numbers in the series. Where there is any annual  
7 variation (volatility) in a series of numbers, the arithmetic mean of the series, which  
8 reflects volatility, will always exceed the geometric mean, which ignores volatility.  
9 Because investors require higher expected returns to invest in a company whose  
10 earnings are volatile than one whose earnings are stable, the geometric mean is not  
11 useful in estimating the expected rate of return which investors require to make an  
12 investment.

13 **Q. CAN YOU PROVIDE A NUMERICAL EXAMPLE TO ILLUSTRATE THIS**  
14 **DIFFERENCE BETWEEN GEOMETRIC AND ARITHMETIC MEANS?**

15 A. Yes. Table 3 below compares the geometric and arithmetic mean returns of a  
16 hypothetical Stock A, whose yearly returns over a ten-year period are very volatile,  
17 with those of a hypothetical Stock B, whose yearly returns are perfectly stable  
18 during that period. Consistent with the point that geometric returns ignore volatility,  
19 the geometric mean returns for the two series are identical (11.6% in both cases),  
20 whereas the arithmetic mean return of the volatile stock (26.7%) is much higher  
21 than the arithmetic mean return of the stable stock (11.6%).

22 If relying on geometric means, investors would require the same expected  
23 return to invest in both of these stocks, even though the volatility of returns in Stock

1 A is very high while Stock B exhibits perfectly stable returns. That is clearly  
2 contrary to the most basic financial theory; that is, the higher the risk, the higher  
3 the expected return.

4 Chapter 4, Appendix A of my book *The New Regulatory Finance* contains  
5 a detailed and rigorous discussion of the impropriety of using geometric averages  
6 in estimating the cost of capital. Briefly, the disparity between the arithmetic  
7 average return and the geometric average return raises the question as to what  
8 purposes should these different return measures be used. The answer is that the  
9 geometric average return should be used for measuring historical returns that are  
10 compounded over multiple time periods. The arithmetic average return should be  
11 used for future-oriented analysis, where the use of expected values is appropriate.  
12 It is inappropriate to average the arithmetic and geometric average return; they  
13 measure different quantities in different ways.

**Table 3. Arithmetic vs Geometric Mean Returns**

<b>Year</b>	<b>Stock A</b>	<b>Stock B</b>
2009	50.0%	11.6%
2010	-54.7%	11.6%
2011	98.5%	11.6%
2012	42.2%	11.6%
2013	-32.3%	11.6%
2014	-39.2%	11.6%
2015	153.2%	11.6%
2016	-10.0%	11.6%
2017	38.9%	11.6%
2018	20.0%	11.6%
<b>Std. Deviation</b>	<b>64.9%</b>	<b>0.0%</b>
<b>Arith. Mean</b>	<b>26.7%</b>	<b>11.6%</b>
<b>Geom. Mean</b>	<b>11.6%</b>	<b>11.6%</b>

1 **Q. CAN YOU DESCRIBE THE PROSPECTIVE MRP STUDY USED IN YOUR**  
2 **CAPM ANALYSIS?**

3 A. Attachment RAM-7 provides a prospective DCF analysis to the dividend-paying  
4 stocks that make up the S&P 500 index using Value Line's screening software. The  
5 dividend yield on the dividend-paying stocks covered in Value Line's full database  
6 is 2.2%, and the average projected long-term growth rate is 10.0%. Adding the  
7 dividend yield to the growth component produces an expected market return on  
8 aggregate equities of 12.2%. Subtracting the risk-free rate of 4.2% from the latter,  
9 the implied risk premium is 8.0% over long-term U.S. Treasury bonds.

10 The average of the historical MRP of 6.9% and the prospective MRP of  
11 8.0% is 7.5%, which is my final estimate of the MRP for purposes of implementing  
12 the CAPM.

1 **Q. IS YOUR MRP ESTIMATE OF 7.5% CONSISTENT WITH THE**  
2 **ACADEMIC LITERATURE ON THE SUBJECT?**

3 A. Yes, it is. In their authoritative corporate finance textbook, Professors Brealey,  
4 Myers, and Allen<sup>5</sup> conclude from their review of the fertile literature on the MRP  
5 that a range of 5% to 8% is reasonable for the MRP in the United States. My own  
6 survey of the MRP literature, which appears in Chapter 5 of my latest textbook,  
7 The New Regulatory Finance, is also quite consistent with this range.

8 **Q. WHAT IS YOUR ESTIMATE OF DUKE ENERGY KENTUCKY'S COST**  
9 **OF EQUITY USING THE CAPM APPROACH?**

10 A. Inserting those input values into the CAPM equation, namely a risk-free rate of  
11 4.2%, a beta of 0.61, and a MRP of 7.5%, the CAPM estimate of the cost of  
12 common equity is:  $4.20\% + 0.61 \times 7.50\% = 8.78\%$ . This estimate becomes 8.98%  
13 with flotation costs, discussed later in my testimony.

14 **Q. CAN YOU DESCRIBE YOUR APPLICATION OF THE EMPIRICAL**  
15 **VERSION OF THE CAPM?**

16 A. There have been countless empirical tests of the CAPM to determine to what extent  
17 security returns and betas are related in the manner predicted by the CAPM. This  
18 literature is summarized in Chapter 6 of my latest book, The New Regulatory  
19 Finance. The results of the tests support the idea that beta is related to security  
20 returns, that the risk-return tradeoff is positive, and that the relationship is linear.  
21 The contradictory finding is that the risk-return tradeoff is not as steeply sloped as

---

<sup>5</sup> Richard A. Brealey, Stewart C. Myers, and Paul Allen, Principles of Corporate Finance, Irwin McGraw-Hill (8th ed. 2006).

1 the predicted CAPM. That is, empirical research has long shown that low-beta  
2 securities earn returns somewhat higher than the CAPM would predict, and high-  
3 beta securities earn less than predicted.

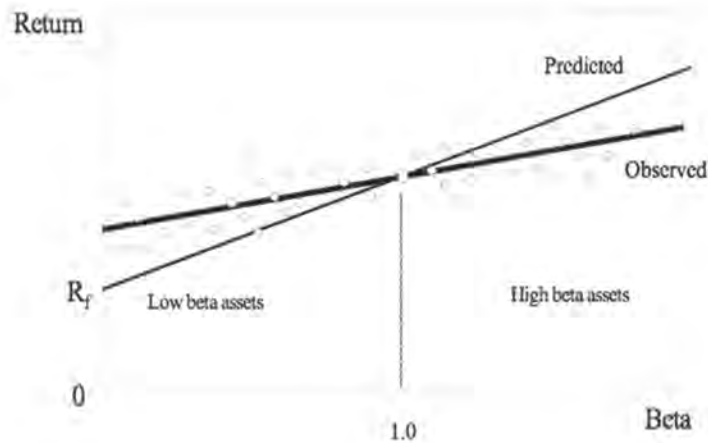
4 A CAPM-based estimate of cost of capital underestimates the return  
5 required from low-beta securities and overstates the return required from high-beta  
6 securities, based on the empirical evidence. This is one of the most well-known  
7 results in finance. It is displayed graphically below.

8 A number of variations on the original CAPM theory have been proposed  
9 to explain this finding. The ECAPM makes use of these empirical findings. The  
10 ECAPM estimates the cost of capital with the equation:

$$K = R_F + \alpha + \beta \times ((R_M - R_F) - \alpha)$$

11 where the symbol alpha,  $\alpha$ , represents the “constant” of the risk-return line, MRP  
12 is the market risk premium ( $R_M - R_F$ ), and the other symbols are defined as usual.  
13

CAPM: Predicted vs Observed Returns





1           Inserting the long-term risk-free rate as a proxy for the risk-free rate, an  
2           alpha in the range of 1% - 2%, and reasonable values of beta and the MRP in the  
3           above equation produces results that are indistinguishable from the following  
4           more tractable ECAPM expression:

$$K = R_F + 0.25 \times (R_M - R_F) + 0.75\beta \times (R_M - R_F)$$

6           An alpha range of one to two percent is somewhat lower than that estimated  
7           empirically. The use of a lower value for alpha leads to a lower estimate of the cost  
8           of capital for low-beta stocks such as regulated utilities. This is because the use of  
9           a long-term risk-free rate rather than a short-term risk-free rate already  
10          incorporates some of the desired effects of using the ECAPM. In other words, the  
11          long-term risk-free rate version of the CAPM has a higher intercept and a flatter  
12          slope than the short-term risk-free version which has been tested. This is also  
13          because the use of adjusted betas rather than the use of raw betas incorporates some  
14          of the desired effect of using the ECAPM.<sup>6</sup> Thus, it is reasonable to apply a  
15          conservative alpha adjustment. Please see Appendix A for a discussion of the  
16          CAPM and the Empirical CAPM.

17          In short, the following equation provides a viable approximation to the  
18          observed relationship between risk and return, and provides the following cost of  
19          equity capital estimate:

---

<sup>6</sup> The regression tendency of betas to converge to 1.0 over time is very well known and widely discussed in the financial literature. As a result of this beta drift, several commercial beta producers adjust their forecasted betas toward 1.00 in an effort to improve their forecasts. Value Line, Bloomberg, and Merrill Lynch betas are adjusted for their long-term tendency to regress toward 1.0 by giving approximately 66% -weight to the measured raw beta and approximately 33% weight to the prior value of 1.0 for each stock:

$$\beta_{\text{adjusted}} = 0.33 + 0.66 \beta_{\text{raw}}$$

1 
$$K = R_F + 0.25 (R_M - R_F) + 0.75 \times \beta \times (R_M - R_F)$$

2 Inserting the risk-free rate ( $R_F$ ) of 4.2%, a MRP of 7.5% for ( $R_M - R_F$ ) and  
3 a beta of 0.61 in the above equation, the return on common equity is 9.51%. This  
4 estimate becomes 9.71% with flotation costs, discussed later in my testimony.

5 **Q. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF**  
6 **ADJUSTED BETAS?**

7 A. Yes, it is. Some have argued that the use of the ECAPM is inconsistent with the use  
8 of adjusted betas, such as those supplied by Value Line and Bloomberg. This is  
9 because the reason for using the ECAPM is to allow for the tendency of betas to  
10 regress toward the mean value of 1.00 over time, and, since Value Line betas are  
11 already adjusted for such trend, an ECAPM analysis results in double-counting.  
12 This argument is erroneous.

13 Fundamentally, the ECAPM is not an adjustment, increase, or decrease in  
14 beta. The observed return on high beta securities is actually lower than that  
15 produced by the CAPM estimate. The ECAPM is a formal recognition that the  
16 observed risk-return tradeoff is flatter than predicted by the CAPM based on myriad  
17 empirical evidence. The ECAPM and the use of adjusted betas comprise two  
18 separate features of asset pricing. Even if a company's beta is estimated accurately,  
19 the CAPM still understates the return for low-beta stocks. And even if the ECAPM  
20 is used, the return for low-beta securities is understated if the betas are understated.  
21 Referring back to the previous graph, the ECAPM is a return (vertical axis)  
22 adjustment and not a beta (horizontal axis) adjustment. Both adjustments are

1 necessary. Moreover, the use of adjusted betas compensates for interest rate  
2 sensitivity of utility stocks not captured by unadjusted betas.

3 **Q. PLEASE SUMMARIZE YOUR CAPM ESTIMATES.**

4 A. Table 4 below summarizes the common equity estimates obtained from the  
5 CAPM studies.

**Table 4. CAPM Results**

<b>CAPM Method</b>	<b>ROE</b>
Traditional CAPM	8.98%
Empirical CAPM	9.71%

**C. Historical Risk Premium Estimates**

6 **Q. PLEASE DESCRIBE YOUR HISTORICAL RISK PREMIUM ANALYSIS**  
7 **OF THE UTILITY INDUSTRY USING TREASURY BOND YIELDS.**

8 A. A historical risk premium for the utility industry was estimated with an annual time  
9 series analysis applied to the utility industry as a whole over the 1930-2018 period,  
10 using Standard and Poor's Utility Index (S&P Index) as an industry proxy. The risk  
11 premium was estimated by computing the actual realized return on equity capital  
12 for the S&P Utility Index for each year, using the actual stock prices and dividends  
13 of the index, and then subtracting the long-term Treasury bond return for that year.  
14 Please see Attachment RAM-8, for an analysis of the historical risk premium for  
15 the utility industry using an annual time series analysis applied to the utility industry  
16 as a whole over the 1930-2018 period, using the S&P Index as an industry proxy.

17 As shown on Attachment RAM-8, the average risk premium over the period  
18 was 5.6% over long-term Treasury bond yields and 6.1% over the income

1 component of bond yields. As discussed previously, the latter is the appropriate risk  
2 premium to use. Given the risk-free rate of 4.2%, and using the historical estimate  
3 of 6.1% for bond returns, the implied cost of equity is  $4.2\% + 6.1\% = 10.3\%$ . This  
4 estimate becomes 10.5% with flotation costs, discussed later in my testimony.

5 **Q. ARE YOU CONCERNED ABOUT THE REALISM OF THE**  
6 **ASSUMPTIONS THAT UNDERLIE THE HISTORICAL RISK PREMIUM**  
7 **METHOD?**

8 A. No, I am not, for they are no more restrictive than the assumptions that underlie the  
9 DCF model or the CAPM. While it is true that the method looks backward in time  
10 and assumes that the risk premium is constant over time, these assumptions are not  
11 necessarily restrictive. By employing returns realized over long time periods rather  
12 than returns realized over more recent time periods, investor return expectations  
13 and realizations converge. Realized returns can be substantially different from  
14 prospective returns anticipated by investors, especially when measured over short  
15 time periods. By ensuring that the risk premium study encompasses the longest  
16 possible period for which data are available, short-run periods during which  
17 investors earned a lower risk premium than they expected are offset by short-run  
18 periods during which investors earned a higher risk premium than they expected.  
19 Only over long time periods will investor return expectations and realizations  
20 converge, or else, investors would be reluctant to invest money.

**D. Allowed Risk Premium Estimates**

1 **Q. PLEASE DESCRIBE YOUR ANALYSIS OF ALLOWED RISK PREMIUMS**  
2 **IN THE ELECTRIC UTILITY INDUSTRY.**

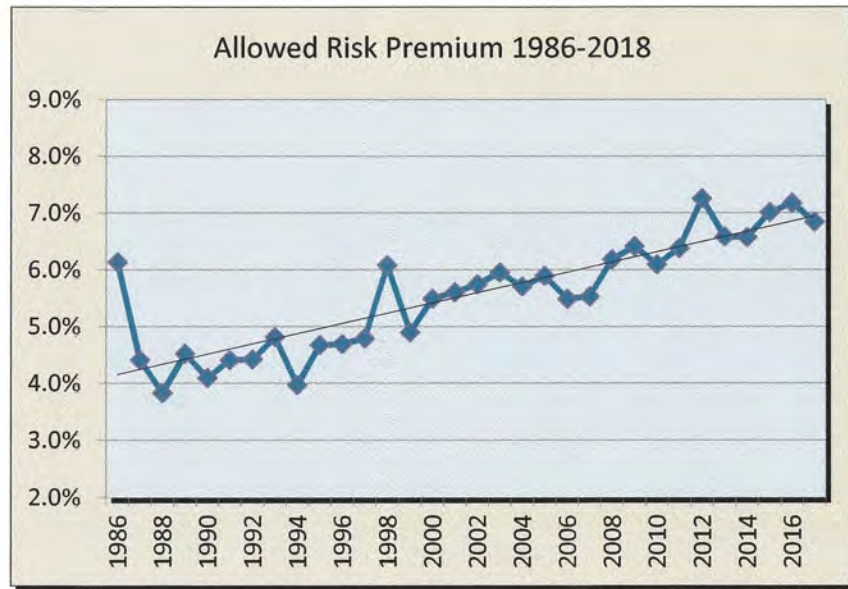
3 A. To estimate the electric and gas utility industry's cost of common equity, I also  
4 examined the historical risk premiums implied in the ROEs allowed by regulatory  
5 commissions utilities over the 1986-2018 period for which data were available,  
6 relative to the contemporaneous level of the long-term Treasury bond yield. Please  
7 see Attachment RAM-9, for an analysis of historical risk premiums implied in the  
8 ROEs allowed by regulatory commissions utilities over the 1986-2018 period.

9 This variation of the risk premium approach is reasonable because allowed  
10 risk premiums are presumably based on the results of market-based methodologies  
11 (DCF, CAPM, Risk Premium, *etc.*) presented to regulators in rate hearings and on  
12 the actions of objective unbiased investors in a competitive marketplace. Historical  
13 allowed ROE data are readily available over long periods on a quarterly basis from  
14 Regulatory Research Associates (now S&P Global Intelligence) and easily  
15 verifiable from prior issues of that same publication and past commission decision  
16 archives.

17 The average ROE spread over long-term Treasury yields was 5.58% over  
18 the entire 1986-2018 period for which data were available from SNL. The graph  
19 below shows the year-by-year allowed risk premium. The escalating trend of the  
20 risk premium in response to lower interest rates and rising competition is  
21 noteworthy.

1 A careful review of these ROE decisions relative to interest rate trends  
2 reveals a narrowing of the risk premium in times of rising interest rates, and a  
3 widening of the premium as interest rates fall. The following statistical relationship  
4 between the risk premium (RP) and interest rates (YIELD) emerges over the 1986-  
5 2018 period:

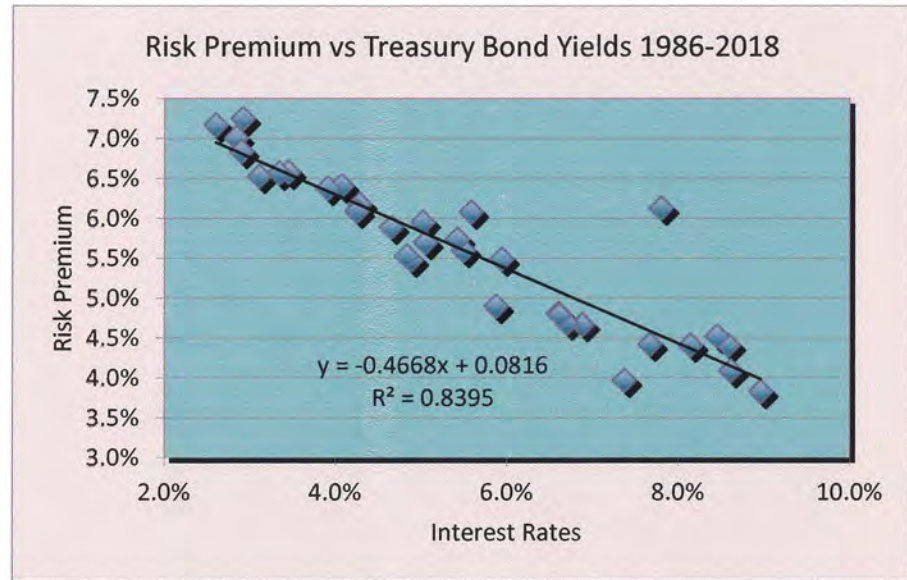
6 
$$RP = 8.1600 - 0.4668 \text{ YIELD} \quad R^2 = 0.84$$



7 The relationship is highly statistically significant<sup>7</sup> as indicated by the very  
8 high  $R^2$ . The graph below shows a clear inverse relationship between the allowed  
9 risk premium and interest rates as revealed in past ROE decisions.

<sup>7</sup> The coefficient of determination  $R^2$ , sometimes called the “goodness of fit measure,” is a measure of the degree of explanatory power of a statistical relationship. It is simply the ratio of the explained portion to the total sum of squares. The higher  $R^2$  the higher is the degree of the overall fit of the estimated regression equation to the sample data.

1                    Inserting the long-term Treasury bond yield of 4.2% in the above equation  
2 suggests a risk premium estimate of 6.2%, implying a cost of equity of 10.4%. The  
3 latter result is very close to the 10.5% result of the historical risk premium study.<sup>8</sup>



4    **Q.    DO INVESTORS TAKE INTO ACCOUNT ALLOWED RETURNS IN**  
5    **FORMULATING THEIR RETURN EXPECTATIONS?**

6    A.    Yes, they do. Investors do indeed take into account returns granted by various  
7 regulators in formulating their risk and return expectations, as evidenced by the  
8 availability of commercial publications disseminating such data, including Value  
9 Line and S&P Global Intelligence (formerly SNL and Regulatory Research  
10 Associates). Allowed returns, while certainly not a precise indication of a particular  
11 company's cost of equity capital, are nevertheless important determinants of  
12 investor growth perceptions and investor expected returns.

---

<sup>8</sup> There is no need to adjust this figure for flotation cost given that the ROE data are based on allowed returns.

1 **Q. PLEASE SUMMARIZE YOUR RISK PREMIUM ESTIMATES.**

2 A. Table 5 below summarizes the ROE estimates obtained from the two risk premium  
3 studies.

**Table 5. Risk Premium Estimates for Duke Energy Kentucky**

<u>Risk Premium Method</u>	<u>ROE</u>
Historical Risk Premium	10.5%
Allowed Risk Premium	10.4%

**E. Need for Flotation Cost Adjustment**

4 **Q. PLEASE DESCRIBE THE NEED FOR A FLOTATION COST**  
5 **ALLOWANCE.**

6 A. All the market-based estimates reported above include an adjustment for flotation  
7 costs. The simple fact of the matter is that issuing common equity capital is not  
8 free. Flotation costs associated with stock issues are similar to the flotation costs  
9 associated with bonds and preferred stocks. Flotation costs are not expensed at the  
10 time of issue, and therefore must be recovered via a rate of return adjustment. This  
11 is done routinely for bond and preferred stock issues by most regulatory  
12 commissions, including FERC. Clearly, the common equity capital accumulated by  
13 the Company is not cost-free. The flotation cost allowance to the cost of common  
14 equity capital is discussed and applied in most corporate finance textbooks; it is  
15 unreasonable to ignore the need for such an adjustment.

16 Flotation costs are very similar to the closing costs on a home mortgage. In  
17 the case of issues of new equity, flotation costs represent the discounts that must be  
18 provided to place the new securities. Flotation costs have a direct and an indirect  
19 component. The direct component is the compensation to the security underwriter



1 for his marketing/consulting services, for the risks involved in distributing the  
2 issue, and for any operating expenses associated with the issue (e.g., printing, legal,  
3 prospectus). The indirect component represents the downward pressure on the stock  
4 price as a result of the increased supply of stock from the new issue. The latter  
5 component is frequently referred to as “market pressure.”

6 Investors must be compensated for flotation costs on an ongoing basis to  
7 the extent that such costs have not been expensed in the past, and therefore the  
8 adjustment must continue for the entire time that these initial funds are retained in  
9 the firm. Appendix B to my testimony discusses flotation costs in detail, and shows:  
10 (1) why it is necessary to apply an allowance of 5% to the dividend yield component  
11 of equity cost by dividing that yield by 0.95 (100% - 5%) to obtain the fair return  
12 on equity capital; (2) why the flotation adjustment is permanently required to avoid  
13 confiscation even if no further stock issues are contemplated; and (3) that flotation  
14 costs are only recovered if the rate of return is applied to total equity, including  
15 retained earnings, in all future years.

16 By analogy, in the case of a bond issue, flotation costs are not expensed but  
17 are amortized over the life of the bond, and the annual amortization charge is  
18 embedded in the cost of service. The flotation adjustment is also analogous to the  
19 process of depreciation, which allows the recovery of funds invested in utility plant.  
20 The recovery of bond flotation expense continues year after year, irrespective of  
21 whether the Company issues new debt capital in the future, until recovery is  
22 complete, in the same way that the recovery of past investments in plant and  
23 equipment through depreciation allowances continues in the future even if no new

1 construction is contemplated. In the case of common stock that has no finite life,  
2 flotation costs are not amortized. Thus, the recovery of flotation costs requires an  
3 upward adjustment to the allowed return on equity.

4 A simple example will illustrate the concept. A stock is sold for \$100, and  
5 investors require a 10% return, that is, \$10 of earnings. But if flotation costs are  
6 5%, the Company nets \$95 from the issue, and its common equity account is  
7 credited by \$95. In order to generate the same \$10 of earnings to the shareholders,  
8 from a reduced equity base, it is clear that a return in excess of 10% must be allowed  
9 on this reduced equity base, here 10.53%.

10 According to the empirical finance literature discussed in Appendix B, total  
11 flotation costs amount to 4% for the direct component and 1% for the market  
12 pressure component, for a total of 5% of gross proceeds. This in turn amounts to  
13 approximately 20 basis points, depending on the magnitude of the dividend yield  
14 component. To illustrate, dividing the average expected dividend yield of around  
15 4.0% for utility stocks by 0.95 yields 4.2%, which is 20 basis points higher.

16 Sometimes, the argument is made that flotation costs are real and should be  
17 recognized in calculating the fair return on equity, but only at the time when the  
18 expenses are incurred. In other words, as the argument goes, the flotation cost  
19 allowance should not continue indefinitely, but should be made in the year in which  
20 the sale of securities occurs, with no need for continuing compensation in future  
21 years. This argument is valid only if the Company has already been compensated  
22 for these costs. If not, the argument is without merit. My own recommendation is  
23 that investors be compensated for flotation costs on an on-going basis rather than

1 through expensing, and that the flotation cost adjustment continue for the entire  
2 time that these initial funds are retained in the firm.

3 In theory, flotation costs could be expensed and recovered through rates as  
4 they are incurred. This procedure, although simple in implementation, is not  
5 considered appropriate, however, because the equity capital raised in a given stock  
6 issue remains on the utility's common equity account and continues to provide benefits  
7 to ratepayers indefinitely. It would be unfair to burden the current generation of  
8 ratepayers with the full costs of raising capital when the benefits of that capital extend  
9 indefinitely. The common practice of capitalizing rather than expensing eliminates the  
10 intergenerational transfers that would prevail if today's ratepayers were asked to bear  
11 the full burden of flotation costs of bond/stock issues in order to finance capital  
12 projects designed to serve future as well as current generations. Moreover, expensing  
13 flotation costs requires an estimate of the market pressure effect for each individual  
14 issue, which is likely to prove unreliable. A more reliable approach is to estimate  
15 market pressure for a large sample of stock offerings rather than for one individual  
16 issue.

17 There are several sources of equity capital available to a firm including:  
18 common equity issues, conversions of convertible preferred stock, dividend  
19 reinvestment plans, employees' savings plans, warrants, and stock dividend  
20 programs. Each carries its own set of administrative costs and flotation cost  
21 components, including discounts, commissions, corporate expenses, offering  
22 spread, and market pressure. The flotation cost allowance is a composite factor that  
23 reflects the historical mix of sources of equity. The allowance factor is a build-up

1 of historical flotation cost adjustments associated with and traceable to each  
2 component of equity at its source. It is impractical and prohibitively costly to start  
3 from the inception of a company and determine the source of all present equity. A  
4 practical solution is to identify general categories and assign one factor to each  
5 category. My recommended flotation cost allowance is a weighted average cost  
6 factor designed to capture the average cost of various equity vintages and types of  
7 equity capital raised by the Company.

8 **Q. DR. MORIN, CAN YOU PLEASE ELABORATE ON THE MARKET**  
9 **PRESSURE COMPONENT OF FLOTATION COST?**

10 A. The indirect component, or market pressure component of flotation costs represents  
11 the downward pressure on the stock price as a result of the increased supply of stock  
12 from the new issue, reflecting the basic economic fact that when the supply of  
13 securities is increased following a stock or bond issue, the price falls. The market  
14 pressure effect is real, tangible, measurable, and negative. According to the  
15 empirical finance literature cited in Appendix B, the market pressure component of  
16 the flotation cost adjustment is approximately 1% of the gross proceeds of an  
17 issuance. The announcement of the sale of large blocks of stock produces a decline  
18 in a company's stock price, as one would expect given the increased supply of  
19 common stock.

1 **Q. IS A FLOTATION COST ADJUSTMENT REQUIRED FOR AN**  
2 **OPERATING SUBSIDIARY LIKE DUKE ENERGY KENTUCKY THAT**  
3 **DOES NOT TRADE PUBLICLY?**

4 A. Yes, it is. It is sometimes alleged that a flotation cost allowance is inappropriate if  
5 the utility is a subsidiary whose equity capital is obtained from its owners, in this  
6 case, Duke Energy Corp. This objection is unfounded since the parent-subsubsidiary  
7 relationship does not eliminate the costs of a new issue, but merely transfers them  
8 to the parent. It would be unfair and discriminatory to subject parent shareholders  
9 to dilution while individual shareholders are absolved from such dilution. Fair  
10 treatment must consider that, if the utility-subsubsidiary had gone to the capital markets  
11 directly, flotation costs would have been incurred.

#### IV. CONCLUSION

12 **Q. PLEASE SUMMARIZE YOUR RESULTS AND RECOMMENDATION.**

13 A. To arrive at my final recommendation, I performed

14 (i) a DCF analysis on a group of investment-grade dividend-paying  
15 combination gas and electric utilities using Value Line's growth  
16 forecasts;

17 (ii) a DCF analysis on a group of investment-grade dividend-paying  
18 combination gas and electric utilities using analysts' growth  
19 forecasts;

20 (iii) a traditional CAPM using current market data;

21 (iv) an empirical approximation of the CAPM using current market data;

- 1 (v) historical risk premium data from electric utility industry aggregate  
 2 data, using the yield on long-term US Treasury bonds; and  
 3 (vi) allowed risk premium data from electric utility industry aggregate  
 4 data, using the current yield on long-term US Treasury bonds.

5 Table 6 below summarizes the ROE estimates for Duke Energy Kentucky.

**Table 6. Summary of ROE Estimates**

<b>STUDY</b>	<b>ROE</b>
Combination Utilities Value Line Growth	10.0%
Combination Utilities Analysts Growth	8.9%
CAPM	8.9%
Empirical CAPM	9.1%
Historical Risk Premium Electric	10.5%
Allowed Risk Premium	10.4%

6 The average estimate is 9.8% and the truncated mean<sup>9</sup> is also 9.8%. Based on all  
 7 those results, I use 9.8% as my recommended ROE for Duke Energy Kentucky. For  
 8 reasons stated below, I consider my recommended return as barebones and highly  
 9 conservative.

10 I stress that no one individual method provides an exclusive foolproof formula  
 11 for determining a fair return, but each method provides useful evidence so as to  
 12 facilitate the exercise of an informed judgment. Reliance on any single method or  
 13 preset formula is hazardous when dealing with investor expectations. Moreover,  
 14 the advantage of using several different approaches is that the results of each one

---

<sup>9</sup> The truncated mean is obtained by removing the high and low results and computing the average of the remaining observations.

1 can be used to check the others. Thus, the results shown in Table 6 above must be  
2 viewed as a whole rather than each as a stand-alone. It would be inappropriate to  
3 select any particular number from Table 6 and infer the cost of common equity from  
4 that number alone.

5 **Q. DR. MORIN, WHY DO YOU CONSIDER YOUR RECOMMENDED**  
6 **RETURN OF 9.8% AS HIGHLY CONSERVATIVE AND BAREBONES?**

7 A. I consider my recommended return of 9.8% conservative and barebones for three  
8 reasons. First, the Company is projected to raise very large sums of money over the  
9 next five years relative to its small size. High business risks result from a large  
10 infrastructure-related capital investment plan relative to the size of the Company's  
11 rate base and common equity capital base, coupled with regulatory uncertainties.  
12 The Company's ambitious capital expenditure program which will require  
13 approximately \$914 million of financing over the next five years for new utility  
14 infrastructure investments in order to improve reliability and upgrade the  
15 generation, distribution and transmission infrastructure. To place that number in  
16 proper perspective, the Company's common equity balance (ownership capital) at  
17 December 31, 2018 was approximately \$596 million, growing to \$699 million in  
18 the forecasted period. In other words, the company is expected to spend an amount  
19 which represents nearly twice its entire common equity ownership capital.

20 Because of the Company's large construction program over the next few  
21 years, rate relief requirements and regulatory treatment uncertainty will increase  
22 regulatory risks as well. Generally, regulatory risks include approval risks, lags and  
23 delays, potential rate base exclusions, and potential disallowances. Continued

1 regulatory support from the Commission will be required. Reviews of the economic  
2 and environmental aspects of new construction can consume as much as one year  
3 before approval or denial. Uncertainty of approval increases forecasting and  
4 planning risks and complicates the utility's ability to devise optimum electric  
5 distribution/transmission networks. Regulatory approval for financings required for  
6 new construction may also be required, injecting additional risks.

7 **Q. DR. MORIN, WHAT IS THE SECOND REASON WHY YOU CONSIDER**  
8 **YOUR RECOMMENDED RETURN BAREBONES?**

9 A. The second reason is the Company's very small size. Duke Energy Kentucky is one  
10 of the smallest electric utilities in the industry on the basis of revenues, capital base,  
11 and number of customers. The Company's very small size must also be considered  
12 in arriving at the cost of common equity. Duke Energy Kentucky possesses very  
13 small revenue and asset bases, both in absolute terms and relative to the other  
14 electric utilities in the comparable group. Investment risk increases as company size  
15 diminishes, all else remaining constant. The size phenomenon is well documented  
16 in the finance literature, and is fully discussed in Chapter 6 of my book The New  
17 Regulatory Finance and is also fully discussed in the Duff & Phelps Valuation 2016  
18 Yearbook which devotes two full chapters and two appendices documenting and  
19 quantifying the size effect. The gist of the literature is that small companies have  
20 very different returns than large ones and on average those returns have been  
21 higher. The greater risk of small stocks does not fully account for their higher  
22 returns over many historical periods. The average small stock premium is well in  
23 excess of that of the average stock, more than could be expected by risk differences



1 alone, suggesting that the cost of equity for small stocks is considerably larger than  
2 for large capitalization stocks. In addition to earning the highest average rates of  
3 return, small stocks also have the highest volatility, as measured by the standard  
4 deviation of returns.

5 **Q. DR. MORIN, WHAT IS THE THIRD REASON WHY YOU CONSIDER**  
6 **YOUR RECOMMENDED RETURN CONSERVATIVE?**

7 A. The third reason is the risk related to the Company's generation concentration. The  
8 Company's generation requirements are met with only one single coal-fired  
9 generating station which supplies all base load requirements, with little to no  
10 reserve capacity. A combustion turbine accommodates peak load requirements, but  
11 at very high costs.

12 **Q. DR. MORIN, WHAT IS YOUR FINAL CONCLUSION REGARDING**  
13 **DUKE ENERGY KENTUCKY'S RETURN ON COMMON EQUITY**  
14 **CAPITAL?**

15 A. Based on the results of all my analyses, the application of my professional  
16 judgment, and the risk circumstances of Duke Energy Kentucky, it is my opinion  
17 that a just and reasonable ROE for Duke Energy Kentucky's electric utility  
18 operations in the State Kentucky is 9.8% which I consider barebones for reasons  
19 stated above.

**V. IMPACT OF RISK-MITIGATING MECHANISMS**

1 **Q. DR. MORIN, ARE YOUR ROE RECOMMENDATIONS GENERALLY**  
2 **IMPACTED BY THE PRESENCE OF RISK-MITIGATING**  
3 **MECHANISMS SUCH AS VARIOUS RIDERS, TRACKERS, AND**  
4 **DECOUPLING MECHANISMS?**

5 A. No, generally they are not.

6 **Q. WHY DO YOU GENERALLY IGNORE THE IMPACT OF RISK-**  
7 **MITIGATING MECHANISMS ON A COMPANY'S INVESTMENT RISK?**

8 A. The presence of a rider raises the question as to whether such a mechanism reduces  
9 the Company's business risk, and to what extent its required ROE should be  
10 reduced, if at all. I generally do not adjust my recommended ROE downward in  
11 order to account for the impact of risk-mitigating mechanisms on a company's  
12 business risks because my recommended market-derived returns are estimated from  
13 market information on the cost of common equity for other comparable electric  
14 utilities. To the extent that the market-derived cost of common equity for other  
15 utility companies already incorporates the impacts of these or similar mechanisms,  
16 no further adjustment is appropriate or reasonable in determining the cost of  
17 common equity. To do so would constitute double-counting.

18 Most, if not all, electric utilities in the industry are under some form of  
19 rider/adjustment clause/cost recovery/mechanisms. The approval of riders,  
20 adjustment clauses, cost recovery mechanisms, and various forms of risk-  
21 mitigating mechanisms by regulatory commissions is widespread in the utility  
22 business and is already largely embedded in financial data, such as bond ratings,

1 stock prices, and business risk scores. Moreover, it is important to note that  
2 investors generally do not associate specific increments to their return requirements  
3 with specific rate structures. Rather, investors tend to look at the totality of risk-  
4 mitigating mechanisms in place relative to those in place at comparable companies  
5 when assessing risk.

6 **Q. HOW PREVALENT ARE RISK-MITIGATING MECHANISMS IN THE**  
7 **ELECTRIC UTILITY INDUSTRY?**

8 A. Risk-mitigating mechanisms have become the norm for regulated utilities across  
9 the U.S. A 2015 study by the Edison Foundation (“*Alternative Regulation for*  
10 *Emerging Utility Challenges: 2015 Update*”) reports that a majority of states either  
11 have decoupling/revenue adjustment mechanisms in place, or are reviewing or  
12 implementing them. The study also reports on the prevalence of direct cost recovery  
13 mechanisms in most of the fifty states.

14 The major point of all this is that while risk-mitigating mechanisms reduce  
15 risk on an absolute basis, they do not necessarily do so on a relative basis, that is,  
16 compared to other utilities. For example, a fuel cost adjustment clause does not  
17 reduce relative risk since most electric utilities in the industry are under some form  
18 of energy cost adjustment mechanism. The approval of adjustment clauses, ROE  
19 incentives riders, trackers, forward test years, and cost recovery mechanisms by  
20 regulatory commissions is widespread in the utility business and is already largely  
21 embedded in financial data, such as stock prices, bond rating and business risk  
22 scores.

1           While adjustment clauses, riders, and cost tracking mechanisms may  
2 mitigate (on an absolute basis but not on a relative basis) a company's risk, there  
3 are usually other significant factors to consider that work in the reverse direction,  
4 for example the weakening of the economy, declining customer use, generation  
5 concentration, and a company's dependence on a significant capital spending  
6 program requiring external financing.

7 **Q. IS THERE ANY EMPIRICAL EVIDENCE ON THE IMPACT OF RISK**  
8 **MITIGATORS?**

9 A. Yes, there is. A comprehensive study by the Brattle Group<sup>10</sup> investigated the  
10 impact of a particular risk-mitigating mechanism, namely, revenue decoupling, on  
11 risk and the cost of capital and found that its effect on risk and cost of capital, if  
12 any, is undetectable statistically.

13 **Q. DR. MORIN, CAN YOU PLEASE COMMENT ON THE VALIDITY OF**  
14 **RELIANCE UPON AVERAGE ROEs CURRENTLY ALLOWED BY**  
15 **OTHER REGULATORS.**

16 A. Yes, I can. My first reaction is that it is circular to set a fair return based on the past  
17 actions of other regulators, much like observing a series of duplicate images in  
18 multiple mirrors. The rates of return earned by other regulated utilities may very well  
19 have been reasonable under historical conditions, but they are still subject to tests of  
20 reasonableness under current and prospective conditions.

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<sup>10</sup> Wharton, Vibert, Goldberg & Brown, *The Impact of Decoupling on the Cost of Capital: An Empirical Investigation*, The Brattle Group, February 2011.

1           My second reaction is that the average allowed return in a given time period  
2           is just that, an average. There are very large deviations both above and below the  
3           average allowed return presumably due to risk differences between utilities. For  
4           example, in 2018 there were 49 ROE decisions reported in RRA's annual compilation  
5           of regulatory awards averaging 9.6%. The authorized ROEs varied from 8.6% to  
6           11.2%, with 20 of the 49 decisions higher than the average of 9.6%. The major point  
7           of all this is that regulators do and should take risk into account when authorizing  
8           ROEs as attested by the variability in the allowed ROE data, and I strongly believe  
9           that the Commission should follow suit and exercise a mind of its own when  
10          authorizing ROEs.

11   **Q.   WERE ATTACHMENTS RAM-1 TO RAM-9 AND APPENDICES A AND**  
12   **B PREPARED BY YOU AND UNDER YOUR DIRECTION?**

13   A.   Yes, they were.

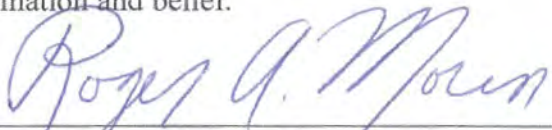
14   **Q.   DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

15   A.   Yes.

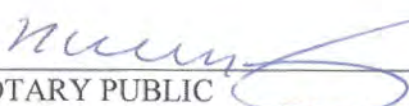
**VERIFICATION**

**PROVINCE OF NOVA SCOTIA**        )  
  )  
**COUNTY OF HALIFAX**            )        **SS:**

The undersigned, Dr. Roger A. Morin, Emeritus Professor of Finance and a Principal in Utility Research International, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing testimony and that it is true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
Dr. Roger A. Morin Affiant

Subscribed and sworn to before me by Dr. Roger A. Morin on this 8<sup>th</sup> day of August 2019.

  
\_\_\_\_\_  
NOTARY PUBLIC

**TRACEY D. KENNEDY**  
A Barrister of the Supreme  
Court of Nova Scotia

My Commission Expires: n/a



## RESUME OF ROGER A. MORIN

(Summer 2019)

**NAME:** Roger A. Morin

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Fernandina Beach, FL 32034

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Indian Harbour  
Nova Scotia, Canada B3Z 3N8

**TELEPHONE:** (904) 844-2412 business office  
(404) 229-2857 cellular  
(902) 823-0000 summer office

**E-MAIL ADDRESS:** profmorin@mac.com

**EMPLOYER 1980-2015:** Georgia State University  
Robinson College of Business  
University Plaza  
Atlanta, GA 30303

**RANK:** Emeritus Professor of Finance

**HONORS:** Distinguished Professor of Finance for Regulated Industry,  
Director Center for the Study of Regulated Industry,  
Robinson College of Business, Georgia State University.

### **EDUCATIONAL HISTORY**

- Bachelor of Electrical Engineering, McGill University, Montreal, Canada, 1967.
- Master of Business Administration, McGill University, Montreal, Canada, 1969.
- PhD in Finance & Econometrics, Wharton School of Finance, University of Pennsylvania, 1976.

### **EMPLOYMENT HISTORY**

- Lecturer, Wharton School of Finance, Univ. of Pennsylvania, 1972-3
- Assistant Professor, University of Montreal School of Business, 1973-1976.
- Associate Professor, University of Montreal School of Business, 1976-1979.
- Professor of Finance, Georgia State University, 1979-2012
- Emeritus Professor of Finance, Georgia State University 2012-present

- Professor of Finance for Regulated Industry and Director, Center for the Study of Regulated Industry, Robinson College of Business, Georgia State University, 1985-2009
- Visiting Professor of Finance, Amos Tuck School of Business, Dartmouth College, Hanover, N.H., 1986
- Emeritus Professor of Finance, Georgia State University, 2007-19

### **OTHER BUSINESS ASSOCIATIONS**

- Communications Engineer, Bell Canada, 1962-1967.
- Member Board of Directors, Financial Research Institute of Canada, 1974-1980.
- Co-founder and Director Canadian Finance Research Foundation, 1977.
- Vice-President of Research, Garmaise-Thomson & Associates, Investment Management Consultants, 1980-1981.
- Member Board of Directors, Executive Visions Inc., 1985-2019
- Board of External Advisors, College of Business, Georgia State University, Member 1987-1991.
- Member Board of Directors, Hotel Equities Inc., 2009-2019

### **PROFESSIONAL CLIENTS**

AGL Resources  
AT & T Communications  
Alagasco - Energen  
Alaska Anchorage Municipal Light & Power  
Alberta Power Ltd.  
Allete  
Alliant Energy  
AmerenUE  
American Water  
Ameritech  
Arkansas Western Gas  
ATC Transmission  
Baltimore Gas & Electric – Constellation Energy  
Bangor Hydro-Electric  
B.C. Telephone  
B C GAS  
Bell Canada  
Bellcore  
Bell South Corp.



Bruncor (New Brunswick Telephone)  
Burlington-Northern  
C & S Bank  
California Pacific  
Cajun Electric  
Canadian Radio-Television & Telecomm. Commission  
Canadian Utilities  
Canadian Western Natural Gas  
Cascade Natural Gas  
Centel  
Centra Gas  
Central Illinois Light & Power Co  
Central Telephone  
Central & South West Corp.  
CH Energy  
Chattanooga Gas Company  
Cincinnati Gas & Electric  
Cinergy Corp.  
Citizens Utilities  
City Gas of Florida  
CN-CP Telecommunications  
Commonwealth Telephone Co.  
Columbia Gas System  
Consolidated Edison  
Consolidated Natural Gas  
Constellation Energy  
Delmarva Power & Light Co  
Deerpath Group  
Detroit Edison Company  
Dayton Power & Light Co.  
DPL Energy  
Duke Energy Indiana  
Duke Energy Kentucky  
Duke Energy Ohio  
DTE Energy  
Edison International  
Edmonton Power Company  
Elizabethtown Gas Co.  
Emera  
Energen  
Engraph Corporation  
Entergy Corp.  
Entergy Arkansas Inc.  
Entergy Gulf States, Inc.  
Entergy Louisiana, Inc.  
Entergy Mississippi Power

Entergy New Orleans, Inc.  
Federal Energy Regulatory Commission  
First Energy  
Florida Water Association  
Fortis  
Garmaise-Thomson & Assoc., Investment Consultants  
Gaz Metropolitan  
General Public Utilities  
Georgia Broadcasting Corp.  
Georgia Power Company  
GTE California - Verizon  
GTE Northwest Inc. - Verizon  
GTE Service Corp. - Verizon  
GTE Southwest Incorporated - Verizon  
Gulf Power Company  
Havasu Water Inc.  
Hawaiian Electric Company  
Hawaiian Elec & Light Co  
Heater Utilities – Aqua - America  
Hope Gas Inc.  
Hydro-Quebec  
ICG Utilities  
Interstate Power & Light  
Illinois Commerce Commission  
Island Telephone  
ITC Holdings  
Jersey Central Power & Light  
Kansas Power & Light  
KeySpan Energy  
Maine Public Service  
Manitoba Hydro  
Maritime Telephone  
Maui Electric Co.  
Metropolitan Edison Co.  
Minister of Natural Resources Province of Quebec  
Minnesota Power & Light  
Mississippi Power Company  
Missouri Gas Energy  
Mountain Bell  
National Grid PLC  
Nevada Power Company  
New Brunswick Power  
Newfoundland Power Inc. - Fortis Inc.  
New Market Hydro  
New Tel Enterprises Ltd.  
New York Telephone Co.

NextEra Energy  
Niagara Mohawk Power Corp  
Norfolk-Southern  
Northeast Utilities  
Northern Telephone Ltd.  
Northwestern Bell  
Northwestern Utilities Ltd.  
Nova Scotia Power  
Nova Scotia Utility and Review Board  
NUI Corp.  
NV Energy  
NYNEX  
Oklahoma Gas & Electric  
Ontario Telephone Service Commission  
Orange & Rockland  
PNM Resources  
PPL Corp  
Pacific Northwest Bell  
People's Gas System Inc.  
People's Natural Gas  
Pennsylvania Electric Co.  
Pepco Holdings  
Potomac Electric Power Co.  
Price Waterhouse  
PSI Energy  
Public Service Electric & Gas  
Public Service of New Hampshire  
Public Service of New Mexico  
Puget Sound Energy  
Quebec Telephone  
Regie de l'Energie du Quebec  
Rockland Electric  
Rochester Telephone  
SNL Center for Financial Execution  
San Diego Gas & Electric  
SaskPower  
Sempra  
Sierra Pacific Power Company  
Source Gas  
Southern Bell  
Southern California Gas  
Southern States Utilities  
Southern Union Gas  
South Central Bell  
Sun City Water Company  
TECO Energy

The Southern Company  
Touche Ross and Company  
TransEnergie  
Trans-Quebec & Maritimes Pipeline  
TXU Corp  
US WEST Communications  
Union Heat Light & Power  
Utah Power & Light  
Vermont Gas Systems Inc.  
Wisconsin Power & Light

### **MANAGEMENT DEVELOPMENT AND PROFESSIONAL EXECUTIVE EDUCATION**

- Canadian Institute of Marketing, Corporate Finance, 1971-73
- Hydro-Quebec, "Capital Budgeting Under Uncertainty," 1974-75
- Institute of Certified Public Accountants, Mergers & Acquisitions, 1975-78
- Investment Dealers Association of Canada, 1977-78
- Financial Research Foundation, bi-annual seminar, 1975-79
- Advanced Management Research (AMR), faculty member, 1977-80
- Financial Analysts Federation, Educational chapter: "Financial Futures Contracts" seminar
- The Management Exchange Inc., faculty member 1981-2008:
  - National Seminars: *Risk and Return on Capital Projects*
  - Cost of Capital for Regulated Utilities*
  - Capital Allocation for Utilities*
  - Alternative Regulatory Frameworks*
  - Utility Directors' Workshop*
  - Shareholder Value Creation for Utilities*
  - Fundamentals of Utility Finance*
  - Contemporary Issues in Utility Finance*
- SNL Center for Financial Education faculty member 2008-2018
- S&P Global Intelligence, faculty member 2015 -2018
  - National Seminars: *Essentials of Utility Finance*
- Georgia State University College of Business, Management Development Program, faculty member, 1981-1994.

**EXPERT TESTIMONY & UTILITY CONSULTING AREAS OF EXPERTISE**

Corporate Finance  
Rate of Return  
Capital Structure  
Generic Cost of Capital  
Costing Methodology  
Depreciation  
Flow-Through vs Normalization  
Revenue Requirements Methodology  
Utility Capital Expenditures Analysis  
Risk Analysis  
Capital Allocation  
Divisional Cost of Capital, Unbundling  
Incentive Regulation & Alternative Regulatory Plans  
Shareholder Value Creation  
Value-Based Management

**REGULATORY BODIES**

Alabama Public Service Commission  
Alaska Regulatory Commission  
Alberta Public Service Board  
Arizona Corporation Commission  
Arkansas Public Service Commission  
British Columbia Board of Public Utilities  
California Public Service Commission  
Canadian Radio-Television & Telecommunications Comm.  
City of New Orleans Council  
Colorado Public Utilities Commission  
Delaware Public Service Commission  
District of Columbia Public Service Commission  
Federal Communications Commission  
Federal Energy Regulatory Commission  
Florida Public Service Commission  
Georgia Public Service Commission  
Georgia Senate Committee on Regulated Industries  
Hawaii Public Utilities Commission  
Illinois Commerce Commission  
Indiana Utility Regulatory Commission  
Iowa Utilities Board  
Kentucky Public Service Commission  
Louisiana Public Service Commission  
Maine Public Utilities Commission

Manitoba Board of Public Utilities  
Maryland Public Service Commission  
Michigan Public Service Commission  
Minnesota Public Utilities Commission  
Mississippi Public Service Commission  
Missouri Public Service Commission  
Montana Public Service Commission  
National Energy Board of Canada  
Nebraska Public Service Commission  
Nevada Public Utilities Commission  
New Brunswick Board of Public Commissioners  
New Hampshire Public Utilities Commission  
New Jersey Board of Public Utilities  
New Mexico Public Regulation Commission  
New Orleans City Council  
New York Public Service Commission  
Newfoundland Board of Commissioners of Public Utilities  
North Carolina Utilities Commission  
Nova Scotia Board of Public Utilities  
Ohio Public Utilities Commission  
Oklahoma Corporation Commission  
Ontario Telephone Service Commission  
Ontario Energy Board  
Oregon Public Utility Service Commission  
Pennsylvania Public Utility Commission  
Quebec Regie de l'Energie  
Quebec Telephone Service Commission  
South Carolina Public Service Commission  
South Dakota Public Utilities Commission  
Tennessee Regulatory Authority  
Texas Public Utility Commission  
Utah Public Service Commission  
Vermont Department of Public Services  
Virginia State Corporation Commission  
Washington Utilities & Transportation Commission  
West Virginia Public Service Commission

**SERVICE AS EXPERT WITNESS**

Southern Bell, So. Carolina PSC, Docket #81-201C  
Southern Bell, So. Carolina PSC, Docket #82-294C  
Southern Bell, North Carolina PSC, Docket #P-55-816  
Metropolitan Edison, Pennsylvania PUC, Docket #R-822249  
Pennsylvania Electric, Pennsylvania PUC, Docket #R-822250  
Georgia Power, Georgia PSC, Docket # 3270-U, 1981  
Georgia Power, Georgia PSC, Docket # 3397-U, 1983

Georgia Power, Georgia PSC, Docket # 3673-U, 1987  
Georgia Power, F.E.R.C., Docket # ER 80-326, 80-327  
Georgia Power, F.E.R.C., Docket # ER 81-730, 80-731  
Georgia Power, F.E.R.C., Docket # ER 85-730, 85-731  
Bell Canada, CRTC 1987  
Northern Telephone, Ontario PSC  
GTE-Quebec Telephone, Quebec PSC, Docket 84-052B  
Newtel., Nfld. Brd of Public Commission PU 11-87  
CN-CP Telecommunications, CRTC  
Quebec Northern Telephone, Quebec PSC  
Edmonton Power Company, Alberta Public Service Board  
Kansas Power & Light, F.E.R.C., Docket # ER 83-418  
NYNEX, FCC generic cost of capital Docket #84-800  
Bell South, FCC generic cost of capital Docket #84-800  
American Water Works - Tennessee, Docket #7226  
Burlington-Northern - Oklahoma State Board of Taxes  
Georgia Power, Georgia PSC, Docket # 3549-U  
GTE Service Corp., FCC Docket #84-200  
Mississippi Power Co., Miss. PSC, Docket U-4761  
Citizens Utilities, Ariz. Corp. Comm., Docket U2334-86020  
Quebec Telephone, Quebec PSC, 1986, 1987, 1992  
Newfoundland L & P, Nfld. Brd. Publ Comm. 1987, 1991  
Northwestern Bell, Minnesota PSC, Docket P-421/CI-86-354  
GTE Service Corp., FCC Docket #87-463  
Anchorage Municipal Power & Light, Alaska PUC, 1988  
New Brunswick Telephone, N.B. PUC, 1988  
Trans-Quebec Maritime, Nat'l Energy Brd. of Cda, '88-92  
Gulf Power Co., Florida PSC, Docket #88-1167-EI  
Mountain States Bell, Montana PSC, #88-1.2  
Mountain States Bell, Arizona CC, #E-1051-88-146  
Georgia Power, Georgia PSC, Docket # 3840-U, 1989  
Rochester Telephone, New York PSC, Docket # 89-C-022  
Noverco - Gaz Metro, Quebec Natural Gas PSC, #R-3164-89  
GTE Northwest, Washington UTC, #U-89-3031  
Orange & Rockland, New York PSC, Case 89-E-175  
Central Illinois Light Company, ICC, Case 90-0127  
Peoples Natural Gas, Pennsylvania PSC, Case  
Gulf Power, Florida PSC, Case # 891345-EI  
ICG Utilities, Manitoba BPU, Case 1989  
New Tel Enterprises, CRTC, Docket #90-15  
Peoples Gas Systems, Florida PSC  
Jersey Central Pwr & Light, N.J. PUB, Case ER 89110912J  
Alabama Gas Co., Alabama PSC, Case 890001  
Trans-Quebec Maritime Pipeline, Cdn. Nat'l Energy Board  
Mountain Bell, Utah PSC,  
Mountain Bell, Colorado PUB

South Central Bell, Louisiana PS  
Hope Gas, West Virginia PSC  
Vermont Gas Systems, Vermont PSC  
Alberta Power Ltd., Alberta PUB  
Ohio Utilities Company, Ohio PSC  
Georgia Power Company, Georgia PSC  
Sun City Water Company  
Havasu Water Inc.  
Centra Gas (Manitoba) Co.  
Central Telephone Co. Nevada  
AGT Ltd., CRTC 1992  
BC GAS, BCPUB 1992  
California Water Association, California PUC 1992  
Maritime Telephone 1993  
BCE Enterprises, Bell Canada, 1993  
Citizens Utilities Arizona gas division 1993  
PSI Resources 1993-5  
CILCORP gas division 1994  
GTE Northwest Oregon 1993  
Stentor Group 1994-5  
Bell Canada 1994-1995  
PSI Energy 1993, 1994, 1995, 1999  
Cincinnati Gas & Electric 1994, 1996, 1999, 2004  
Southern States Utilities, 1995  
CILCO 1995, 1999, 2001  
Commonwealth Telephone 1996  
Edison International 1996, 1998  
Citizens Utilities 1997  
Stentor Companies 1997  
Hydro-Quebec 1998  
Entergy Gulf States Louisiana 1998, 1999, 2001, 2002, 2003  
Detroit Edison, 1999, 2003  
Entergy Gulf States, Texas, 2000, 2004  
Hydro Quebec TransEnergie, 2001, 2004  
Sierra Pacific Company, 2000, 2001, 2002, 2007, 2010  
Nevada Power Company, 2001  
Mid American Energy, 2001, 2002  
Entergy Louisiana Inc. 2001, 2002, 2004  
Mississippi Power Company, 2001, 2002, 2007  
Oklahoma Gas & Electric Company, 2002 -2003  
Public Service Electric & Gas, 2001, 2002  
NUI Corp (Elizabethtown Gas Company), 2002  
Jersey Central Power & Light, 2002  
San Diego Gas & Electric, 2002, 2012, 2014  
New Brunswick Power, 2002  
Entergy New Orleans, 2002, 2008



Hydro-Quebec Distribution 2002  
PSI Energy 2003  
Fortis – Newfoundland Power & Light 2002  
Emera – Nova Scotia Power 2004  
Hydro-Quebec TransEnergie 2004  
Hawaiian Electric 2004  
Missouri Gas Energy 2004  
AGL Resources 2004  
Arkansas Western Gas 2004  
Public Service of New Hampshire 2005  
Hawaiian Electric Company 2005, 2008, 2009  
Delmarva Power & Light Company 2005, 2009  
Union Heat Power & Light 2005  
Puget Sound Energy 2006, 2007, 2009  
Cascade Natural Gas 2006  
Entergy Arkansas 2006-7  
Bangor Hydro 2006-7  
Delmarva 2006, 2007, 2009  
Potomac Electric Power Co. 2006, 2007, 2009  
Duke Energy Ohio, 2007, 2008, 2009  
Duke Energy Kentucky 2009  
Consolidated Edison 2007 Docket 07-E-0523  
Duke Energy Ohio Docket 07-589-GA-AIR  
Hawaiian Electric Company Docket 05-0315  
Sierra Pacific Power Docket ER07-1371-000  
Public Service New Mexico Docket 06-00210-UT  
Detroit Edison Docket U-15244  
Potomac Electric Power Docket FC-1053  
Delmarva, Delaware, Docket 09-414  
Atlantic City Electric, New Jersey, Docket ER-09080664  
Maui Electric Co, Hawaii, Docket 2009-0163, 2011  
Niagara Mohawk, New York, Docket 10E-0050  
Sierra Pacific Power Docket No. 10-06001  
Gaz Metro, Regie de l'Energie (Quebec), Docket 2012 R-3752-2011  
California Pacific Electric Co., LLC, California PUC, Docket A-12-02-014  
Duke Energy Ohio, Ohio Case No. 11-XXXX-EL-SSO  
San Diego Gas & Electric, FERC, 2012, 2014, 2018  
San Diego Gas & Electric, California PUC, 2012, Docket A-12-04  
Southern California Gas, California PUC, 2012, Docket A-12-04  
Puget Sound Electric 2016  
Puget Sound Electric 2017  
Duke Energy of Ohio 2015, 2018  
Duke Energy of Kentucky 2017, 2018, 2019  
Duke Energy of Ohio 2017  
Dayton Power & Light 2016-2018  
Missouri American Water

California Power Electric Company  
Interstate Power & Light Iowa 2017, 2018  
Wisconsin Power & Light 2016  
Puget Sound Electric 2019  
Southern California Gas 2019  
San Diego Gas & Electric FERC 2018  
San Diego Gas & Electric 2019

### **PROFESSIONAL AND LEARNED SOCIETIES**

- Engineering Institute of Canada, 1967-1972
- Canada Council Award, recipient 1971 and 1972
- Canadian Association Administrative Sciences, 1973-80
- American Association of Decision Sciences, 1974-1978
- American Finance Association, 1975-2002
- Financial Management Association, 1978-2002

### **ACTIVITIES IN PROFESSIONAL ASSOCIATIONS AND MEETINGS**

- Chairman of meeting on "New Developments in Utility Cost of Capital", Southern Finance Association, Atlanta, Nov. 1982
- Chairman of meeting on "Public Utility Rate of Return", Southeastern Public Utility Conference, Atlanta, Oct. 1982
- Chairman of meeting on "Current Issues in Regulatory Finance", Financial Management Association, Atlanta, Oct. 1983
- Chairman of meeting on "Utility Cost of Capital", Financial Management Association, Toronto, Canada, Oct. 1984.
- Committee on New Product Development, FMA, 1985
- Discussant, "Tobin's Q Ratio", paper presented at Financial Management Association, New York, N.Y., Oct. 1986
- Guest speaker, "Utility Capital Structure: New Developments", National Society of Rate of Return Analysts 18th Financial Forum, Wash., D.C. Oct. 1986
- Opening address, "Capital Expenditures Analysis: Methodology vs Mythology," Bellcore Economic Analysis Conference, Naples FL, 1988.
- Guest speaker, "Mythodology in Regulatory Finance", Society of Utility Rate of Return Analysts (SURFA), Annual Conference, Wash., D.C. February 2007.

**PAPERS PRESENTED:**

"An Empirical Study of Multi-Period Asset Pricing," annual meeting of Financial Management Assoc., Las Vegas Nevada, 1987.

"Utility Capital Expenditures Analysis: Net Present Value vs Revenue Requirements", annual meeting of Financial Management Assoc., Denver, Colorado, October 1985.

"Intervention Analysis and the Dynamics of Market Efficiency", annual meeting of Financial Management Assoc., San Francisco, Oct. 1982

"Intertemporal Market-Line Theory: An Empirical Study," annual meeting of Eastern Finance Assoc., Newport, R.I. 1981

"Option Writing for Financial Institutions: A Cost-Benefit Analysis", 1979 annual meeting Financial Research Foundation

"Free-lunch on the Toronto Stock Exchange", annual meeting of Financial Research Foundation of Canada, 1978.

"Simulation System Computer Software SIMFIN", HP International Business Computer Users Group, London, 1975.

"Inflation Accounting: Implications for Financial Analysis." Institute of Certified Public Accountants Symposium, 1979.

**OFFICES IN PROFESSIONAL ASSOCIATIONS**

- President, International Hewlett-Packard Business Computers Users Group, 1977
- Chairman Program Committee, International HP Business Computers Users Group, London, England, 1975
- Program Coordinator, Canadian Assoc. of Administrative Sciences, 1976
- Member, New Product Development Committee, Financial Management Association, 1985-1986

- Reviewer: Journal of Financial Research  
Financial Management  
Financial Review  
Journal of Finance

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"Econometric Planning Model of the Cablevision Industry," International Institute of Quantitative Economics, CRTC.

"Application of the Averch-Johnson Model to Telecommunications Utilities," Canadian Radio-Television Commission. (CRTC)

"Economics of the Fiber Optics Industry", Quebec Dept. of Communications.

"Intervention Analysis and the Dynamics of Market Efficiency", Georgia State Univ. College of Business, 1981.

"Firm Size and Beta Stability", Georgia State University College of Business, 1982.

"Risk Aversion and the Demand for Risky Assets", Georgia State University College of Business, 1981.

**Investment-Grade Dividend-Paying Combination Gas and  
Electric Utilities Covered in Value Line's Electric Utility**

Company	(1)	(2) Ticker	(3)	(4) Note
1	Alliant Energy	LNT		
2	Ameren Corp.	AEE		
3	Avista Corp.	AVA		Acquisition of Hydro One completed
4	Black Hills	BKH		Acquisition of SourceGas completed
5	CenterPoint Energy	CNP		Acquisition of Vectren completed
6	Chesapeake Utilities	CPK		Acquisition of WildHorse Resource Development complete
7	CMS Energy Corp.	CMS		
8	Consol. Edison	ED		
9	Dominion Resources	D		Merged with Questar, completed 9/16
10	DTE Energy	DTE		
11	Duke Energy	DUK		Acquisition of Piedmont Natural Gas completed
12	Empire Dist. Elec.	EDE	x	Merged with Liberty Utility, completed 1/17
13	Entergy Corp	ETR	x	Nuclear exposure, corporate reorganization
14	Eversource Energy	ES		
15	Fortis	FTS		Owens several US combination gas & elec utilities
16	Exelon Corp	EXC		
17	MDU Resource	MDU	x	Regulated Revenues < 50%
18	MGE Energy	MGEE		
19	NorthWestern Corp.	NWE		
20	Pepco Holdings	POM	x	Merged with Exelon
21	PG&E Corp.	PCG	x	Declared bankruptcy
22	Public Serv. Enterprise	PEG		
23	SCANA Corp.	SCG	x	nuclear exposure, writeoffs, dividend cut
24	Unitil Corp	UTL	x	Market cap < \$1B; not covered by VL
25	Sempra Energy	SRE		Acquisition of Oncor completed
26	TECO Energy	TE	x	Acquired by Emera
27	Vectren Corp.	VVC	x	Acquired by CenterPoint
28	WEC Energy Group	WEC		
29	Xcel Energy Inc.	XEL		

Source: Value Line Investment Survey 2019

**Proxy Group for Duke Energy Ky.**

	<u>Company</u>	<u>Ticker</u>
1	Alliant Energy	LNT
2	Ameren Corp.	AEE
3	Avista	AVA
4	Black Hills	BKH
5	CMS Energy Corp.	CMS
6	CenterPoint	CNP
7	Chesapeake Util	CPK
8	Consol. Edison	ED
9	Dominion Resources	D
10	DTE Energy	DTE
11	Duke Energy	DUK
12	Eversource Energy	ES
13	Exelon Corp	EXC
14	Fortis	FTS
15	MGE Energy	MGEE
16	NorthWestern Corp.	NWE
17	Public Serv. Enterprise	PEG
18	Sempra	SRE
19	WEC Energy Group	WEC
20	Xcel Energy Inc.	XEL



**Combination Elec & Gas Utilities  
DCF Analysis Value Line Growth Rates**

Line No.	(1) Company Name	(2) Current Dividend Yield	(3) Projected EPS Growth	(4) % Expected Divid Yield	(5) Cost of Equity
1	Alliant Energy	2.9	6.5	3.06	9.56
2	Ameren Corp.	2.6	6.5	2.76	9.26
3	Avista	3.4	3.5	3.52	7.02
4	Black Hills	2.6	5.0	2.71	7.71
5	CMS Energy Corp.	2.6	7.0	2.82	9.82
6	CenterPoint	4.1	12.5	4.56	17.06
7	Chesapeake Util	1.8	9.0	1.93	10.93
8	Consol. Edison	3.0	3.0	3.09	6.09
9	Dominion Resources	3.4	6.5	3.64	10.14
10	DTE Energy	3.0	5.5	3.12	8.62
11	Duke Energy	4.3	6.0	4.60	10.60
12	Eversource Energy	2.8	5.5	2.95	8.45
13	Exelon Corp	3.2	10.5	3.52	14.02
14	Fortis	3.4	5.5	3.56	9.06
15	MGE Energy	1.8	9.0	2.01	11.01
16	NorthWestern Corp.	3.2	3.0	3.33	6.33
17	Public Serv. Enterprise	3.2	6.0	3.36	9.36
18	Sempra	3.0	11.0	3.35	14.35
19	WEC Energy Group	2.8	6.0	2.92	8.92
20	Xcel Energy Inc.	2.7	5.5	2.83	8.33
22	<b>AVERAGE</b>	<b>2.98</b>	<b>6.65</b>	<b>3.18</b>	<b>9.83</b>

## Notes:

- 25 Column 2: Yahoo Finance 2019
- 26 Column 3: Value Line Investment Reports 2019
- 27 Column 4 = Column 2 times (1 + Column 3/100)
- 28 Column 5 = Column 4 + Column 3

**Combination Elec & Gas Utilities  
DCF Analysis Analysts' Growth Forecasts**

Line No.	(1) Company Name	(2) Current Dividend Yield	(3) Analysts' Growth Forecast	(4) % Expected Divid Yield	(5) Cost of Equity	(6) Return on Equity
1	Alliant Energy	2.9	5.0	3.01	8.01	8.17
2	Ameren Corp.	2.6	7.6	2.79	10.39	10.53
3	Avista	3.4	5.3	3.58	8.88	9.07
4	Black Hills	2.6	3.0	2.66	5.66	5.80
5	CMS Energy Corp.	2.6	7.1	2.83	9.95	10.10
6	CenterPoint	4.1	6.1	4.30	10.44	10.66
7	Chesapeake Util	1.8	6.0	1.88	7.88	7.97
8	Consol. Edison	3.0	3.0	3.09	6.13	6.29
9	Dominion Resources	3.4	3.4	3.54	6.98	7.16
10	DTE Energy	3.0	4.3	3.09	7.37	7.53
11	Duke Energy	4.3	7.2	4.65	11.88	12.13
12	Eversource Energy	2.8	5.6	2.96	8.53	8.68
13	Exelon Corp	3.2	10.5	3.52	14.02	14.21
14	Fortis	3.4	5.5	3.56	9.06	9.24
15	MGE Energy	1.8	4.0	1.91	5.91	6.01
16	NorthWestern Corp.	3.2	3.5	3.34	6.85	7.03
17	Public Serv. Enterprise	3.2	4.9	3.33	8.24	8.41
18	Sempra	3.0	8.0	3.26	11.26	11.43
19	WEC Energy Group	2.8	6.0	2.91	8.86	9.02
20	Xcel Energy Inc.	2.7	5.8	2.84	8.64	8.78
22	<b>AVERAGE</b>	<b>2.98</b>	<b>5.59</b>	<b>3.15</b>	<b>8.75</b>	<b>8.91</b>

Notes:

- 25 Column 2, 3: Yahoo Finance 2019
- 26 Column 4 = Column 2 times (1 + Column 3/100)
- 27 Column 5 = Column 4 + Column 3
- 28 Column 6 = Column 4/0.95 + Column 3

**Combination Elec & Gas Utilities Beta Estimates**

	(1)	(2)
Line No.	Company Name	Beta
1	Alliant Energy	0.60
2	Ameren Corp.	0.60
3	Avista	0.60
4	Black Hills	0.75
5	CMS Energy Corp.	0.55
6	CenterPoint	0.80
7	Chesapeake Util	0.65
8	Consol. Edison	0.45
9	Dominion Resources	0.55
10	DTE Energy	0.55
11	Duke Energy	0.50
12	Eversource Energy	0.60
13	Exelon Corp	0.70
14	Fortis	0.65
15	MGE Energy	0.55
16	NorthWestern Corp.	0.60
17	Public Serv. Enterprise	0.65
18	Sempra	0.75
19	WEC Energy Group	0.50
20	Xcel Energy Inc.	0.50
22	<b>AVERAGE</b>	<b>0.61</b>
24	Source: Value Line Reports 2019	

**DCF ANALYSIS S&P 500 STOCKS**

	<b>COMPANY</b>	<b>EPS GROWTH</b>	<b>DIVIDEND</b>
	<b>TICKER</b>	<b>FCST</b>	<b>YIELD</b>
1	A	9.5	0.83%
17	AAN	11.5	0.24%
18	AAP	14.0	0.15%
19	AB	6.5	8.33%
20	ABB	9.5	3.90%
21	ABBV	10.5	5.44%
22	ABC	8.5	2.02%
23	ABM	13.5	1.88%
24	ABT	10.0	1.63%
25	ACCO	6.5	2.80%
26	ACN	9.0	1.65%
27	ADM	9.5	3.21%
28	ADS	13.5	1.61%
29	AEE	6.5	2.61%
30	AEM	19.0	1.22%
31	AEO	10.0	2.28%
32	AEP	4.0	3.14%
33	AFG	8.5	1.55%
34	AFL	7.5	2.14%
35	AGCO	13.5	0.86%
36	AGN	3.5	2.03%
37	AIN	17.5	0.90%
38	AIR	16.0	0.89%
39	AIT	15.0	2.06%
40	AIZ	5.5	2.54%
41	AJG	15.0	2.07%
42	ALB	5.5	1.91%
43	ALE	5.0	2.86%
44	ALK	4.5	2.24%
45	ALL	11.5	2.03%
46	ALLE	8.5	1.06%
47	ALLY	14.5	2.27%
48	ALSN	18.5	1.27%
49	ALV	9.0	3.15%
50	AMC	6.0	5.48%
51	AME	10.5	0.64%
52	AMG	10.0	1.16%
53	AMP	14.0	2.62%
54	AMT	11.5	1.87%

55	ANDX	13.0	12.01%
56	ANTM	17.0	1.22%
57	AON	9.5	0.99%
58	AOS	16.5	1.64%
59	APD	9.5	2.21%
60	APH	10.5	0.92%
61	APO	9.0	5.72%
62	APTV	11.0	1.10%
63	APU	9.5	10.43%
64	ARMK	11.0	1.41%
65	ASB	9.0	2.95%
66	ATO	7.5	2.04%
67	ATR	6.5	1.27%
68	ATTO	19.0	9.15%
69	ATU	12.5	0.16%
70	AUY	15.5	0.97%
71	AVA	3.5	3.56%
72	AVB	4.0	3.01%
73	AVD	18.0	0.50%
74	AVX	16.0	2.80%
75	AVY	11.5	2.08%
76	AWI	12.5	0.78%
77	AWK	9.5	1.86%
78	AWR	8.0	1.54%
79	AXP	10.0	1.31%
80	AXS	19.5	2.80%
81	AYI	10.5	0.36%
82	AYR	12.5	6.02%
83	AZN	15.5	3.65%
84	B	13.0	1.11%
85	BA	17.5	2.18%
86	BAC	10.5	1.95%
87	BAH	12.0	1.54%
88	BAM	11.5	1.33%
89	BAX	12.5	0.98%
90	BBT	8.0	3.18%
91	BBY	10.5	2.67%
92	BC	11.0	1.59%
93	BCC	14.5	1.24%
94	BCE	5.0	5.32%
95	BCO	17.0	0.74%
96	BDC	14.5	0.33%
97	BDX	10.0	1.30%
98	BEN	7.5	3.00%
99	BFB	13.5	1.25%
100	BG	17.0	3.91%

101	BGG	9.0	4.47%
102	BGS	9.0	8.36%
103	BHE	8.5	2.21%
104	BIG	6.0	3.20%
105	BK	8.5	2.24%
106	BKH	6.0	2.71%
107	BLK	10.5	2.74%
108	BLL	9.5	0.98%
109	BMI	11.5	1.08%
110	BMS	8.5	2.15%
111	BMY	13.5	3.37%
112	BOH	8.5	3.08%
113	BPL	2.5	8.98%
114	BR	11.0	1.65%
115	BRC	9.5	1.70%
116	BRO	12.0	0.99%
117	BRSS	11.5	0.83%
118	BUD	10.0	2.30%
119	BWA	8.0	1.65%
120	BWXT	13.0	1.37%
121	BX	9.0	6.29%
122	BXP	4.5	2.82%
123	BXS	10.0	2.21%
124	BYD	16.5	0.86%
125	C	10.0	2.55%
126	CAG	5.5	2.83%
127	CAH	10.0	3.84%
128	CAJ	14.0	5.21%
129	CAL	9.0	1.04%
130	CAT	17.0	2.96%
131	CATO	3.0	8.61%
132	CB	8.5	2.01%
133	CBS	9.5	1.45%
134	CBT	11.0	2.81%
135	CCI	12.0	3.61%
136	CCL	10.0	3.63%
137	CE	11.0	2.28%
138	CFG	12.0	3.48%
139	CFR	6.0	2.75%
140	CHD	8.5	1.22%
141	CHE	11.5	0.36%
142	CHH	7.5	0.99%
143	CHL	7.0	4.33%
144	CI	18.5	0.03%
145	CIT	18.0	2.62%
146	CL	6.0	2.39%

147	CLB	18.5	3.64%
148	CLX	6.5	2.59%
149	CMA	12.0	3.43%
150	CMC	11.0	2.71%
151	CMD	14.0	0.29%
152	CMI	8.0	2.70%
153	CMP	16.5	5.11%
154	CMS	7.0	2.77%
155	CNA	11.5	3.06%
156	CNI	10.0	1.72%
157	CNK	12.5	3.21%
158	CNP	12.5	3.69%
159	COF	5.5	1.70%
160	COO	14.5	0.02%
161	COTY	9.0	4.36%
162	CP	12.5	0.87%
163	CPA	17.5	3.04%
164	CPB	1.0	3.66%
165	CPK	9.0	1.57%
166	CR	9.5	1.76%
167	CRDB	11.0	2.21%
168	CRI	9.0	1.85%
169	CSL	12.0	1.14%
170	CSV	13.0	1.64%
171	CSX	16.5	1.19%
172	CTB	7.0	1.37%
173	CTL	2.5	8.56%
174	CTS	10.0	0.53%
175	CULP	4.5	1.92%
176	CVS	7.5	3.53%
177	CW	10.5	0.52%
178	CWT	8.5	1.57%
179	CXW	1.5	8.26%
180	D	6.5	4.78%
181	DAL	9.5	2.42%
182	DAN	12.5	2.20%
183	DBI	13.0	4.30%
184	DCI	11.5	1.41%
185	DCP	9.5	10.13%
186	DDS	6.5	0.58%
187	DE	14.0	1.82%
188	DEO	9.0	2.06%
189	DFS	7.5	1.95%
190	DG	13.0	1.03%
191	DGX	8.5	2.15%
192	DHI	5.0	1.36%

193	DHR	13.0	0.51%
194	DIN	12.5	3.12%
195	DIS	6.5	1.31%
196	DKS	7.0	3.02%
197	DLB	14.0	1.15%
198	DLR	5.0	3.58%
199	DLX	12.0	2.72%
200	DOV	13.0	1.93%
201	DOX	9.0	2.07%
202	DPZ	18.0	0.93%
203	DRE	7.0	2.74%
204	DRI	12.0	2.55%
205	DTE	5.0	3.02%
206	DUK	5.5	4.12%
207	DXC	14.5	1.21%
208	EAT	7.5	3.49%
209	ECL	9.0	1.00%
210	ED	3.0	3.44%
211	EE	4.5	2.35%
212	EFX	7.5	1.26%
213	EHC	10.5	1.68%
214	EL	14.0	0.99%
215	ELY	15.5	0.23%
216	EME	9.5	0.39%
217	EMN	8.0	3.12%
218	EMR	12.0	2.76%
219	ENBL	17.0	9.23%
220	ENS	11.5	0.99%
221	EPD	11.5	6.09%
222	EQM	0.5	10.39%
223	ERJ	8.5	0.72%
224	ES	5.5	2.97%
225	ESE	13.5	0.42%
226	ESS	2.0	2.74%
227	ET	11.0	7.94%
228	ETH	12.5	3.37%
229	ETN	9.0	3.43%
230	EV	8.5	3.34%
231	EVC	19.0	7.17%
232	EXC	7.5	2.91%
233	EXP	8.5	0.44%
234	EXR	6.0	3.24%
235	F	1.0	5.76%
236	FAF	9.0	2.99%
237	FBHS	11.5	1.58%
238	FCF	12.0	2.88%



239	FDS	12.0	0.92%
240	FDX	7.5	1.38%
241	FE	6.5	3.58%
242	FHN	14.0	3.68%
243	FII	10.5	3.43%
244	FIS	7.0	1.19%
245	FL	12.0	2.75%
246	FLO	6.0	3.33%
247	FLR	17.0	2.87%
248	FLS	13.0	1.46%
249	FMC	15.0	2.06%
250	FMS	10.0	1.45%
251	FNF	10.5	3.14%
252	FNV	9.0	1.36%
253	FRC	10.5	0.72%
254	FRT	4.0	3.07%
255	FSS	15.5	1.17%
256	FUL	14.0	1.29%
257	FUN	10.5	6.60%
258	G	13.0	0.94%
259	GATX	4.0	2.35%
260	GBX	6.0	2.77%
261	GD	6.0	2.31%
262	GE	3.5	0.38%
263	GEF	9.5	4.39%
264	GFF	16.0	1.70%
265	GGG	12.5	1.22%
266	GHC	11.0	0.78%
267	GHL	19.5	0.98%
268	GIL	8.5	1.43%
269	GIS	4.0	3.83%
270	GLOG	11.5	3.82%
271	GLW	16.0	2.50%
272	GM	7.5	3.92%
273	GPC	8.5	2.99%
274	GPI	3.5	1.33%
275	GPK	11.0	2.13%
276	GPN	17.5	0.03%
277	GPS	6.0	3.73%
278	GRA	12.0	1.41%
279	GRC	13.0	1.61%
280	GS	8.5	1.64%
281	GSK	4.0	6.33%
282	GWW	8.5	2.03%
283	H	13.5	0.98%
284	HBI	4.0	3.37%

285	HCA	12.0	1.27%
286	HD	11.0	2.71%
287	HE	4.5	3.08%
288	HEI	12.0	0.13%
289	HI	10.5	2.02%
290	HIG	13.0	2.28%
291	HII	7.0	1.62%
292	HMC	6.5	3.52%
293	HNI	9.5	3.15%
294	HOG	8.5	4.03%
295	HON	8.0	1.89%
296	HPT	13.0	8.22%
297	HR	20.0	3.83%
298	HRB	7.0	3.75%
299	HRC	13.0	0.83%
300	HRL	9.0	2.12%
301	HRS	11.5	1.54%
302	HSBC	16.5	5.71%
303	HST	4.0	4.02%
304	HSY	6.0	2.37%
305	HUBB	7.5	2.59%
306	HUM	13.5	0.88%
307	HUN	13.5	3.01%
308	HVT	8.0	3.74%
309	HXL	10.0	0.84%
310	HY	11.0	2.12%
311	IBM	2.0	4.62%
312	ICE	10.5	1.38%
313	IDA	3.5	2.51%
314	IEX	11.0	1.10%
315	IFF	8.0	2.09%
316	INFY	12.0	3.08%
317	INGR	5.5	2.88%
318	IP	12.0	4.25%
319	IPG	11.0	4.07%
320	IR	12.0	1.70%
321	IRM	11.5	7.73%
322	ITT	11.0	0.93%
323	ITW	9.0	2.54%
324	IVZ	7.0	5.66%
325	JBL	14.0	1.03%
326	JBT	11.5	0.35%
327	JCI	2.0	2.63%
328	JEC	12.5	0.88%
329	JHG	5.0	6.39%
330	JLL	9.5	0.54%

331	JNJ	9.0	2.68%
332	JNPR	5.0	2.75%
333	JPM	6.0	2.76%
334	JWA	8.0	2.73%
335	JWN	6.5	3.67%
336	K	4.5	3.97%
337	KAI	13.0	1.00%
338	KAMN	13.0	1.28%
339	KAR	15.5	2.46%
340	KBH	7.0	0.38%
341	KBR	18.5	1.36%
342	KEY	10.5	3.84%
343	KFY	9.0	0.84%
344	KIM	5.0	6.15%
345	KKR	11.0	2.03%
346	KMB	7.0	3.23%
347	KMT	16.5	1.96%
348	KNL	10.0	2.76%
349	KO	6.5	3.28%
350	KR	4.5	2.18%
351	KSS	11.0	3.87%
352	KSU	12.0	1.15%
353	KWR	18.5	0.69%
354	L	13.5	0.49%
355	LAD	7.5	1.05%
356	LAZ	11.0	4.86%
357	LCII	14.5	2.64%
358	LDOS	9.5	1.72%
359	LEA	7.5	2.05%
360	LEG	8.0	3.77%
361	LEN	9.0	0.31%
362	LII	12.5	0.94%
363	LLL	7.0	1.48%
364	LLY	11.5	2.21%
365	LM	17.5	4.00%
366	LMT	14.0	2.63%
367	LNC	9.0	2.20%
368	LNN	13.5	1.41%
369	LNT	6.5	3.01%
370	LOW	12.0	1.71%
371	LPT	1.0	3.31%
372	LPX	7.5	2.12%
373	LUV	11.5	1.19%
374	LVS	7.5	4.50%
375	LYB	5.5	4.60%
376	LZB	10.0	1.50%

377	M	3.5	6.50%
378	MA	19.0	0.53%
379	MAC	3.0	7.17%
380	MAN	6.0	2.10%
381	MAS	10.5	1.19%
382	MATX	9.5	2.09%
383	MCD	9.5	2.35%
384	MCK	9.0	1.26%
385	MCO	11.5	1.02%
386	MCS	10.0	1.67%
387	MCY	18.0	4.46%
388	MDC	10.5	3.68%
389	MDP	17.0	3.83%
390	MDT	7.5	2.23%
391	MDU	14.0	3.05%
392	MEI	6.5	1.45%
393	MET	7.5	3.67%
394	MFC	7.5	4.01%
395	MGA	10.5	2.67%
396	MKC	8.5	1.50%
397	MLI	11.5	1.33%
398	MLM	10.0	0.87%
399	MMC	9.0	1.77%
400	MMM	9.5	3.11%
401	MMP	8.0	6.52%
402	MMS	11.0	1.35%
403	MO	10.5	5.95%
404	MOGA	13.5	1.05%
405	MOV	12.5	2.16%
406	MPC	13.5	3.54%
407	MRK	8.5	2.75%
408	MS	10.0	2.50%
409	MSA	14.0	1.35%
410	MSCI	19.5	1.02%
411	MSI	13.0	1.59%
412	MSM	12.0	3.00%
413	MT	10.0	0.93%
414	MTB	9.5	2.35%
415	MTN	18.0	3.04%
416	MTRN	13.5	0.60%
417	MTX	5.5	0.32%
418	MWA	16.0	1.84%
419	NBL	0.0	1.93%
420	NCI	0.5	0.86%
421	NEE	9.0	2.60%
422	NEM	2.5	1.85%

423	NEU	2.0	1.65%
424	NI	15.0	2.87%
425	NJR	2.5	2.31%
426	NKE	15.0	1.03%
427	NLSN	5.0	5.66%
428	NLY	2.5	12.37%
429	NOC	9.5	1.64%
430	NOK	8.5	4.31%
431	NP	9.0	2.69%
432	NPK	8.0	0.92%
433	NPO	18.0	1.49%
434	NRP	5.5	4.26%
435	NSC	13.0	1.68%
436	NSP	19.5	0.99%
437	NUS	11.0	2.53%
438	NVO	6.5	2.61%
439	NVS	10.5	3.43%
440	NYCB	5.0	5.87%
441	O	4.5	3.86%
442	OC	15.5	1.69%
443	OGE	6.5	3.51%
444	OI	6.5	1.10%
445	OKE	18.5	5.17%
446	OMC	6.5	3.25%
447	OMI	1.5	0.28%
448	ORA	6.0	0.75%
449	ORCL	10.0	1.75%
450	ORI	14.5	3.58%
451	OSK	11.5	1.33%
452	OXM	8.0	1.76%
453	PAG	7.0	3.30%
454	PBF	15.5	3.50%
455	PBI	4.5	3.50%
456	PCH	8.5	3.96%
457	PEG	4.5	3.17%
458	PEP	6.5	2.99%

**AVERAGE      10.0      2.60%**

**MEDIAN        10.0      2.21%**

2018 Utility Industry Historical Risk Premium

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Long-Term Government Bond Yield	Long-Term Government Income Component Bond Yield	20 year Maturity Bond Value	Gain/Loss	Interest	Bond Total Return	S&P Utility Index Return	Utility Equity Risk Premium Over Bond Returns	Utility Equity Risk Premium Over Bond Return Income Component
Line No	Year								
1	1931	4.07%	5.33%	1,000.00					
2	1932	3.15%	3.69%	1,135.75	135.75	40.70	17.64%	-0.54%	-18.18%
3	1933	3.36%	3.12%	969.60	-30.40	31.50	0.11%	-21.87%	-21.98%
4	1934	2.93%	3.18%	1,064.73	64.73	33.60	9.83%	-20.41%	-30.24%
5	1935	2.76%	2.81%	1,025.99	25.99	29.30	5.53%	76.63%	71.10%
6	1936	2.56%	2.77%	1,031.15	31.15	27.60	5.88%	20.69%	14.81%
7	1937	2.73%	2.66%	973.93	-26.07	25.60	-0.05%	-37.04%	-36.99%
8	1938	2.52%	2.64%	1,032.83	32.83	27.30	6.01%	22.45%	16.44%
9	1939	2.26%	2.40%	1,041.65	41.65	25.20	6.68%	11.26%	4.58%
10	1940	1.94%	2.23%	1,052.84	52.84	22.60	7.54%	-17.15%	-24.69%
11	1941	2.04%	1.94%	983.64	-16.36	19.40	0.30%	-31.57%	-31.87%
12	1942	2.46%	2.46%	933.97	-66.03	20.40	-4.56%	15.39%	19.95%
13	1943	2.48%	2.44%	996.86	-3.14	24.60	2.15%	46.07%	43.92%
14	1944	2.46%	2.46%	1,003.14	3.14	24.80	2.79%	18.03%	15.24%
15	1945	1.99%	2.34%	1,077.23	77.23	24.60	10.18%	53.33%	43.15%
16	1946	2.12%	2.04%	978.90	-21.10	19.90	-0.12%	1.26%	1.38%
17	1947	2.43%	2.13%	951.13	-48.87	21.20	-2.77%	-13.16%	-10.39%
18	1948	2.37%	2.40%	1,009.51	9.51	24.30	3.38%	4.01%	0.63%
19	1949	2.09%	2.25%	1,045.58	45.58	23.70	6.93%	31.39%	24.46%
20	1950	2.24%	2.12%	975.93	-24.07	20.90	-0.32%	3.25%	3.57%
21	1951	2.69%	2.38%	930.75	-69.25	22.40	-4.69%	18.63%	23.32%
22	1952	2.79%	2.66%	984.75	-15.25	26.90	1.17%	19.25%	18.08%
23	1953	2.74%	2.84%	1,007.66	7.66	27.90	3.56%	7.85%	4.29%
24	1954	2.72%	2.79%	1,003.07	3.07	27.40	3.05%	24.72%	21.67%
25	1955	2.95%	2.75%	965.44	-34.56	27.20	-0.74%	11.26%	12.00%
26	1956	3.45%	2.90%	928.19	-71.81	29.50	-4.23%	5.06%	9.29%
27	1957	3.23%	3.44%	1,032.23	32.23	34.50	6.67%	6.36%	-0.31%
28	1958	3.82%	3.27%	918.01	-81.99	32.30	-4.97%	40.70%	45.67%
29	1959	4.47%	4.01%	914.65	-85.35	38.20	-4.71%	7.49%	12.20%
30	1960	3.80%	4.26%	1,093.27	93.27	44.70	13.80%	20.26%	6.46%
31	1961	4.15%	3.83%	952.75	-47.25	38.00	-0.92%	29.33%	30.25%
32	1962	3.95%	4.00%	1,027.48	27.48	41.50	6.90%	-2.44%	-9.34%
33	1963	4.17%	3.89%	970.35	-29.65	39.50	0.99%	12.36%	11.37%
34	1964	4.23%	4.15%	991.96	-8.04	41.70	3.37%	15.91%	12.54%
35	1965	4.50%	4.19%	964.64	-35.36	42.30	0.69%	4.67%	3.98%
36	1966	4.55%	4.49%	993.48	-6.52	45.00	3.85%	-4.48%	-8.33%
37	1967	5.56%	4.59%	879.01	-120.99	45.50	-7.55%	-0.63%	6.92%
38	1968	5.98%	5.50%	951.38	-48.62	55.60	0.70%	10.32%	9.62%
39	1969	6.87%	5.96%	904.00	-96.00	59.80	-3.62%	-15.42%	-11.80%
40	1970	6.48%	6.74%	1,043.38	43.38	68.70	11.21%	16.56%	5.35%
41	1971	5.97%	6.32%	1,059.09	59.09	64.80	12.39%	2.41%	-9.98%
42	1972	5.99%	5.87%	997.69	-2.31	59.70	5.74%	8.15%	2.41%
43	1973	7.26%	6.51%	867.09	-132.91	59.90	-7.30%	-18.07%	-10.77%
44	1974	7.60%	7.27%	965.33	-34.67	72.60	3.79%	-21.55%	-25.34%
45	1975	8.05%	7.09%	955.63	-44.37	76.00	3.16%	44.49%	41.33%
46	1976	7.21%	7.89%	1,088.25	88.25	80.50	16.87%	31.81%	14.94%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Long-Term	Long-Term	20 year				S&P	Utility Equity	Utility Equity
47	1977	8.03%	7.14%	919.03	-80.97	72.10	-0.89%	8.64%	9.53%
48	1978	8.98%	7.90%	912.47	-87.53	80.30	-0.72%	-3.71%	-2.99%
49	1979	10.12%	8.86%	902.99	-97.01	89.80	-0.72%	13.58%	14.30%
50	1980	11.99%	9.97%	859.23	-140.77	101.20	-3.96%	15.08%	19.04%
51	1981	13.34%	11.55%	906.45	-93.55	119.90	2.63%	11.74%	9.11%
52	1982	10.95%	13.50%	1,192.38	192.38	133.40	32.58%	26.52%	-6.06%
53	1983	11.97%	10.38%	923.12	-76.88	109.50	3.26%	20.01%	16.75%
54	1984	11.70%	11.74%	1,020.70	20.70	119.70	14.04%	26.04%	12.00%
55	1985	9.56%	11.25%	1,189.27	189.27	117.00	30.63%	33.05%	2.42%
56	1986	7.89%	8.98%	1,166.63	166.63	95.60	26.22%	28.53%	2.31%
57	1987	9.20%	7.92%	881.17	-118.83	78.90	-3.99%	-2.92%	1.07%
58	1988	9.19%	8.97%	1,000.91	0.91	92.00	9.29%	18.27%	8.98%
59	1989	8.16%	8.81%	1,100.73	100.73	91.90	19.26%	47.80%	28.54%
60	1990	8.44%	8.19%	973.17	-26.83	81.60	5.48%	-2.57%	-8.05%
61	1991	7.30%	8.22%	1,118.94	118.94	84.40	20.33%	14.61%	-5.72%
62	1992	7.26%	7.26%	1,004.19	4.19	75.00	7.72%	8.10%	0.38%
63	1993	6.54%	7.17%	1,079.70	79.70	72.60	15.23%	14.41%	-0.82%
64	1994	7.99%	6.59%	856.40	-143.60	65.40	-7.82%	-7.94%	-0.12%
65	1995	6.03%	7.60%	1,225.98	225.98	79.90	30.59%	42.15%	11.56%
66	1996	6.73%	6.18%	923.67	-76.33	60.30	-1.60%	3.14%	4.74%
67	1997	6.02%	6.64%	1,081.92	81.92	67.30	14.92%	24.69%	9.77%
68	1998	5.42%	5.83%	1,072.71	72.71	60.20	13.29%	14.82%	1.53%
69	1999	6.82%	5.57%	848.41	-151.59	54.20	-9.74%	-8.85%	0.89%
70	2000	5.58%	6.50%	1,148.30	148.30	68.20	21.65%	59.70%	38.05%
71	2001	5.75%	5.53%	979.95	-20.05	55.80	3.57%	-30.41%	-33.98%
72	2002	4.84%	5.59%	1,115.77	115.77	57.50	17.33%	-30.04%	-47.37%
73	2003	5.11%	4.80%	966.42	-33.58	48.40	1.48%	26.11%	24.63%
74	2004	4.84%	5.02%	1,054.35	34.35	51.10	8.54%	24.22%	15.68%
75	2005	4.61%	4.69%	1,029.84	29.84	48.40	7.82%	16.79%	8.97%
76	2006	4.91%	4.68%	962.06	-37.94	46.10	0.82%	20.95%	20.13%
77	2007	4.50%	4.86%	1,053.70	53.70	49.10	10.28%	19.36%	9.08%
78	2008	3.03%	4.45%	1,219.28	219.28	45.00	26.43%	-28.99%	-55.42%
79	2009	4.58%	3.47%	798.39	-201.61	30.30	-17.13%	11.94%	29.07%
80	2010	4.14%	4.25%	1,059.45	59.45	45.80	10.52%	5.49%	-5.03%
81	2011	2.55%	3.82%	1,247.89	247.89	41.40	28.93%	19.88%	-9.05%
82	2012	2.46%	2.46%	1,014.15	14.15	25.50	3.96%	1.29%	-2.67%
83	2013	3.78%	2.88%	815.92	-184.08	24.60	-15.95%	13.26%	29.21%
84	2014	2.46%	3.41%	1,207.53	207.53	37.80	24.53%	28.61%	4.08%
85	2015	2.68%	2.47%	966.11	-33.89	24.60	-0.93%	1.38%	2.31%
86	2016	2.72%	2.30%	993.86	-6.14	26.80	2.07%	16.27%	14.20%
87	2017	2.54%	2.67%	972.83	-27.17	27.20	0.00%	12.11%	12.11%
88	2018	2.84%	2.82%	968.90	-31.10	29.00	-0.21%	4.11%	4.32%
90	Mean							5.6%	6.1%

92 Source: Bloomberg Web site- Standard & Poors Utility Stock Index % Annual Change, Jan. to Dec.  
93 Bond yields from Duff & Phelps Classic 2019 Yearbooks Appendices A7 and A9 Long-Term Government Bonds Yields

ALLOWED RISK PREMIUM ANALYSIS

<u>Line</u>	<u>Date</u>	<u>Treasury Bond Yield<sup>1</sup></u>	<u>Authorized Electric Returns<sup>2</sup></u>	<u>Indicated Risk Premium</u>
		(1)	(2)	(3)
1	1986	7.80%	13.93%	6.1%
2	1987	8.58%	12.99%	4.4%
3	1988	8.96%	12.79%	3.8%
4	1989	8.45%	12.97%	4.5%
5	1990	8.61%	12.70%	4.1%
6	1991	8.14%	12.55%	4.4%
7	1992	7.67%	12.09%	4.4%
8	1993	6.60%	11.41%	4.8%
9	1994	7.37%	11.34%	4.0%
10	1995	6.88%	11.55%	4.7%
11	1996	6.70%	11.39%	4.7%
12	1997	6.61%	11.40%	4.8%
13	1998	5.58%	11.66%	6.1%
14	1999	5.87%	10.77%	4.9%
15	2000	5.94%	11.43%	5.5%
16	2001	5.49%	11.09%	5.6%
17	2002	5.42%	11.16%	5.7%
18	2003	5.02%	10.97%	6.0%
19	2004	5.05%	10.75%	5.7%
20	2005	4.65%	10.54%	5.9%
21	2006	4.88%	10.36%	5.5%
22	2007	4.83%	10.36%	5.5%
23	2008	4.28%	10.46%	6.2%
24	2009	4.07%	10.48%	6.4%
25	2010	4.25%	10.34%	6.1%
26	2011	3.91%	10.29%	6.4%
27	2012	2.92%	10.17%	7.3%
28	2013	3.45%	10.03%	6.6%
29	2014	3.34%	9.91%	6.6%
30	2015	2.84%	9.85%	7.0%
31	2016	2.60%	9.77%	7.2%
32	2017	2.90%	9.74%	6.8%
33	2018	3.11%	9.64%	6.5%

35      **Average**      **5.54%**      **11.12%**      **5.58%**

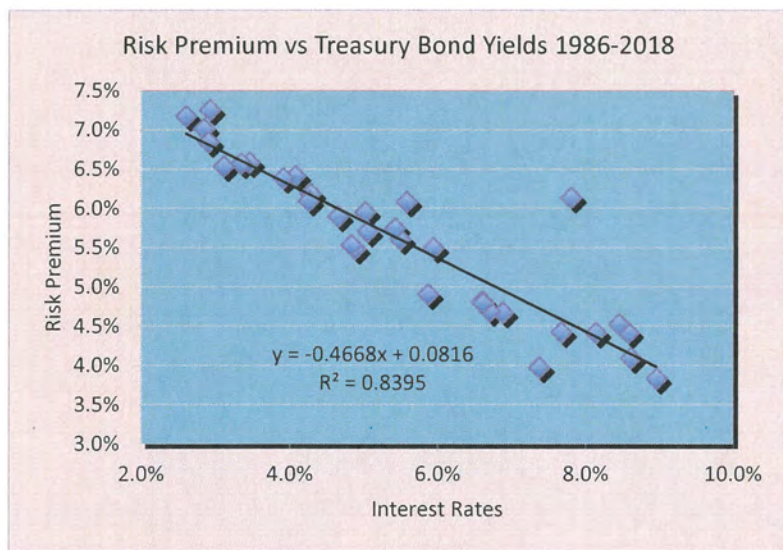
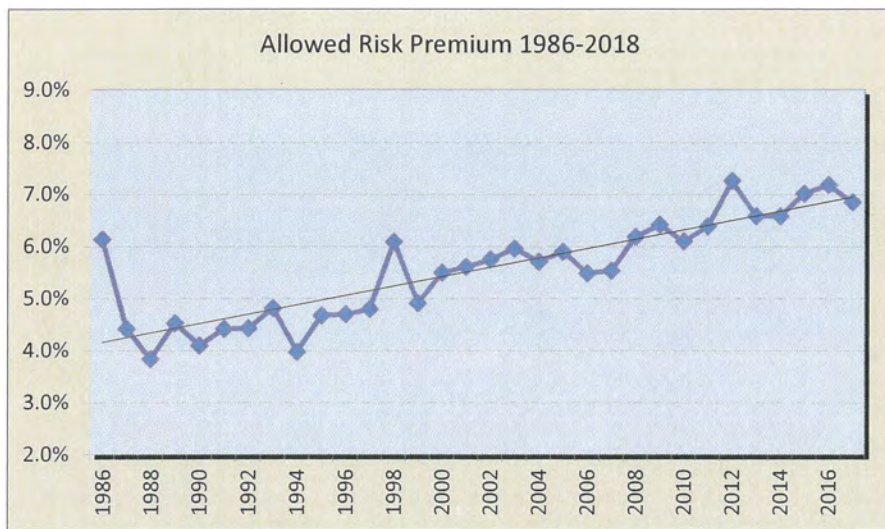
37 Sources:

38 1 Fed Reserve Board of Governors H.15 Release, 30-Yr Treasury rate

39 2 S&P Global Intelligence (Regulatory Research Associates)

40 *Major Rate Case Decisions 1986-2018*





IF YIELD = 4.20%  
 THEN RP = 6.20%  
 Ke = 10.40%

## APPENDIX A

### CAPM, EMPIRICAL CAPM

The Capital Asset Pricing Model (CAPM) is a fundamental paradigm of finance. Simply put, the fundamental idea underlying the CAPM is that risk-averse investors demand higher returns for assuming additional risk, and higher-risk securities are priced to yield higher expected returns than lower-risk securities. The CAPM quantifies the additional return, or risk premium, required for bearing incremental risk. It provides a formal risk-return relationship anchored on the basic idea that only market risk matters, as measured by beta. According to the CAPM, securities are priced such that their:

$$\text{EXPECTED RETURN} = \text{RISK-FREE RATE} + \text{RISK PREMIUM}$$

Denoting the risk-free rate by  $R_F$  and the return on the market as a whole by  $R_M$ , the CAPM is:

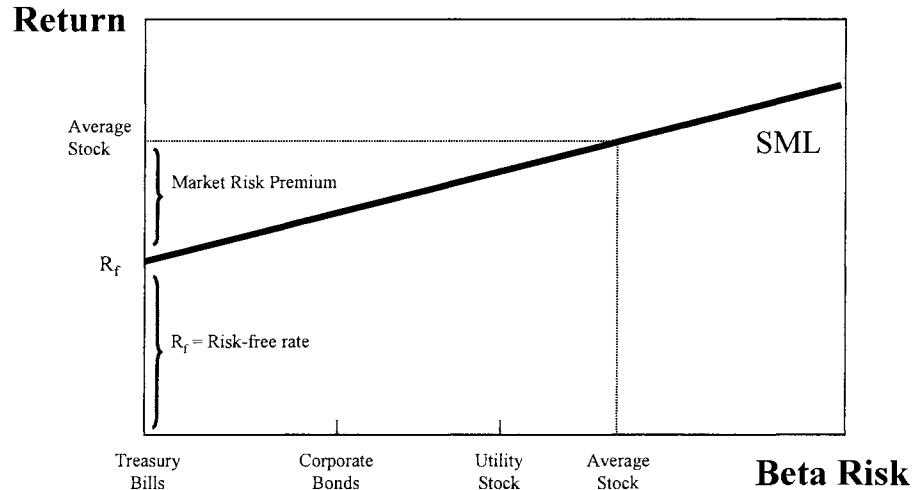
$$K = R_F + \beta(R_M - R_F) \quad (1)$$

Equation 1 is the CAPM expression which asserts that an investor expects to earn a return,  $K$ , that could be gained on a risk-free investment,  $R_F$ , plus a risk premium for assuming risk, proportional to the security's market risk, also known as beta,  $\beta$ , and the market risk premium,  $(R_M - R_F)$ , where  $R_M$  is the market return. The market risk premium  $(R_M - R_F)$  can be abbreviated MRP so that the CAPM becomes:

$$K = R_F + \beta \times \text{MRP} \quad (2)$$

The CAPM risk-return relationship is depicted in the figure below and is typically labeled as the Security Market Line (SML) by the investment community.

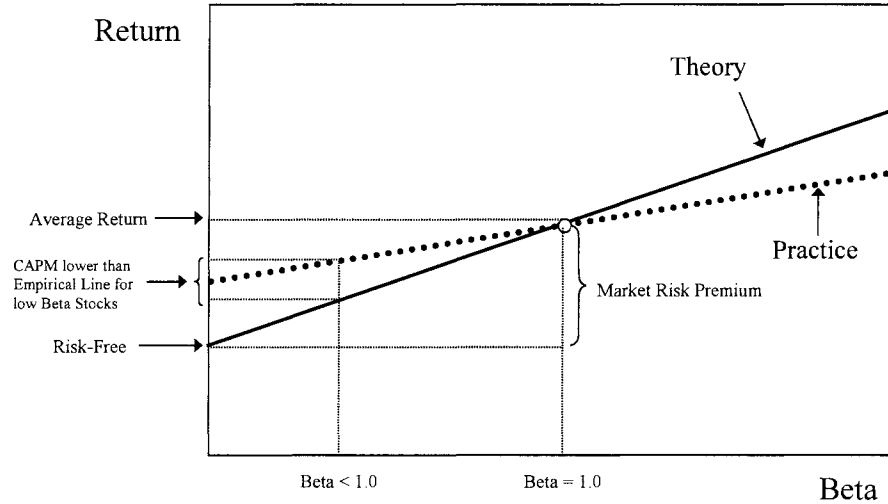
## CAPM and Risk - Return in Capital Markets



A myriad empirical tests of the CAPM have shown that the risk-return tradeoff is not as steeply sloped as that predicted by the CAPM, however. That is, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. In other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to beta: low-beta stocks tend to have higher returns and high-beta stocks tend to have lower risk returns than predicted by the CAPM. The difference between the CAPM and the type of relationship observed in the empirical studies is depicted in the figure below. This is one of the most widely known empirical findings of the finance literature. This extensive literature is summarized in Chapter 13 of Dr. Morin's book [Regulatory Finance, Public Utilities Report Inc., Arlington, VA, 1994].

## Risk vs Return

### Theory vs. Practice



A number of refinements and expanded versions of the original CAPM theory have been proposed to explain the empirical findings. These revised CAPMs typically produce a risk-return relationship that is flatter than the standard CAPM prediction. The following equation makes use of these empirical findings by flattening the slope of the risk-return relationship and increasing the intercept:

$$K = R_F + \alpha + \beta (MRP - \alpha) \quad (3)$$

where  $\alpha$  is the "alpha" of the risk-return line, a constant determined empirically, and the other symbols are defined as before. Alternatively, Equation 3 can be written as follows:

$$K = R_F + a MRP + (1-a) \beta MRP \quad (4)$$

where  $a$  is a fraction to be determined empirically. Comparing Equations 3 and 4, it is easy to see that alpha equals 'a' times MRP, that is,  $\alpha = a \times MRP$

## Theoretical Underpinnings

The obvious question becomes what would produce a risk return relationship which is flatter than the CAPM prediction, or in other words, how do you explain the presence of “alpha” in the above equation. The exclusion of variables aside from beta would produce this result. Three such variables are noteworthy: dividend yield, skewness, and hedging potential.

The dividend yield effects stem from the differential taxation on corporate dividends and capital gains. The standard CAPM does not consider the regularity of dividends received by investors. Utilities generally maintain high dividend payout ratios relative to the market, and by ignoring dividend yield, the CAPM provides biased cost of capital estimates. To the extent that dividend income is taxed at a higher rate than capital gains, investors will require higher pre-tax returns in order to equalize the after-tax returns provided by high-yielding stocks (e.g. utility stocks) with those of low-yielding stocks. In other words, high-yielding stocks must offer investors higher pre-tax returns. Even if dividends and capital gains are undifferentiated for tax purposes, there is still a tax bias in favor of earnings retention (lower dividend payout), as capital gains taxes are paid only when gains are realized.

Empirical studies by Litzenberger and Ramaswamy (1979) and Litzenberger et al. (1980) find that security returns are positively related to dividend yield as well as to beta. These results are consistent with after-tax extensions of the CAPM developed by Breenan (1973) and Litzenberger and Ramaswamy (1979) and suggest that the relationship between return, beta, and dividend yield should be estimated and employed to calculate the cost of equity capital.

As far as skewness is concerned, investors are more concerned with losing money than with total variability of return. If risk is defined as the probability of loss, it appears more logical to measure risk as the probability of achieving a return which is below the expected return. The traditional CAPM provides downward-biased estimates of cost of capital to the extent that these skewness effects are significant. As shown by Kraus and Litzenberger (1976), expected return depends on both on a stock's systematic risk (beta) and the systematic skewness. Empirical studies by Kraus and Litzenberger (1976), Friend, Westerfield, and Granito (1978), and Morin (1981) found that, in addition to beta, skewness of returns has a significant negative relationship with security returns. This

result is consistent with the skewness version of the CAPM developed by Rubinstein (1973) and Kraus and Litzenberger (1976).

This is particularly relevant for public utilities whose future profitability is constrained by the regulatory process on the upside and relatively unconstrained on the downside in the face of socio-political realities of public utility regulation. The process of regulation, by restricting the upward potential for returns and responding sluggishly on the downward side, may impart some asymmetry to the distribution of returns, and is more likely to result in utilities earning less, rather than more, than their cost of capital. The traditional CAPM provides downward-biased estimates of cost of capital to the extent that these skewness effects are significant.

As far as hedging potential is concerned, investors are exposed to another kind of risk, namely, the risk of unfavorable shifts in the investment opportunity set. Merton (1973) shows that investors will hold portfolios consisting of three funds: the risk-free asset, the market portfolio, and a portfolio whose returns are perfectly negatively correlated with the riskless asset so as to hedge against unforeseen changes in the future risk-free rate. The higher the degree of protection offered by an asset against unforeseen changes in interest rates, the lower the required return, and conversely. Merton argues that low beta assets, like utility stocks, offer little protection against changes in interest rates, and require higher returns than suggested by the standard CAPM.

Another explanation for the CAPM's inability to fully explain the process determining security returns involves the use of an inadequate or incomplete market index. Empirical studies to validate the CAPM invariably rely on some stock market index as a proxy for the true market portfolio. The exclusion of several asset categories from the definition of market index mis-specifies the CAPM and biases the results found using only stock market data. Kolbe and Read (1983) illustrate the biases in beta estimates which result from applying the CAPM to public utilities. Unfortunately, no comprehensive and easily accessible data exist for several classes of assets, such as mortgages and business investments, so that the exact relation between return and stock betas predicted by the CAPM does not exist. This suggests that the empirical relationship between returns and stock betas is best estimated empirically (ECAPM) rather than by relying on theoretical and elegant CAPM models expanded to include missing assets

effects. In any event, stock betas may be highly correlated with the true beta measured with the true market index.

Yet another explanation for the CAPM's inability to fully explain the observed risk-return tradeoff involves the possibility of constraints on investor borrowing that run counter to the assumptions of the CAPM. In response to this inadequacy, several versions of the CAPM have been developed by researchers. One of these versions is the so-called zero-beta, or two-factor, CAPM which provides for a risk-free return in a market where borrowing and lending rates are divergent. If borrowing rates and lending rates differ, or there is no risk-free borrowing or lending, or there is risk-free lending but no risk-free borrowing, then the CAPM has the following form:

$$K = R_Z + \beta(R_m - R_F)$$

The model, christened the zero-beta model, is analogous to the standard CAPM, but with the return on a minimum risk portfolio which is unrelated to market returns,  $R_Z$ , replacing the risk-free rate,  $R_F$ . The model has been empirically tested by Black, Jensen, and Scholes (1972), who found a flatter than predicted CAPM, consistent with the model and other researchers' findings.

The zero-beta CAPM cannot be literally employed in cost of capital projections, since the zero-beta portfolio is a statistical construct difficult to replicate.

### **Empirical Evidence**

A summary of the empirical evidence on the magnitude of alpha is provided in the table below.

<b>Empirical Evidence on the Alpha Factor</b>		
<b>Author</b>	<b>Range of alpha</b>	<b>Period relied</b>
Black (1993)	-3.6% to 3.6%	1931-1991
Black, Jensen and Scholes (1972)	-9.61% to 12.24%	1931-1965
Fama and McBeth (1972)	4.08% to 9.36%	1935-1968
Fama and French (1992)	10.08% to 13.56%	1941-1990
Litzenberger and Ramaswamy (1979)	5.32% to 8.17%	
Litzenberger, Ramaswamy and Sosin (1980)	1.63% to 5.04%	1926-1978
Pettengill, Sundaram and Mathur (1995)	4.6%	
Morin (1994)	2.0%	1926-1984
Harris, Marston, Mishra, and O'Brien (2003)	2.0%	1983-1998

Given the observed magnitude of alpha, the empirical evidence indicates that the risk-return relationship is flatter than that predicted by the CAPM. Typical of the empirical evidence is the findings cited in Morin (1989) over the period 1926-1984 indicating that the observed expected return on a security is related to its risk by the following equation:

$$K = .0829 + .0520 \beta$$

Given that the risk-free rate over the estimation period was approximately 6 percent, this relationship implies that the intercept of the risk-return relationship is higher than the 6 percent risk-free rate, contrary to the CAPM's prediction. Given that the average return on an average risk stock exceeded the risk-free rate by about 8.0 percent in that period, that is, the market risk premium ( $R_M - R_F$ ) = 8 percent, the intercept of the observed relationship between return and beta exceeds the risk-free rate by about 2 percent, suggesting an alpha factor of 2 percent.

Most of the empirical studies cited in the above table utilize raw betas rather than Value Line adjusted betas because the latter were not available over most of the time periods covered in these studies. A study of the relationship between return and adjusted beta is reported on Table 6-7 in Ibbotson Associates Valuation Yearbook 2001. If we



exclude the portfolio of very small cap stocks from the relationship due to significant size effects, the relationship between the arithmetic mean return and beta for the remaining portfolios is flatter than predicted and the intercept slightly higher than predicted by the CAPM, as shown on the graph below. It is noteworthy that the Ibbotson study relies on adjusted betas as stated on page 95 of the aforementioned study.

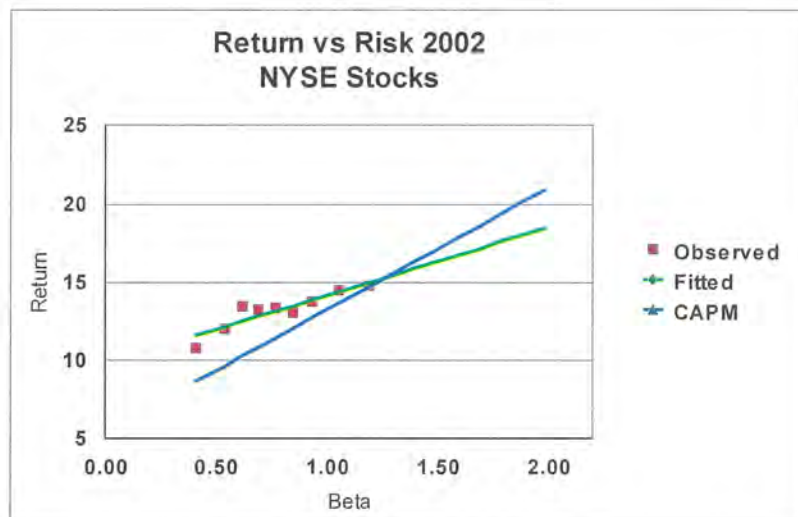
## CAPM vs ECAPM



Another study by Morin in May 2002 provides empirical support for the ECAPM. All the stocks covered in the Value Line Investment Survey for Windows for which betas and returns data were available were retained for analysis. There were nearly 2000 such stocks. The expected return was measured as the total shareholder return (“TSR”) reported by Value Line over the past ten years. The Value Line adjusted beta was also retrieved from the same data base. The nearly 2000 companies for which all data were available were ranked in ascending order of beta, from lowest to highest. In order to palliate measurement error, the nearly 2000 securities were grouped into ten portfolios of approximately 180 securities for each portfolio. The average returns and betas for each portfolio were as follows:

Portfolio #	Beta	Return
portfolio 1	0.41	10.87
portfolio 2	0.54	12.02
portfolio 3	0.62	13.50
portfolio 4	0.69	13.30
portfolio 5	0.77	13.39
portfolio 6	0.85	13.07
portfolio 7	0.94	13.75
portfolio 8	1.06	14.53
portfolio 9	1.19	14.78
portfolio 10	1.48	20.78

It is clear from the graph below that the observed relationship between DCF returns and Value Line adjusted betas is flatter than that predicted by the plain vanilla CAPM. The observed intercept is higher than the prevailing risk-free rate of 5.7 percent while the slope is less than equal to the market risk premium of 7.7 percent predicted by the plain vanilla CAPM for that period.



In an article published in Financial Management, Harris, Marston, Mishra, and O'Brien ("HMMO") estimate ex ante expected returns for S&P 500 companies over the period 1983-1998<sup>1</sup>. HMMO measure the expected rate of return (cost of equity) of each dividend-paying stock in the S&P 500 for each month from January 1983 to August 1998

<sup>1</sup> Harris, R. S., Marston, F. C., Mishra, D. R., and O'Brien, T. J., "Ex Ante Cost of Equity Estimates of S&P 500 Firms: The Choice Between Global and Domestic CAPM," Financial Management, Autumn 2003, pp. 51-66.

by using the constant growth DCF model. They then investigate the relation between the risk premium (expected return over the 20-year U.S. Treasury Bond yield) estimates for each month to equity betas as of that same month (5-year raw betas).

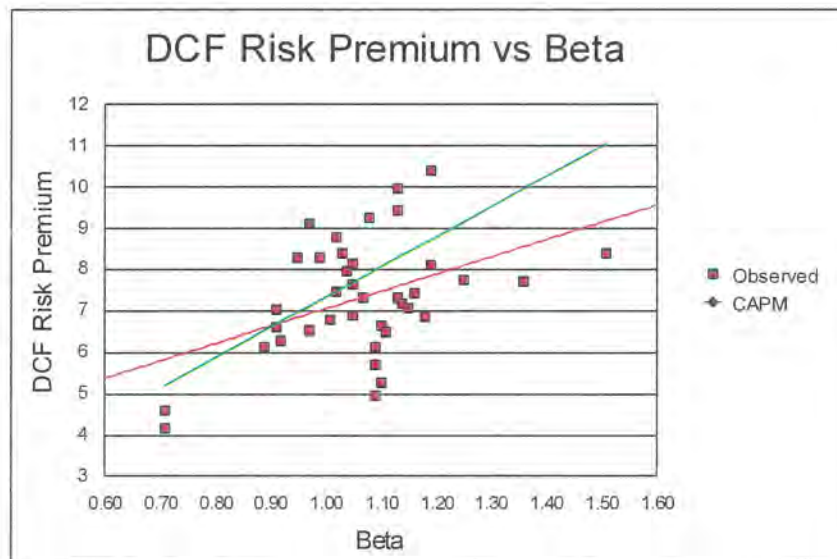
The table below, drawn from HMMO Table 4, displays the average estimate prospective risk premium (Column 2) by industry and the corresponding beta estimate for that industry, both in raw form (Column 3) and adjusted form (Column 4). The latter were calculated with the traditional Value Line – Merrill Lynch – Bloomberg adjustment methodology by giving 1/3 weight of to a beta estimate of 1.00 and 2/3 weight to the raw beta estimate.

**Table A-1 Risk Premium and Beta Estimates by Industry**

	Industry	DCF Risk Premium	Raw Industry Beta	Adjusted Industry Beta
	(1)	(2)	(3)	(4)
1	Aero	6.63	1.15	1.10
2	Autos	5.29	1.15	1.10
3	Banks	7.16	1.21	1.14
4	Beer	6.60	0.87	0.91
5	BldMat	6.84	1.27	1.18
6	Books	7.64	1.07	1.05
7	Boxes	8.39	1.04	1.03
8	BusSv	8.15	1.07	1.05
9	Chems	6.49	1.16	1.11
10	Chips	8.11	1.28	1.19
11	Clths	7.74	1.37	1.25
12	Cnstr	7.70	1.54	1.36
13	Comps	9.42	1.19	1.13
14	Drugs	8.29	0.99	0.99
15	ElcEq	6.89	1.08	1.05
16	Energy	6.29	0.88	0.92
17	Fin	8.38	1.76	1.51
18	Food	7.02	0.86	0.91
19	Fun	9.98	1.19	1.13
20	Gold	4.59	0.57	0.71
21	Hlth	10.40	1.29	1.19
22	Hsld	6.77	1.02	1.01
23	Insur	7.46	1.03	1.02
24	LabEq	7.31	1.10	1.07
25	Mach	7.32	1.20	1.13
26	Meals	7.98	1.06	1.04
27	MedEq	8.80	1.03	1.02
28	Pap	6.14	1.13	1.09
29	PerSv	9.12	0.95	0.97
30	Retail	9.27	1.12	1.08
31	Rubber	7.06	1.22	1.15
32	Ships	1.95	0.95	0.97
33	Stee	4.96	1.13	1.09

34	Tele	6.12	0.83	0.89
35	Toys	7.42	1.24	1.16
36	Trans	5.70	1.14	1.09
37	Txtls	6.52	0.95	0.97
38	Util	4.15	0.57	0.71
39	Whsl	8.29	0.92	0.95
	<b>MEAN</b>	<b>7.19</b>		

The observed statistical relationship between expected return and **adjusted beta** is shown in the graph below along with the CAPM prediction:



If the plain vanilla version of the CAPM is correct, then the intercept of the graph should be zero, recalling that the vertical axis represents returns in excess of the risk-free rate. Instead, the observed intercept is approximately 2 percent, that is approximately equal to 25 percent of the expected market risk premium of 7.2 percent shown at the bottom of Column 2 over the 1983-1998 period, as predicted by the ECAPM. The same is true for the slope of the graph. If the plain vanilla version of the CAPM is correct, then the slope of the relationship should equal the market risk premium of 7.2 percent. Instead, the observed slope of close to 5 percent is approximately equal to 75 percent of the expected market risk premium of 7.2 percent, as predicted by the ECAPM.

In short, the HMMO empirical findings are quite consistent with the predictions of the ECAPM.

**Practical Implementation of the ECAPM**

The empirical evidence reviewed above suggests that the expected return on a security is related to its risk by the following relationship:

$$K = R_F + \alpha + \beta (MRP - \alpha) \tag{5}$$

or, alternatively by the following equivalent relationship:

$$K = R_F + a MRP + (1-a) \beta MRP \tag{6}$$

The empirical findings support values of  $\alpha$  from approximately 2 percent to 7 percent. If one is using the short-term U.S. Treasury Bills yield as a proxy for the risk-free rate, and given that utility stocks have lower than average betas, an alpha in the lower range of the empirical findings, 2 percent - 3 percent is reasonable, albeit conservative.

Using the long-term U.S. Treasury yield as a proxy for the risk-free rate, a lower alpha adjustment is indicated. This is because the use of the long-term U.S. Treasury yield as a proxy for the risk-free rate partially incorporates the desired effect of using the ECAPM<sup>2</sup>. An alpha in the range of 1 percent - 2 percent is therefore reasonable.

To illustrate, consider a utility with a beta of 0.80. The risk-free rate is 5 percent, the MRP is 7 percent, and the alpha factor is 2 percent. The cost of capital is determined as follows:

$$\begin{aligned} K &= R_F + \alpha + \beta (MRP - \alpha) \\ K &= 5\% + 2\% + 0.80(7\% - 2\%) \\ &= 11\% \end{aligned}$$

---

<sup>2</sup> The Security Market Line (SML) using the long-term risk-free rate has a higher intercept and a flatter slope than the SML using the short-term risk-free rate

A practical alternative is to rely on the second variation of the ECAPM:

$$K = R_F + a \text{ MRP} + (1-a) \beta \text{ MRP}$$

With an alpha of 2 percent, a MRP in the 6 percent - 8 percent range, the 'a' coefficient is 0.25, and the ECAPM becomes<sup>3</sup>:

$$K = R_F + 0.25 \text{ MRP} + 0.75 \beta \text{ MRP}$$

Returning to the numerical example, the utility's cost of capital is:

$$\begin{aligned} K &= 5\% + 0.25 \times 7\% + 0.75 \times 0.80 \times 7\% \\ &= 11\% \end{aligned}$$

For reasonable values of beta and the MRP, both renditions of the ECAPM produce results that are virtually identical<sup>4</sup>.

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<sup>3</sup> Recall that alpha equals 'a' times MRP, that is,  $\alpha = a \text{ MRP}$ , and therefore  $a = \alpha / \text{MRP}$ . If alpha is 2 percent, then  $a = 0.25$

<sup>4</sup> In the Morin (1994) study, the value of "a" was actually derived by systematically varying the constant "a" in equation 6 from 0 to 1 in steps of 0.05 and choosing that value of 'a' that minimized the mean square error between the observed relationship between return and beta:

$$K = 0.0829 + .0520 \beta$$

The value of a that best explained the observed relationship was 0.25.

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## *APPENDIX B*

### *FLOTATION COST ALLOWANCE*

To obtain the final cost of equity financing from the investors' expected rate of return, it is necessary to make allowance for underpricing, which is the sum of market pressure, costs of flotation, and underwriting fees associated with new issues. Allowance for market pressure should be made because large blocks of new stock may cause significant pressure on market prices even in stable markets. Allowance must also be made for company costs of flotation (including such items as printing, legal and accounting expenses) and for underwriting fees.

#### 1. MAGNITUDE OF FLOTATION COSTS

According to empirical studies, underwriting costs and expenses average at least 4% of gross proceeds for utility stock offerings in the U.S. (See Logue & Jarrow: "Negotiations vs. Competitive Bidding in the Sale of Securities by Public Utilities", Financial Management, Fall 1978.) A study of 641 common stock issues by 95 electric utilities identified a flotation cost allowance of 5.0%. (See Borum & Malley: "Total Flotation Cost for Electric Company Equity Issues", Public Utilities Fortnightly, Feb. 20, 1986.)

Empirical studies suggest an allowance of 1% for market pressure in U.S. studies. Logue and Jarrow found that the absolute magnitude of the relative price decline due to market pressure was less than 1.5%. Bowyer and Yawitz examined 278 public utility stock issues and found an average market pressure of 0.72%. (See Bowyer & Yawitz, "The Effect of New Equity Issues on Utility Stock Prices", Public Utilities Fortnightly, May 22, 1980.)

Eckbo & Masulis ("Rights vs. Underwritten Stock Offerings: An Empirical Analysis", University of British Columbia, Working Paper No. 1208, Sept., 1987) found an average flotation cost of 4.175% for utility common stock offerings. Moreover, flotation costs increased progressively for

smaller size issues. They also found that the relative price decline due to market pressure in the days surrounding the announcement amounted to slightly more than 1.5%. In a classic and monumental study published in the prestigious Journal of Financial Economics by a prominent scholar, a market pressure effect of 3.14% for industrial stock issues and 0.75% for utility common stock issues was found (see Smith, C.W., "Investment Banking and the Capital Acquisition Process," Journal of Financial Economics 15, 1986). Other studies of market pressure are reported in Logue ("On the Pricing of Unseasoned Equity Offerings," Journal of Financial and Quantitative Analysis, Jan. 1973), Pettway ("The Effects of New Equity Sales Upon Utility Share Prices," Public Utilities Fortnightly, May 10 1984), and Reilly and Hatfield ("Investor Experience with New Stock Issues," Financial Analysts' Journal, Sept.-Oct. 1969). In the Pettway study, the market pressure effect for a sample of 368 public utility equity sales was in the range of 2% to 3%. Adding the direct and indirect effects of utility common stock issues, the indicated total flotation cost allowance is above 5.0%, corroborating the results of earlier studies.

As shown in the table below, a comprehensive empirical study by Lee, Lochhead, Ritter, and Zhao, "The Costs of Raising Capital," Journal of Financial Research, Vol. XIX, NO. 1, Spring 1996, shows average direct flotation costs for equity offerings of 3.5% - 5% for stock issues between \$60 and \$500 million. Allowing for market pressure costs raises the flotation cost allowance to well above 5%.

**FLOTATION COSTS: RAISING EXTERNAL CAPITAL**

(Percent of Total Capital Raised)

<u>Amount Raised in \$ Millions</u>	<u>Average Flotation Cost: Common Stock</u>	<u>Average Flotation Cost: New Debt</u>
\$ 2 - 9.99	13.28%	4.39%
10 - 19.99	8.72	2.76
20 - 39.99	6.93	2.42
40 - 59.99	5.87	1.32
60 - 79.99	5.18	2.34
80 - 99.99	4.73	2.16
100 - 199.99	4.22	2.31
200 - 499.99	3.47	2.19
500 and Up	3.15	1.64

Note: Flotation costs for IPOs are about 17 percent of the value of common stock issued if the amount raised is less than \$10 million and about 6 percent if more than \$500 million is raised. Flotation costs are somewhat lower for utilities than others.

Source: Lee, Inmoo, Scott Lochhead, Jay Ritter, and Quanshui Zhao, "The Costs of Raising Capital," *The Journal of Financial Research*, Spring 1996.

Therefore, based on empirical studies, total flotation costs including market pressure amount to approximately 5% of gross proceeds. I have therefore assumed a 5% gross total flotation cost allowance in my cost of capital analyses.

**2. APPLICATION OF THE FLOTATION COST ADJUSTMENT**

The section below shows: 1) why it is necessary to apply an allowance of 5% to the dividend

yield component of equity cost by dividing that yield by 0.95 (100% - 5%) to obtain the fair return on equity capital, and 2) why the flotation adjustment is permanently required to avoid confiscation even if no further stock issues are contemplated. Flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years.

Flotation costs are just as real as costs incurred to build utility plant. Fair regulatory treatment absolutely must permit the recovery of these costs. An analogy with bond issues is useful to understand the treatment of flotation costs in the case of common stocks.

In the case of a bond issue, flotation costs are not expensed but are rather amortized over the life of the bond, and the annual amortization charge is embedded in the cost of service. This is analogous to the process of depreciation, which allows the recovery of funds invested in utility plant. The recovery of bond flotation expense continues year after year, irrespective of whether the company issues new debt capital in the future, until recovery is complete. In the case of common stock that has no finite life, flotation costs are not amortized. Therefore, the recovery of flotation cost requires an upward adjustment to the allowed return on equity. Roger A. Morin, Regulatory Finance, Public Utilities Reports Inc., Arlington, Va., 1994, provides numerical illustrations that show that even if a utility does not contemplate any additional common stock issues, a flotation cost adjustment is still permanently required. Examples there also demonstrate that the allowance applies to retained earnings as well as to the original capital.

From the standard DCF model, the investor's required return on equity capital is expressed as:

$$K = D_1/P_0 + g$$

If  $P_0$  is regarded as the proceeds per share actually received by the company from which dividends and earnings will be generated, that is,  $P_0$  equals  $B_0$ , the book value per share, then the company's required return is:

$$r = D_1/B_0 + g$$

Denoting the percentage flotation costs 'f', proceeds per share  $B_0$  are related to market price  $P_0$  as follows:

$$P - fP = B_0$$

$$P(1 - f) = B_0$$

Substituting the latter equation into the above expression for return on equity, we obtain:

$$r = D_1/P(1-f) + g$$

that is, the utility's required return adjusted for underpricing. For flotation costs of 5%, dividing the expected dividend yield by 0.95 will produce the adjusted cost of equity capital. For a dividend yield of 6% for example, the magnitude of the adjustment is 32 basis points:  $.06/.95 = .0632$ .

In deriving DCF estimates of fair return on equity, it is therefore necessary to apply a conservative after-tax allowance of 5% to the dividend yield component of equity cost.

Even if no further stock issues are contemplated, the flotation adjustment is still permanently required to keep shareholders whole. Flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years, even if no future financing is contemplated. This is demonstrated by the numerical example contained in pages 7-9 of this Appendix. Moreover, even if the stock price, hence the DCF estimate of equity return, fully reflected the lack of permanent allowance, the company always nets less than the market price. Only the net proceeds from an equity issue are used to add to the rate base on which the investor earns. A permanent allowance for flotation costs must be authorized in order to insure that in each year the investor earns the required return on the total amount of capital actually supplied.

The example shown on pages 7-9 shows the flotation cost adjustment process using illustrative, yet realistic, market data. The assumptions used in the computation are shown on page 7. The stock is selling in the market for \$25, investors expect the firm to pay a dividend of \$2.25 that will grow at a rate of 5% thereafter. The traditional DCF cost of equity is thus  $k = D/P + g = 2.25/25 + .05 = 14\%$ . The firm sells one share stock, incurring a flotation cost of 5%. The traditional DCF cost of equity adjusted for flotation cost is thus  $ROE = D/P(1-f) + g = .09/.95 + .05 = 14.47\%$ .

The initial book value (rate base) is the net proceeds from the stock issue, which are \$23.75, that is, the market price less the 5% flotation costs. The example demonstrates that only if the company is allowed to earn 14.47% on rate base will investors earn their cost of equity of 14%. On page 8, Column 1 shows the initial common stock account, Column 2 the cumulative retained earnings balance, starting

at zero, and steadily increasing from the retention of earnings. Total equity in Column 3 is the sum of common stock capital and retained earnings. The stock price in Column 4 is obtained from the seminal DCF formula:  $D_1/(k - g)$ . Earnings per share in Column 6 are simply the allowed return of 14.47% times the total common equity base. Dividends start at \$2.25 and grow at 5% thereafter, which they must do if investors are to earn a 14% return. The dividend payout ratio remains constant, as per the assumption of the DCF model. All quantities, stock price, book value, earnings, and dividends grow at a 5% rate, as shown at the bottom of the relevant columns. Only if the company is allowed to earn 14.47% on equity do investors earn 14%. For example, if the company is allowed only 14%, the stock price drops from \$26.25 to \$26.13 in the second year, inflicting a loss on shareholders. This is shown on page 9. The growth rate drops from 5% to 4.53%. Thus, investors only earn  $9\% + 4.53\% = 13.53\%$  on their investment. It is noteworthy that the adjustment is always required each and every year, whether or not new stock issues are sold in the future, and that the allowed return on equity must be earned on total equity, including retained earnings, for investors to earn the cost of equity.

**ASSUMPTIONS:**

ISSUE PRICE = \$25.00  
FLOTATION COST = 5.00%  
DIVIDEND YIELD = 9.00%  
GROWTH = 5.00%

EQUITY RETURN = **14.00%**  
(D/P + g)  
ALLOWED RETURN ON EQUITY = **14.47%**  
(D/P(1-f) + g)

Yr	COMMON STOCK (1)	RETAINED EARNINGS (2)	TOTAL EQUITY (3)	STOCK PRICE (4)	MARKET	EPS (6)	DPS (7)	PAYOUT (8)
					/ BOOK RATIO (5)			
1	\$23.75	\$0.000	\$23.750	\$25.000	1.0526	\$3.438	\$2.250	65.45%
2	\$23.75	\$1.188	\$24.938	\$26.250	1.0526	\$3.609	\$2.363	65.45%
3	\$23.75	\$2.434	\$26.184	\$27.563	1.0526	\$3.790	\$2.481	65.45%
4	\$23.75	\$3.744	\$27.494	\$28.941	1.0526	\$3.979	\$2.605	65.45%
5	\$23.75	\$5.118	\$28.868	\$30.388	1.0526	\$4.178	\$2.735	65.45%
6	\$23.75	\$6.562	\$30.312	\$31.907	1.0526	\$4.387	\$2.872	65.45%
7	\$23.75	\$8.077	\$31.827	\$33.502	1.0526	\$4.607	\$3.015	65.45%
8	\$23.75	\$9.669	\$33.419	\$35.178	1.0526	\$4.837	\$3.166	65.45%
9	\$23.75	\$11.340	\$35.090	\$36.936	1.0526	\$5.079	\$3.324	65.45%
10	\$23.75	\$13.094	\$36.844	\$38.783	1.0526	\$5.333	\$3.490	65.45%

	5.00%	5.00%
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5.00%	5.00%
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Yr	COMMON	RETAINED	TOTAL	STOCK	MARKET/ BOOK	EPS	DPS	PAYOUT
	STOCK	EARNINGS	EQUITY	PRICE	RATIO	(6)	(7)	(8)
	(1)	(2)	(3)	(4)	(5)			
1	\$23.75	\$0.000	\$23.750	\$25.000	1.0526	\$3.325	\$2.250	67.67%
2	\$23.75	\$1.075	\$24.825	\$26.132	1.0526	\$3.476	\$2.352	67.67%
3	\$23.75	\$2.199	\$25.949	\$27.314	1.0526	\$3.633	\$2.458	67.67%
4	\$23.75	\$3.373	\$27.123	\$28.551	1.0526	\$3.797	\$2.570	67.67%
5	\$23.75	\$4.601	\$28.351	\$29.843	1.0526	\$3.969	\$2.686	67.67%
6	\$23.75	\$5.884	\$29.634	\$31.194	1.0526	\$4.149	\$2.807	67.67%
7	\$23.75	\$7.225	\$30.975	\$32.606	1.0526	\$4.337	\$2.935	67.67%
8	\$23.75	\$8.627	\$32.377	\$34.082	1.0526	\$4.533	\$3.067	67.67%
9	\$23.75	\$10.093	\$33.843	\$35.624	1.0526	\$4.738	\$3.206	67.67%
10	\$23.75	\$11.625	\$35.375	\$37.237	1.0526	\$4.952	\$3.351	67.67%

4.53%

4.53%

4.53%

4.53%

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

The Electronic Application of Duke )  
Energy Kentucky, Inc., for: 1) An )  
Adjustment of the Electric Rates; 2) ) Case No. 2019-00271  
Approval of New Tariffs; 3) Approval of )  
Accounting Practices to Establish )  
Regulatory Assets and Liabilities; and 4) )  
All Other Required Approvals and Relief. )

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**DIRECT TESTIMONY OF**

**JAMES MICHAEL MOSLEY**

**ON BEHALF OF**

**DUKE ENERGY KENTUCKY, INC.**

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September 3, 2019

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**I. INTRODUCTION AND PURPOSE**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is James Michael Mosley and business address is 1000 East Main  
3 Street, Plainfield, IN 46168.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am Vice President Midwest Generation for Duke Energy Business Services, LLC  
6 (DEBS). DEBS is a service company subsidiary of Duke Energy Corporation  
7 (Duke Energy), which provides services to Duke Energy and its subsidiaries,  
8 including Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company).

9 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND**  
10 **PROFESSIONAL BACKGROUNDS.**

11 A. I graduated from Mississippi State University with a B.S. in Mechanical  
12 Engineering and am a licensed Professional Engineer. Since graduating, I have  
13 acquired over 31 years of experience in the aerospace, chemical, and power  
14 industries, of which over 15 years have been with Duke Energy/Progress Energy.  
15 My significant, relevant positions with Duke Energy and its predecessor  
16 companies include: Fuels, Operations and Maintenance Superintendent roles at  
17 the Roxboro and Mayo Stations (North Carolina); Manager of Maintenance at the  
18 Roxboro Station; Plant Manager roles at the Robinson and Darlington County  
19 Stations (South Carolina); Plant Manager roles at the Weatherspoon and Roxboro  
20 Stations (North Carolina); and General Manager at Gibson Station (Indiana). I  
21 assumed my current position as Vice President Midwest Generation in July 2018.

1 **Q. PLEASE SUMMARIZE YOUR DUTIES AS VICE PRESIDENT**  
2 **MIDWEST GENERATION.**

3 A. In this role, I am responsible for providing safe, compliant and reliable operation  
4 of Duke Energy's Midwest generation fleet, which includes four coal, one  
5 combined cycle, one hydro, six simple cycle combustion turbine, and three solar  
6 sites serving Kentucky, Indiana, and Ohio, which combined provide over 7,800  
7 MWs of generation. My primary responsibilities include managing the fleet within  
8 design parameters and implementing work practices and procedures that ensure  
9 safe and regulatorily compliant operation and maintenance activities.

10 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY**  
11 **PUBLIC SERVICE COMMISSION?**

12 A. No

13 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
14 **PROCEEDING?**

15 A. I describe the Company's three generating stations, East Bend, the Miami Fort  
16 Generating Station Unit No. 6 (Miami Fort 6) and Woodsdale Combustion  
17 Turbines (Woodsdale) (collectively the Plants). I explain how these stations are or  
18 were used to provide safe, affordable, reliable, and reasonable electric service to  
19 Duke Energy Kentucky's customers and the Company's continued investment in  
20 these stations. I discuss the retirement of Duke Energy Kentucky's Miami Fort 6.  
21 Finally, I sponsor part of the information in the capital budget relating to the  
22 Plants contained in Filing Requirements (FR) 16(7)(b), FR 16(7)(f) and FR

1 16(7)(g), which I provided to Duke Energy Kentucky witness Mr. Christopher  
2 Jacobi for the forecasted financial data.

**II. GENERAL DESCRIPTION OF DUKE ENERGY KENTUCKY'S**  
**GENERATING STATIONS**

**A. EAST BEND**

3 **Q. PLEASE DESCRIBE EAST BEND.**

4 A. East Bend is a 648 megawatt (MW) (nameplate rating) coal-fired steam unit  
5 located along the Ohio River in Boone County, Kentucky. East Bend was  
6 commissioned in 1981 and the Company now owns 100 percent of the station,  
7 having completed the purchase of the Dayton Power and Light Company's 31  
8 percent interest in the station in 2014.

9 The nameplate ratings are the ratings provided by the manufacturer of the  
10 generating equipment and these ratings are engraved on a nameplate that is affixed  
11 to the equipment. The net ratings represent the net amount of power that we can  
12 dispatch from the plants after some portion of the gross power output is used to  
13 power the plant machinery. The net rating for East Bend is 600 MWs. East Bend  
14 was originally planned for up to four coal-fired units but only one unit (Unit 2)  
15 was constructed. The station has river facilities to allow barge deliveries of coal  
16 and lime. East Bend is designed to burn eastern bituminous coal and achieved a  
17 net plant heat rate of 11,016Btu/kWh for calendar year 2018. The major pollution  
18 control features are: a high-efficiency hot side electrostatic precipitator, a lime-  
19 based wet flue gas desulfurization (FGD) system, and a selective catalytic  
20 reduction control (SCR) system designed to reduce nitrogen oxide (NO<sub>x</sub>)

1 emissions by 85 percent. The FGD system was upgraded in 2005 to increase the  
2 sulfur dioxide (SO<sub>2</sub>) emissions removal to an average of 97 percent. The station's  
3 electrical output is directly connected to the Duke Energy Midwest (consisting of  
4 Kentucky and Ohio) 345 kilovolt (kV) transmission system.

5 **Q. PLEASE PROVIDE A SUMMARY OF THE HANDLING, STORAGE,**  
6 **AND DISPOSAL OF COAL COMBUSTION RESIDUALS (CCR) AT EAST**  
7 **BEND.**

8 A. The storage, treatment and disposal of coal combustion residuals (CCRs) at East  
9 Bend, primarily fixated scrubber byproduct (Poz-O-Tec), fly ash and bottom ash,  
10 historically have been handled through the onsite ash basin and landfills. The  
11 presence of the basin and landfills enabled Duke Energy Kentucky to manage its  
12 costs of providing safe and reliable electric service by eliminating the need to  
13 transport to and pay for disposal of the generator waste in commercial landfills.

14 Historically, approximately 80 percent of the ash produced at East Bend  
15 was dry fly ash. As part of the disposal process, that material is mixed with the  
16 spent scrubber slurry and lime to make a stable material called Poz-O-Tec. The  
17 Poz-O-Tec mixture sets up much like concrete and it is disposed of in the onsite  
18 landfill. The remaining 20 percent of ash is bottom ash that was treated and stored  
19 in the onsite ash basin prior to February 2018. In February of 2018, all bottom ash  
20 sluicing to the ash basin ceased preceding installation and commissioning of a  
21 new Dry Bottom Ash (DBA) handling system. All the bottom ash is now loaded  
22 into trucks and hauled to the stations West Landfill for disposal.

1 **Q. PLEASE DESCRIBE THE LANDFILL STATUS AT EAST BEND.**

2 A. There are two permitted landfills at East Bend, the East Landfill, which is nearing  
3 capacity, and its replacement, the West Landfill.

4 The East Landfill is comprised of approximately 162 acres and has been in  
5 place since East Bend was constructed in 1981. The East Landfill's original  
6 construction pre-dated Coal Combustion Residual Final Rule (CCR Final Rule)  
7 effective date but, the areas of the landfill currently without permanent cover  
8 material, will eventually have to be capped in a manner that complies with the  
9 CCR Final Rule.

10 The East and West Landfills are permitted to receive various forms of  
11 waste, including, but not limited to, FGD waste, fly ash, and bottom ash  
12 (Generator Waste), from a number of generating sources, including those  
13 generating stations currently owned and/or operated by Duke Energy Kentucky  
14 and for generating stations for other Kentucky utilities and Ohio-based electric  
15 generators. The Landfills are permitted to receive Generator Waste from sources  
16 other than East Bend to ensure that Duke Energy Kentucky has sufficient dry fly  
17 ash material available to make the Poz-O-Tec byproduct necessary to operate the  
18 station's FGD handling process. This permitting for multiple stations' fly ash is a  
19 benefit because the station, at times, does not produce sufficient quantities of ash  
20 to make the Poz-O-Tec. The West Landfill design and estimated life contemplated  
21 the likely need to convert East Bend to a 100 percent dry ash disposal system.



1 **Q. WHY IS THE WEST LANDFILL NECESSARY?**

2 A. The West Landfill will eventually replace East Bend's East Landfill once it is  
3 completely closed due to reaching capacity. The West Landfill allows East Bend  
4 to have a dedicated resource for generator waste disposal for many years to come  
5 and continue to dispose waste material from East Bend on site, rather than  
6 incurring costs to transport to and dispose of the waste material at third-party-  
7 owned landfills.

8 In terms of overall footprint, the West Landfill will cover approximately  
9 204 acres of land on the East Bend campus with a total of eight cells. This 204-  
10 acre footprint is comprised of the first five cells and the eighth cell. Cells six and  
11 seven will be constructed directly on top of cells one through five. The first cell  
12 is estimated to comprise approximately 38 acres of land. Cells two and three are  
13 estimated to each comprise approximately 37 acres of land. Cells four and five  
14 are estimated at approximately 31 acres each of land. Cell number six is  
15 estimated at approximately 41 acres of land and cell seven is approximately 36  
16 acres. Cell eight is estimated at 28 acres.

17 The Company received approval to commence construction of the first cell  
18 of the West Landfill in Case No. 2015-00089. As part of that approval, the  
19 Commission directed the Company to seek a new certificate of public  
20 convenience and necessity (CPCN) for each subsequent phase or cell of the West  
21 Landfill before commencing construction. Duke Energy Kentucky received

1 authorization to commence construction of the second cell on December 10, 2018,  
2 in Case No. 2018-00156.<sup>1</sup>

3 **Q. PLEASE DESCRIBE THE ASH BASIN AT EAST BEND.**

4 A. The Basin was also commissioned in 1981 and it has a volume of 1,844 acre-feet.  
5 It is currently being closed and all bottom ash is being removed. Once cleaned of  
6 the ash, the basin will be repurposed to treat plant water streams, such as coal pile  
7 run-off and landfill leachate before they are discharged to the Ohio River from the  
8 basin under the National Pollutant Discharge Elimination System (NPDES)  
9 permit.

10 The Company received authorization to close the East Bend basin in Case  
11 No. 2016-00398 to comply with the CCR Final Rule and other applicable  
12 environmental regulations.

13 **Q. PLEASE DESCRIBE WHAT ACTIONS THE COMPANY IS**  
14 **CURRENTLY DOING TO MAINTAIN RELIABILITY AT EAST BEND.**

15 A. Duke Energy Kentucky follows a regular maintenance schedule for all of its  
16 plants, including East Bend. Generally speaking, the stations have periodic  
17 maintenance activities scheduled during off-peak seasons in the spring and/or fall.  
18 Typically, outage duration can range from 1 to 12 weeks depending on project  
19 scope. Outage and project scopes are determined utilizing various sources and  
20 techniques such as condition assessments, operational data, OEM

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<sup>1</sup> *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc., for a Certificate of Public Convenience and Necessity to Construct Phase Two of its West Landfill and Approval to Amend its Environmental Compliance Plan for Recovery by Environmental Surcharge Mechanism, Case No. 2018-00156 (Ky. P.S.C. Order) (December 10, 2018).*

1 recommendations, etc. In the spring of 2021, the Company has scheduled an 8-  
2 week outage at East Bend to perform significant maintenance to the station's  
3 turbine, generator, boiler, and FGD. The major scope of work associated with the  
4 East Bend 2021 Outage includes a complete rewind of the Generator Stator,  
5 significant maintenance of Boiler fuel, steam, and water components, Main Low-  
6 Pressure Turbine blade evaluation, and FGD Absorber Module Inlet Nozzle  
7 refurbishment. This scope of work is part of the reliability plan to sustain  
8 reliability and long-term operation.

9 **Q. PLEASE BRIEFLY DESCRIBE DUKE ENERGY KENTUCKY'S RECENT**  
10 **CAPITAL INVESTMENTS IN EAST BEND THAT ARE DRIVEN BY**  
11 **ENVIRONMENTAL COMPLIANCE STRATEGY.**

12 A. Duke Energy Kentucky has continuous capital investments at its Plants as part of  
13 normal operations. In the last three years, the Company has made significant  
14 compliance investments at East Bend driven by recent changes in Federal  
15 Environmental Regulations enacted by the U.S. Environmental Protection Agency  
16 (EPA) including the CCR Final Rule and Electric Effluent Limitation Guidelines  
17 (ELG) Final Rule.

18 The two recent rules, CCR Final Rule and ELG Final Rule, have been the  
19 catalyst for the Company's most recent CPCN applications for a new Dry Bottom  
20 Ash Handling System in Case No. 2016-00268,<sup>2</sup> Water Redirection, Pond Closure

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<sup>2</sup> *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc., for a Certificate of Public Convenience and Necessity for Dry Bottom Ash Conversion of the East Bend Generating Station, Case No. 2016-00268, Ky. P.S.C. February 23, 2017.*

1 and Repurposing in Case No. 2016-00398,<sup>3</sup> other ash accounting and handling  
2 costs and liabilities as discussed in Case No. 2015-00187<sup>4</sup> and a second cell to its  
3 West Landfill as I previously mentioned.

4 **Q. PLEASE SUMMARIZE THE COMPANY'S DRY BOTTOM ASH**  
5 **CONVERSION AND THE STATUS OF THIS PROJECT.**

6 A. Duke Energy Kentucky received Commission approval for this project by Order  
7 dated February 23, 2017, in Case No. 2016-00268. East Bend was initially  
8 designed such that boiler bottom ash is collected in a wet bottom ash hopper at the  
9 base of the boiler and then it sluiced to the ash basin. The CCR Final Rule and  
10 ELG Final Rule prohibit future sluicing of bottom ash to a basin necessitating that  
11 bottom ash begin to be collected in a dry state and be disposed of in a landfill. The  
12 conversion of the existing wet bottom ash sluicing system includes construction of  
13 a Submerged Flight Conveyor (SFC) bottom ash removal system. The  
14 construction required demolition of the existing bottom ash sluicing system and  
15 installation of the new under-boiler SFC for dewatering bottom ash, economizer  
16 ash, and mill rejects. The Company is constructing a permanent dewatered bottom  
17 ash storage area and truck load out area for trucking to the existing Landfills for  
18 final disposal.

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<sup>3</sup> *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc., for a Certificate of Public Convenience and Necessity Authorizing the Company to Close the East Bend Generating Station Coal Ash Impoundment and for All Other Required Approvals and Relief*, Case No. 2016-00398 Ky. P.S.C. June 6, 2017.

<sup>4</sup> *In the Matter of the Application of Duke Energy Kentucky, Inc., for an Order Approving the Establishment of a Regulatory Asset for the Liabilities Associated with Ash Pond Asset Retirement Obligations*, Case No. 2015-00187 Ky. P.S.C. December 15, 2015.

1           The Company ceased sluicing of bottom ash in February 2018 at the  
2 initiation of an outage that included SFC installation and commissioning  
3 activities. The system was placed in-service at the conclusion of the outage in  
4 June 2018.

5 **Q. PLEASE SUMMARIZE THE STATUS OF THE COMPANY'S WATER**  
6 **REDIRECTION, POND CLOSURE AND REPURPOSING PROJECT.**

7 A. Duke Energy Kentucky filed its CPCN application for this project in December  
8 2016, Case No. 2016-00398. The Commission approved the Company's CPCN  
9 request on June 6, 2017, and the Company placed the Water Redirection project  
10 in-service on March 31, 2019. As part of this project, the west side of the basin  
11 was repurposed for retention and placed in-service on November 30, 2018. The  
12 removal of remaining ash from the basin was substantially completed in July  
13 2019. Repurposing of the east part of the retention basin work is approximately 20  
14 percent complete and is planned to be in-service by the end of 2019 to comply  
15 with the CCR Final Rule and ELG Final Rule, as well as other Kentucky  
16 environmental regulations.

17 **Q. IS EAST BEND USED AND USEFUL FOR SERVING DUKE ENERGY**  
18 **KENTUCKY'S NATIVE LOAD CUSTOMERS?**

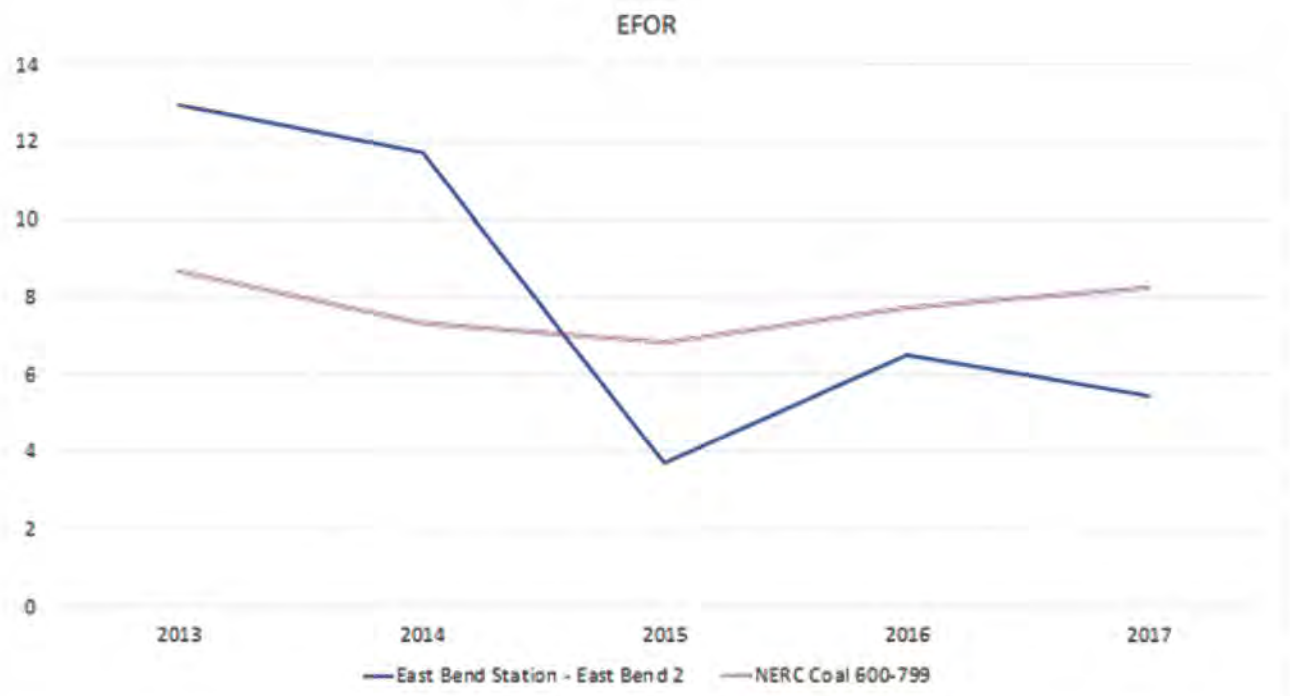
19 A. Yes. East Bend, as described above, is a high quality generating asset relative to  
20 the age and condition of comparable generating plants. One useful measure of the  
21 performance of a coal-fired generating station is the Equivalent Forced Outage  
22 Rate (EFOR), which is equal to the hours of unit forced unavailability (unplanned  
23 outage hours and equivalent unplanned derated hours) given as a percentage of the

1 total hours of service plus the unavailability of that unit (unplanned outage,  
2 unplanned derate, and service hours). For example, if PJM Interconnection LLC  
3 (PJM) anticipated a unit to run 1,000 hours in a certain year but the unit was  
4 unable to run 100 of those hours due to unexpected problems, the unit's EFOR  
5 would be 10%. A low EFOR number is desirable.

6 The chart below provides a summary of East Bend's EFOR, and compares it to the  
7 EFOR reported for North American Electric Reliability Corporation ("NERC")  
8 coal-fired units over the same period.<sup>5</sup>

9

*Graph 1*



10 Higher EFOR in years 2013 and 2014 was directly influenced by a series

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<sup>5</sup> NERC comparison data for 2018 was not available when this testimony was filed.

1 of tube failure in the units superheater and reheater sections that were addressed in  
2 the planned Spring 2014 outage. As illustrated in the chart, efforts to maintain  
3 reliability performance has since been sustained at a rate better than industry  
4 standards.

**B. WOODSDALE**

**5 Q. PLEASE DESCRIBE WOODSDALE.**

6 A. Woodsdale is a six-unit, simple cycle, combustion turbine (CT) station located in  
7 Butler County, Ohio, just north of Cincinnati, with a collective net winter rating of  
8 564 MW and a net summer rating of 462 MW. Woodsdale was designed to  
9 provide peaking service and to have black start and dual fuel capability. Black  
10 start capability means that the station has the ability to initiate a recovery of a  
11 substantial portion of load without relying on energy from outside sources if the  
12 regional grid experiences a blackout. The black start capability is initiated by an  
13 Allison 501-KB gas turbine that serves as a back-up power source and allows the  
14 station to start generating energy without power from the electric grid.  
15 Historically, the dual fuel capability was provided through the ability to burn both  
16 natural gas and propane. The propane dual fuel service was provided through  
17 direct pipeline access to the nearby Todhunter propane Storage Cavern  
18 (Todhunter) that was owned and operated by, Enterprise TE Products Pipeline  
19 Company LLC. In 2013, Todhunter was closed due to structural issues with no  
20 strategy to re-open, leaving Woodsdale without a sustainable secondary fuel  
21 source. On December 21, 2017, in Case No. 2017-00186, the Commission  
22 authorized Duke Energy Kentucky to construct a new backup ultra-low sulfur

1 diesel fuel (ULSD) system for Woodsdale. Duke Energy Kentucky finished  
2 construction and successfully commissioned the system in May 2019.

3 Woodsdale is connected to the Texas Eastern Transmission Company  
4 (TETCO) interstate pipeline that transports natural gas to supply the station. The  
5 design of Woodsdale as a peaking unit with low capacity factors does not support  
6 acquiring firm natural gas transportation through the available natural gas  
7 interstate pipelines.

8 **Q. PLEASE EXPLAIN WHY WOODSDALE BEING DESIGNED FOR**  
9 **PEAKING CAPABILITY IS SIGNIFICANT.**

10 A. By design, peaking units run infrequently for short periods to meet peak demand.  
11 As a result, peaking units have a much lower capacity factor than baseload units  
12 or intermediate load units. Woodsdale, like most natural gas CTs are generally  
13 dispatched in response to market price signals. These units have great flexibility in  
14 terms of operation and can start, ramp up and down quickly in response to  
15 changes in the energy markets and reliability. Consequently, their higher  
16 production cost versus a base load coal station like East Bend or an intermediate  
17 combined cycle generating station makes Woodsdale (and all peaking units) fall  
18 lower on the list in terms of resource dispatch stacking. Even with the lower  
19 market prices of natural gas that have been experienced in recent years,  
20 Woodsdale is not dispatched frequently enough to justify firm natural gas  
21 contracts.



1 **Q. PLEASE DESCRIBE WHAT ACTIONS THE COMPANY IS**  
2 **CURRENTLY DOING TO MAINTAIN OR ENHANCE RELIABILITY AT**  
3 **WOODSDALE.**

4 A. Duke Energy Kentucky follows similar periodic maintenance cycles for the  
5 Woodsdale units that I mentioned above.

**C. MIAMI FORT 6**

6 **Q. PLEASE DESCRIBE MIAMI FORT 6.**

7 A. Miami Fort 6 is a 168 MW (nameplate rating) coal-fired base/intermediate load  
8 unit located at Miami Fort Station along the Ohio River in Hamilton County,  
9 Ohio, that was commissioned in 1960. The net rating was 163 MWs. Miami Fort  
10 6 was retired effective June 1, 2015, consistent with the Commission's Order in  
11 Case No. 2014-00201 as a result of the enactment of the USEPA's Mercury Air  
12 Toxics Standard (MATS) Rule.

13 At the time of its retirement, Unit 6 was one of three operating coal-fired  
14 units at the Miami Fort Generating Station. While Duke Energy Kentucky wholly  
15 owns Miami Fort Unit 6, Miami Fort Units 7 and 8 are now jointly owned by  
16 Dynegy Inc., (Dynegy) (64 percent) and DP&L (36 percent). Duke Energy Ohio  
17 sold its interests in the Miami Fort Generating Station to Dynegy in 2016. As the  
18 current majority station owner, Dynegy operated Miami Fort Unit 6 on behalf of  
19 Duke Energy Kentucky until the unit's retirement, and today still provides basic  
20 maintenance and upkeep services at the station until it is fully decommissioned.  
21 Dynegy provides these services in accordance with an operating agreement that  
22 was approved by the Commission in Case No. 2014-00287. Duke Energy

1 Kentucky is also responsible for ongoing costs associated with certain shared  
2 station facilities and equipment pursuant to leases approved by the Commission in  
3 Case No. 2003-00202, wherein Duke Energy Kentucky acquired the Plants from  
4 Duke Energy Ohio (f/k/a The Cincinnati Gas & Electric Company).

5 **Q. PLEASE DESCRIBE THE STATUS OF THE RETIREMENT OF DUKE**  
6 **ENERGY KENTUCKY'S MIAMI FORT 6.**

7 A. Miami Fort 6 officially retired from commercial operation on June 1, 2015. As  
8 part of the retirement of this asset, Duke Energy Kentucky must now take action  
9 to make sure that the Miami Fort 6 facilities are decommissioned in a safe and  
10 reasonable manner. This includes removing necessary equipment and facilities to  
11 ensure that no safety or environmental hazards exist. Because of the close  
12 proximity of Miami Fort 6 and shared facilities with other station generating units  
13 that are still in operation, the Company cannot immediately perform all necessary  
14 decommissioning and demolition work. Rather, that work must occur  
15 methodically over time so as not to interfere with operation of the other station  
16 units or personnel working at the station. Activities commenced to date include:

- 17 • Removal of all lubricating/insulating oils, chemicals, and CCR  
18 materials from the generating unit and systems started in April 2018  
19 and was completed in September 2018;
- 20 • Removal of all asbestos containing material (ACM) from the  
21 generating unit/ductwork and facilities competitively bid for vendor  
22 selection process. Expected to be complete by November 2019;

- 1                   • Removal of coal conveyor systems associated with Unit 6 with  
2                   subsequent modification to existing facilities for continued operations.  
3                   (e.g. – power, air and service water re-routes / building enclosure  
4                   seals);
- 5                   • Unit 6 electrical isolation from balance of station – decoupling; and
- 6                   • Chimney condition assessment and minor repairs with longer term  
7                   recommended maintenance work under evaluation is expected to be  
8                   complete by September 2019 and evaluation to be complete by June  
9                   2020 for additional actions.

**III. FILING REQUIREMENTS SPONSORED BY WITNESS**

10 **Q. PLEASE DESCRIBE THE INFORMATION YOU SPONSOR IN FR**  
11 **16(7)(b).**

12 A. FR 16(7)(b) consists of the most recent capital construction budget containing the  
13 forecasted construction expenditures for a minimum of three years. I provided the  
14 forecasted capital construction budget for the Plants contained in FR 16(7)(b) and  
15 for Mr. Jacobi’s use for the forecasted financial data.

16 **Q. PLEASE DESCRIBE THE INFORMATION YOU SPONSOR IN FR**  
17 **16(7)(f).**

18 A. FR 16(7)(f) includes the following information for major projects constituting five  
19 percent or more of the annual construction budget during the three-year capital  
20 expenditure forecast: the starting date and completion date for each project and  
21 construction cost per year. I provided this information for the Plants contained in  
22 FR 16(7)(f).

1 **Q. PLEASE DESCRIBE THE INFORMATION YOU SPONSOR IN FR**  
2 **16(7)(g).**

3 A. FR 16(7)(g) includes the following information for projects constituting less than  
4 five percent of the annual construction budget during the three-year capital  
5 expenditure forecast: the starting date and completion date for each project and  
6 construction cost per year. I provided this information for the Plants contained in  
7 FR 16(7)(g).

#### IV. CONCLUSION

8 **Q. IS THE INFORMATION ON PLANT CONSTRUCTION PROJECTS AND**  
9 **OUTAGES YOU PROVIDED TO OTHER WITNESSES ACCURATE, TO**  
10 **THE BEST OF YOUR KNOWLEDGE AND BELIEF?**

11 A. Yes.

12 **Q. WAS THE INFORMATION YOU SPONSOR IN FR 16(7)(b), FR 16(7)(f)**  
13 **AND FR 16(7)(g), PREPARED BY YOU AT YOUR DIRECTION?**

14 A. Yes.

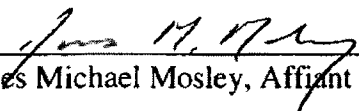
15 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

16 A. Yes.

**VERIFICATION**

**STATE OF INDIANA** )  
 ) **SS:**  
**COUNTY OF HENDRICKS** )

The undersigned, James Michael Mosley, Vice President Midwest Generation, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing testimony and that it is true and correct to the best of his knowledge, information and belief.

  
James Michael Mosley, Affiant

Subscribed and sworn to before me by James Michael Mosley on this 13 day of August, 2019.

  
NOTARY PUBLIC

My Commission Expires: 10/9/25

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

The Electronic Application of Duke )  
Energy Kentucky, Inc., for: 1) An )  
Adjustment of the Electric Rates; 2) ) Case No. 2019-00271  
Approval of New Tariffs; 3) Approval of )  
Accounting Practices to Establish )  
Regulatory Assets and Liabilities; and 4) )  
All Other Required Approvals and Relief. )

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**DIRECT TESTIMONY OF**

**ASH M. NORTON**

**ON BEHALF OF**

**DUKE ENERGY KENTUCKY, INC**

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September 3, 2019

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**ATTACHMENT:**

Attachment AMN-1 RELIABILITY PROGRAMS

**I. INTRODUCTION AND PURPOSE**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Ash M. Norton and my business address is 2010 Dana Ave,  
3 Cincinnati OH 45207.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Duke Energy Business Services LLC (DEBS) as Director  
6 Distribution Design Engineering. DEBS provides various administrative and other  
7 services to Duke Energy Kentucky, Inc., (Duke Energy Kentucky or the  
8 Company) and other affiliated companies of Duke Energy Corporation (Duke  
9 Energy).

10 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND**  
11 **AND BUSINESS EXPERIENCE.**

12 A. I earned a Bachelor of Science degree in Chemical Engineering from the  
13 University of Cincinnati in 2007. While in school, I completed six terms of co-  
14 operative experience with Cinergy, working in various departments related to  
15 power generation. Upon graduation, I served as the Laboratory Supervisor at  
16 Duke Energy Kentucky's East Bend Generating Station, leading the team of  
17 chemistry technicians responsible for analyzing and monitoring various water  
18 samples throughout the station.

19 In 2010, I became the Midwest Cycle Chemistry Subject Matter Expert  
20 (SME), responsible for providing internal consultation on cycle chemistry  
21 performance for Duke Energy's coal-fired and combined cycle generating stations



1 in the Midwest. While serving in this role, I earned a Masters of Business  
2 Administration from Thomas More College.

3 In 2012, I became the Manager of Fleet Consulting Services, leading the  
4 team of Cycle Chemistry and Wastewater Treatment SMEs that supported Duke  
5 Energy's fleet of coal-fired and combined cycle generating stations.

6 In July 2018, I became the Direct of Distribution Design Engineering,  
7 leading the team of managers and designers responsible for designing the electric  
8 distribution system within Duke Energy Kentucky and Duke Energy Ohio.

9 **Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AS DIRECTOR**  
10 **DISTRIBUTION DESIGN ENGINEERING.**

11 A. In my current role, I am responsible for the distribution integrity programs for  
12 Duke Energy's regulated utility operations in Kentucky and Ohio. I am also  
13 responsible for engineering and design for line extensions for new businesses in  
14 the Duke Energy Kentucky and Duke Energy Ohio service territories.

15 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY**  
16 **PUBLIC SERVICE COMMISSION (COMMISSION)?**

17 A. No.

18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
19 **PROCEEDING?**

20 A. The purpose of my testimony is: (1) to describe Duke Energy Kentucky's electric  
21 delivery system; (2) to explain Duke Energy Kentucky's overall policies relating  
22 to the design, construction, operation and maintenance of the Company's electric  
23 delivery facilities; and (3) to explain the need for continued investment in the

1 electric delivery system in order to maintain system reliability. I also sponsor part  
2 of the information in the capital budget relating to the Company's local  
3 transmission and distribution facilities contained in Filing Requirements (FR)  
4 16(7)(b), FR 16(7)(f) and FR 16(7)(g), which I provided to Duke Energy  
5 Kentucky witness Mr. Christopher Jacobi for the forecasted financial data.

**II. DUKE ENERGY KENTUCKY'S ELECTRIC DISTRIBUTION SYSTEM  
FACILITIES AND POLICIES RELATING TO DESIGN,  
CONSTRUCTION, OPERATION AND MAINTENANCE  
OF ITS TRANSMISSION AND DISTRIBUTION SYSTEM**

6 **Q. PLEASE GENERALLY DESCRIBE THE DUKE ENERGY KENTUCKY**  
7 **ELECTRIC DELIVERY SYSTEM.**

8 A. Duke Energy Kentucky's electric delivery system is used, among other things, to  
9 deliver retail electric service to approximately 142,900 customers located  
10 throughout our service area in the Commonwealth of Kentucky, and is spread  
11 throughout six counties in the northern part of the Commonwealth. Duke Energy  
12 Kentucky owns and operates all of its electric distribution and local transmission  
13 facilities. Its parent, Duke Energy Ohio, owns and operates, subject to the  
14 functional control of PJM Interconnection, LLC, (PJM) the bulk transmission  
15 facilities located in Duke Energy Kentucky's service territory. Duke Energy  
16 Kentucky owns, operates, and maintains approximately 107 miles of transmission  
17 lines operating at 69 kilovolts (kV) and approximately 2,146 miles of primary  
18 distribution lines operating at 34.5 kV or lower and approximately 787 miles of  
19 secondary distribution circuits operating at 480 volts or below. The delivery  
20 system also includes approximately 43 combined transmission and distribution  
21 substations with a combined capacity of approximately 1,928,000 kVA and

1 various other equipment and facilities. The Duke Energy Kentucky electric  
2 system is interconnected with East Kentucky Power Cooperative via a 69-kV tie  
3 line at the Kenton substation. It is primarily served by transmission facilities  
4 within Duke Energy Midwest which, in turn, is directly interconnected with a  
5 total of ten transmission owning utilities, the majority of whom are in PJM or  
6 Midcontinent Independent System Operator (MISO).

7 Duke Energy Kentucky's electric delivery system includes various other  
8 equipment and facilities such as control rooms, computers, capacitors, street  
9 lights, meters, and protective, relay and telecommunications equipment and  
10 facilities.

11 Duke Energy Kentucky electric delivery system provides considerable  
12 flexibility for Duke Energy Kentucky to operate in a manner that provides reliable  
13 and economic power to our customers.

14 **Q. PLEASE GENERALLY DESCRIBE HOW DUKE ENERGY**  
15 **KENTUCKY'S ELECTRIC DELIVERY SYSTEM HAS GROWN SINCE**  
16 **MARCH 31, 2019 (THE TEST PERIOD FROM DUKE ENERGY**  
17 **KENTUCKY'S LAST RETAIL ELECTRIC RATE CASE).**

18 A. Duke Energy Kentucky's electric delivery system has grown considerably. In the  
19 Company's last electric base rate case, Duke Energy Kentucky's forecasted cost  
20 of electric delivery system plant in service was \$485,008,652 (thirteen-month  
21 average forecasted balance ending March 31, 2019), As of March 31, 2019, Duke  
22 Energy Kentucky's actual cost of electric delivery system plant in service was  
23 \$491,099,939. The Company's forecasted test year (thirteen-month average

1 balance ending March 31, 2021) in this case is projecting the balance to be  
2 \$581,657,991.

3 As a further example, by March 31, 2021, Duke Energy Kentucky plans to  
4 increase the distribution substation transformer capacity by approximately 268  
5 kVA. Investments like these have been necessary to maintain safe, reliable,  
6 efficient and economical electric delivery service for our existing customers.

7 **Q. PLEASE EXPLAIN WHAT HAS DRIVEN THIS INVESTMENT.**

8 A. A primary driver for this additional investment has been, and will be, localized  
9 load growth. Duke Energy Kentucky is experiencing significant development in  
10 specific areas of its service territory in Northern Kentucky where additional  
11 capacity and facilities are necessary to provide safe, reliable and adequate service.  
12 This growth includes commercial, retail, industrial, and residential customers.

13 While the Company's total load growth across its entire system may not  
14 appear to be changing significantly, this localized growth on specific circuits  
15 necessitates investment where the current facilities are not able to support the  
16 development. An example of this localized growth is the Donaldson Substation  
17 Expansion project. This expansion is driven by growth related to several customer  
18 projects including Amazon Air Hub, Erlanger Commerce Center, and Marydale  
19 Business Park, among several others. Between these three specific projects  
20 approximately 1325 acres of land will be developed resulting in approximately  
21 9,422,000 square feet of building space and projected demand of approximately  
22 97.4 MVA.

**Table 1 – Project Size and Demand Impacting Donaldson Substation Expansion**

	<b>Land Development (Acres)</b>	<b>Building Space (Square Feet)</b>	<b>Projected Demand (Mega Volt Amp)</b>
Amazon Air Hub	920	3,000,000	80.0
Erlanger Commerce Center	135	1,800,000	5.4
Marydale Business Park	270	4,622,000*	12.0
<b>Total</b>	<b>1325</b>	<b>9,422,000</b>	<b>97.4</b>

\*Estimated Available for Development

1           Additionally, the Company has focused its investment strategy into maintaining  
2           and improving reliability in its electric delivery system. Such reliability  
3           investments include, but are not limited to, a measured deployment of self-  
4           optimizing grid technologies designed to minimize outage durations and enable  
5           faster restorations, as well as the replacement of aging infrastructure.  
6           Additionally, investments are also now necessary to meet our customers' evolving  
7           and increased expectations, all of which I describe later in my testimony.

8                        These investments are necessary to continue to provide our customers with  
9           the safe, reliable and efficient service they desire and deserve.

10   **Q.    IN YOUR OPINION, ARE DUKE ENERGY KENTUCKY'S ELECTRIC**  
11   **DELIVERY SYSTEM FACILITIES USED AND USEFUL IN PROVIDING**  
12   **SERVICE TO DUKE ENERGY KENTUCKY'S RETAIL ELECTRIC**  
13   **CUSTOMERS?**

14   A.    Yes, they are used daily to provide safe, reliable, efficient and economical electric  
15   delivery service to our customers.

1 **Q. PLEASE GENERALLY DESCRIBE HOW THE TRANSMISSION AND**  
2 **DISTRIBUTION SYSTEM IS DESIGNED, CONSTRUCTED AND**  
3 **OPERATED.**

4 A. The electric transmission system is designed to deliver bulk electric power from  
5 local generating plants and other resources to regional substations, or to  
6 interconnect with other systems in order to enhance system reliability. The  
7 transmission voltages used by Duke Energy Kentucky are 69 kV and 138 kV. As I  
8 previously mentioned, Duke Energy Ohio owns the bulk transmission system in  
9 northern Kentucky, consisting of 138 kV and above. There are also two 69 kV  
10 circuits in Kentucky owned by Duke Energy Kentucky. The system generally  
11 consists of steel tower or wood pole transmission lines and substations with power  
12 transformers, switches, circuit breakers and associated equipment. The physical  
13 design of the system is generally governed by the National Electrical Safety Code  
14 (NESC), which I understand is adopted in Kentucky through KRS § 278.042. The  
15 bulk transmission system is under the control authority of PJM, a regional  
16 transmission organization approved by the Federal Energy Regulatory  
17 Commission (FERC). Under PJM's authority, the bulk transmission system is  
18 operated in accordance with the reliability standards developed by the North  
19 American Electric Reliability Corporation (NERC) and any regional standards  
20 developed by ReliabilityFirst Corporation. NERC is the Electric Reliability  
21 Organization designated by the FERC under the Federal Power Act of 2005 to  
22 develop mandatory and enforceable reliability standards.

1           The electric distribution system is designed to receive bulk power at  
2 transmission voltages, reduce the voltage to 12.5 kV, and deliver power to  
3 customers' premises. The distribution system generally consists of substation  
4 power transformers, switches, circuit breakers, wood pole lines, underground  
5 cables, distribution transformers, and associated equipment. The physical design  
6 of the distribution system is also generally governed by the NESC.

7           Duke Energy Kentucky operates the transmission and distribution  
8 facilities it owns in accordance with good utility practice. Duke Energy Kentucky  
9 continuously runs the system with a workforce that works to provide customer  
10 service twenty-four hours per day, seven days per week, three hundred, sixty-five  
11 days per year, including trouble response crews. Duke Energy Kentucky regulates  
12 equipment loading in accordance with good utility practice. The Company  
13 monitors outages with various systems, such as Supervisory Control and Data  
14 Acquisition (SCADA), Distribution Outage Management System (DOMS), and  
15 the Distribution Management System (DMS).

16 **Q. HOW DOES DUKE ENERGY KENTUCKY DISCOVER AND ADDRESS**  
17 **SYSTEM OUTAGES TODAY?**

18 A. Customers typically report outages by telephone through Duke Energy's call  
19 center. The call center creates an outage report through a telephone software  
20 application that interfaces with DOMS, a state-of-the-art outage management  
21 software application that Duke Energy Kentucky implemented in 2011 to improve  
22 its ability to monitor and respond to outages. Additionally, some outages are

1 reported automatically through the SCADA system remotely and modeled in  
2 DOMS.

3 DOMS analyzes the calls and identifies for Duke Energy Kentucky's  
4 dispatchers the piece of equipment (e.g., circuit breaker, recloser, fuse, and  
5 transformer) that is the probable location of the outage. The dispatcher contacts  
6 the field trouble response person through the radio system to direct them to the  
7 probable equipment location to make repairs and restore electric service.  
8 Generally, the field trouble response person inspects the circuit or segment of line  
9 in question to identify and report the cause of the outage. The dispatcher records  
10 the date, time, duration, and cause of the outage in DOMS.

11 Dispatchers continuously monitor weather conditions, both in anticipation  
12 of and during weather events. When lightning, wind, or ice storms hit Duke  
13 Energy Kentucky's service territory, line crews are paged, called, or held over to  
14 respond. Duke Energy Kentucky will call in several hundred employees, as  
15 necessary, to respond to severe storms, including Duke Energy's utility  
16 employees stationed in Ohio, Indiana, North Carolina, South Carolina, and  
17 Florida. If necessary, Duke Energy Kentucky will contact other utilities for  
18 additional line crews, through a mutual assistance program.

19 **Q. HOW WILL DUKE ENERGY KENTUCKY'S RECENTLY COMPLETED**  
20 **AMI DEPLOYMENT IMPACT OUTAGE RESTORATION?**

21 A. The AMI devices are integrated into the DOMs to enable better outage response.  
22 Duke Energy Kentucky is able to "ping" groups of meters or individual meters to  
23 better and more efficiently locate outages and determine whether service has been



1 restored for customers. Mass meter pinging can be performed to assess where  
2 power is out on the system and, after restoration work is performed, whether all  
3 the affected customers have been restored. When the Company is clearing single-  
4 outage tickets toward the end of a storm outage event, individual meters can be  
5 pinged to confirm whether service has been restored, rather than visiting or  
6 calling customers for confirmation.

7 **Q. PLEASE GENERALLY DESCRIBE HOW DUKE ENERGY**  
8 **KENTUCKY'S DISTRIBUTION SYSTEM IS MAINTAINED.**

9 A. Duke Energy Kentucky maintains its distribution infrastructure in accordance  
10 with good utility practice by adhering to inspections, monitoring, testing, and  
11 periodic maintenance programs. Examples of these existing programs include,  
12 but are not limited to, the following: (1) substation inspection program; (2) line  
13 inspection program; (3) ground-line inspection and treatment program; (4)  
14 vegetation management program; (5) underground cable replacement program;  
15 (6) capacitor maintenance program; and (7) dissolved gas analysis in substations.  
16 Attachment AMN-1 is a list and description of Duke Energy Kentucky's current  
17 Distribution and Reliability Programs. Duke Energy Kentucky also uses various  
18 reliability indices to measure the effectiveness of its maintenance programs and  
19 system reliability.

1 **Q. WHAT ARE THE COMPANY'S OBJECTIVES IN DESIGNING,**  
2 **CONSTRUCTING, OPERATING AND MAINTAINING ITS**  
3 **DISTRIBUTION FACILITIES?**

4 A. In designing, constructing, operating and maintaining its facilities, the Company  
5 strives to provide safe, cost-effective and reliable electric service.

6 **Q. PLEASE DESCRIBE SOME OF THE FACTORS THAT THE COMPANY**  
7 **MUST CONSIDER IN ATTEMPTING TO ACHIEVE THESE**  
8 **OBJECTIVES.**

9 A. In providing electric service to its customers, the Company must provide safe and  
10 reliable service while at the same time prudently and responsibly managing the  
11 costs of providing such service. The Company weighs various factors in selecting  
12 the electric delivery system projects in which to invest, including the Company's  
13 planning criteria, any requirements mandated either by regulatory authorities or  
14 reliability councils, and project cost versus customer benefits, to name a few.

15 **Q. HOW DOES THE COMPANY BALANCE ALL OF THESE FACTORS?**

16 A. Annually, electric system studies are performed to determine where and when  
17 system modifications are needed to ensure load is adequately served. When these  
18 needs are identified, solutions are developed, addressing not only the capacity  
19 need, but also providing opportunities to maintain or improve reliability and  
20 operating flexibility. Recommendations are made and discussed with the  
21 operations staff to ensure a balanced, workable plan has been developed. To  
22 support and improve this effort Duke Energy Kentucky uses a distribution system

1 planning software tool that allows for quicker, more detailed analysis of the  
2 system.

3 In the course of maintaining and operating the electric system, equipment  
4 and hardware is identified that requires repair or replacement. Specific projects  
5 are developed to address areas requiring upgrades and investment. These items  
6 are triggered as a result of operating issues, new load growth, or as a result of the  
7 various inspection, monitoring, and testing programs I described above.

8 **Q. PLEASE DESCRIBE THE INVESTMENTS THAT DUKE ENERGY**  
9 **KENTUCKY IS MAKING TO ITS DELIVERY SYSTEM TO ENHANCE**  
10 **OR IMPROVE HOW IT PROVIDES SERVICE TO ITS CUSTOMERS.**

11 A. Duke Energy Kentucky strives to provide safe, reliable and affordable utility  
12 service. As customers expect more from the Company, it must invest in the  
13 electric delivery system grid to provide increased reliable service. Duke Energy  
14 Kentucky will utilize technology that supports faster restoration, effectively  
15 decreasing the inconveniences of its customers. The Company is moving from a  
16 static grid that may employ limited and pre-determined solutions through manual  
17 switching to a self-optimizing grid that responds quickly and automatically to  
18 failures and mitigates them by finding the most efficient real-time solution to  
19 restore customers. The difference between static and dynamic operation is the use  
20 of the real-time data to determine the best solution to restore service. The new  
21 grid will use automation and intelligence to manage itself and maximize the  
22 reliability customers experience in real time.

1 Today, the Company's system is constructed for one-way power flow in a  
2 radial design with limited ability to integrate renewable energy. As time  
3 progresses, this system will eventually evolve into a self-optimizing system.

4 **Q. PLEASE BRIEFLY EXPLAIN THE TERM SELF-OPTIMIZING GRID.**

5 A. The term self-optimizing grid refers to a series of interconnected and  
6 sectionalized distribution circuits that allow for smaller amounts of customers to  
7 be affected by faults on the system and shorter duration of outages when those  
8 faults occur. These self-optimizing grid investments seek to: (1) increase system  
9 "connectivity" by building more circuit ties that allow for more flexibility in  
10 restoration options. By tying more circuits together the system will shift from a  
11 radial design to more of a "spider web" design; (2) increase "capacity" by  
12 installing larger wires and additional system transformers banks to be able to  
13 handle dynamic switching and increased two-way power flow from adjacent  
14 circuits and renewable generation; and (3) increase "control" through additional  
15 system automation and intelligence. Increased automation and intelligence is  
16 becoming a necessary requirement to manage an increasingly dynamic system.

17 With increased connectivity, capacity, and control, the Company will have  
18 an increasingly more resilient system with greater flexibility in restoration  
19 options. Instead of having circuit pairs that can back each other up, the network  
20 allows for multiple options to re-energize circuit segments.

21 Presently, the Company is slowly and prudently making these investments  
22 over time and in the ordinary course of business as its distribution circuits need  
23 upgrading due to age, capacity needs, or changes in performance that dictate such

1 an upgrade is desired. The Company projects a need to upgrade approximately  
2 five to ten circuits per year as part of normal maintenance and investment. At the  
3 present deployment rate, a fully self-optimizing distribution grid capability will  
4 take more than a decade to achieve.

**III. MEASURING THE RELIABILITY OF DUKE ENERGY KENTUCKY'S  
ELECTRIC DELIVERY SYSTEM**

5 **Q. YOU STATED THAT DUKE ENERGY KENTUCKY USES VARIOUS**  
6 **INDICES TO MEASURE THE EFFECTIVENESS OF ITS**  
7 **MAINTENANCE PROGRAMS AND SYSTEM RELIABILITY. PLEASE**  
8 **EXPLAIN THESE RELIABILITY INDICES.**

9 A. These reliability indices are generally recognized standards for measuring the  
10 number, scope and duration of outages. These indices are defined as follows:

11 1) Customer Average Interruption Duration Index (CAIDI) is the average  
12 interruption duration or average time to restore service per interrupted customer,  
13 and is expressed by the sum of the customer interruption durations divided by the  
14 total number of customer interruptions;

15 2) System Average Interruption Duration Index (SAIDI) is the average  
16 time each customer is interrupted, and is expressed by the sum of customer  
17 interruption durations divided by the total number of customers served; and

18 3) System Average Interruption Frequency Index (SAIFI) is the system  
19 average interruption frequency index, and represents the average number of  
20 interruptions per customer. SAIFI is expressed by the total number of customer  
21 interruptions divided by the total number of customers served.

1 **Q. DOES DUKE ENERGY KENTUCKY REGULARLY REPORT ITS**  
2 **SYSTEM PERFORMANCE TO THE COMMISSION?**

3 A. Yes. The Company files annual reliability reports in accordance with the  
4 Commission's Order in Administrative Case No. 2011-00450 that directed  
5 utilities to file annual reliability reports of SAIDI and SAIFI on a system-wide  
6 basis showing total circuits and five-year averages both including and excluding  
7 major event days. The Company also submits circuit reporting identifying which,  
8 if any circuits have a SAIDI or SAIFI score that exceeds the five-year average,  
9 along with an explanation of any corrective actions taken. Additionally, the  
10 Company files an annual report of its vegetation management activities.

11 **Q. HOW HAS DUKE ENERGY KENTUCKY'S SYSTEM PERFORMED AS**  
12 **MEASURED BY THESE RELIABILITY INDICES?**

13 A. Duke Energy Kentucky's system has performed well. Duke Energy Kentucky's  
14 reliability scores have exceeded industry average reliability scores and are among  
15 the best performing throughout Duke Energy's six state electric service areas. The  
16 latest reliability index scores available are for calendar year 2018, and are  
17 reported below.

**Table 2 – 2018 Reliability Indexes**

Reliability Index	Duke Energy KY Actual excl. MED	Duke Energy KY Actual w MED
CAIDI	124	228
SAIFI	0.66	0.94
SAIDI	82	215

**IV. DUKE ENERGY KENTUCKY'S INVESTMENT IN ITS TRANSMISSION AND DISTRIBUTION FACILITIES**

1 **Q. PLEASE DESCRIBE DUKE ENERGY KENTUCKY'S INVESTMENT**  
2 **RELATING TO ITS TRANSMISSION AND DISTRIBUTION FACILITIES**  
3 **DURING THE PAST FEW YEARS AND ITS PROJECTED FUTURE**  
4 **INVESTMENT.**

5 A. The table below summarizes Duke Energy Kentucky's capital expenditures for its  
6 transmission and distribution facilities for the period from 2012 through March  
7 31, 2021.

**Table 3 – Capital Expenditures 2012-2021**

<b>(\$ millions)</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Jan- March 2021</b>
Transmission	1.6	0.6	2.6	3.4	1.7	3.4	3.1	6.7	13.3	2.9
Distribution	13.6	16.6	20.3	22.3	23.1	43.6	50.4	80.9	64.6	9.9
Total	15.1	17.1	22.9	25.7	24.8	47.0	53.5	87.6	77.9	12.8

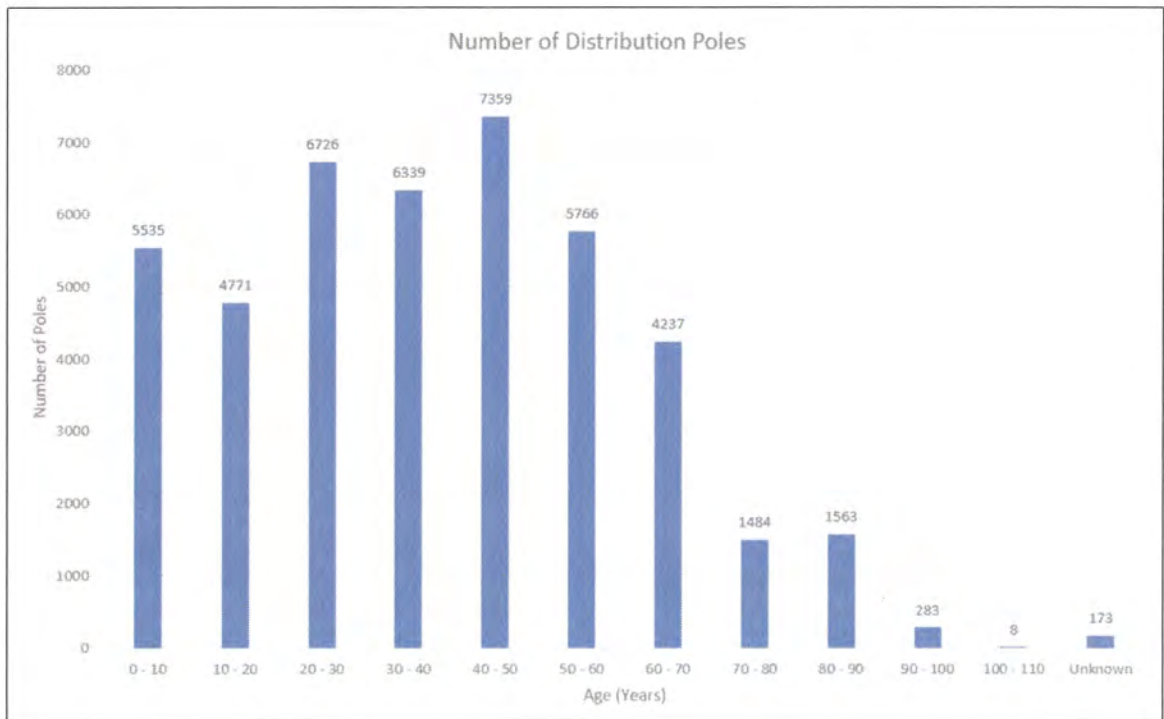
**V. MAJOR CHALLENGES FACING DUKE ENERGY KENTUCKY'S ELECTRIC DELIVERY SYSTEM**

8 **Q. WHAT ARE THE MAJOR CHALLENGES FACING DUKE ENERGY**  
9 **KENTUCKY'S TRANSMISSION AND DISTRIBUTION SYSTEM?**

10 A. The aging of the electric delivery system is a major challenge. Much of this  
11 equipment is over 40 years old. This equipment typically will last from 30–50  
12 years. We expect to incur substantial expenditures to replace this equipment  
13 during the next several years. The charts below show the age distribution for

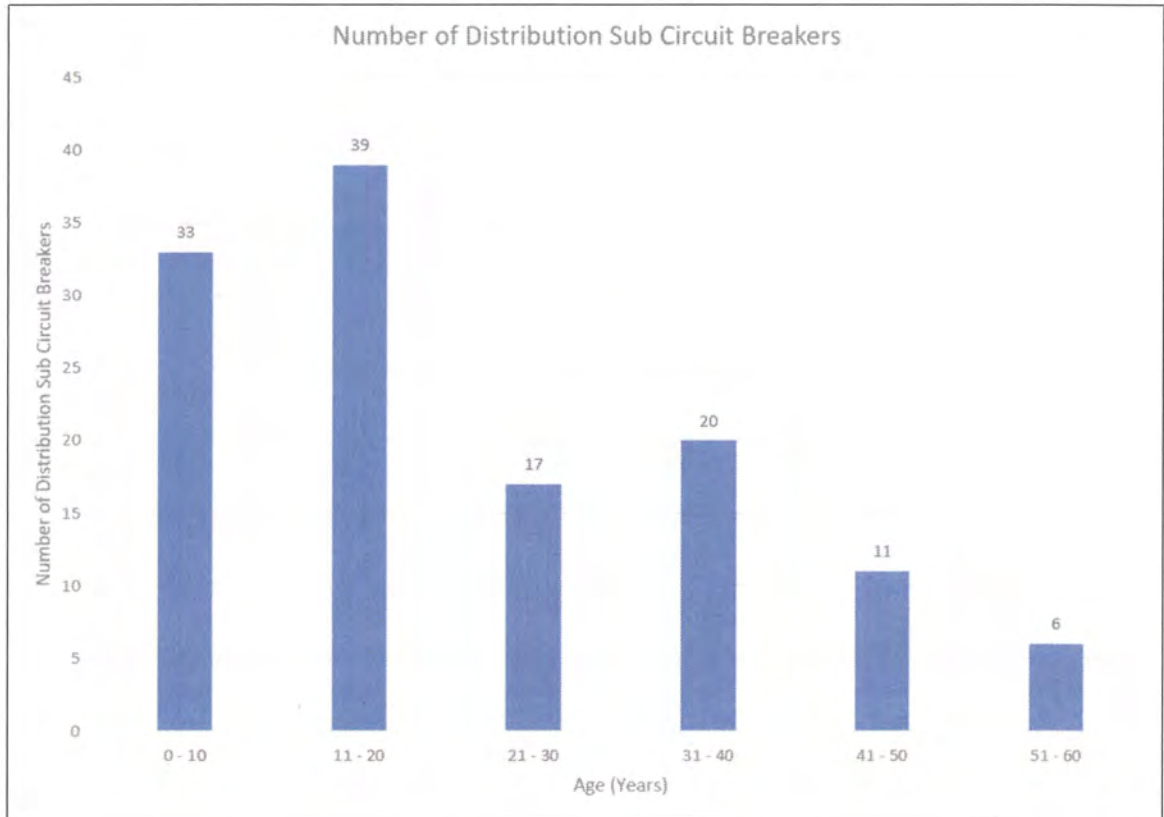
- 1 Duke Energy Kentucky's poles, distribution circuit breakers, and transmission
- 2 and distribution transformers.

**Figure 1 – Duke Energy Kentucky Distribution Poles Age Distribution Spring 2019**

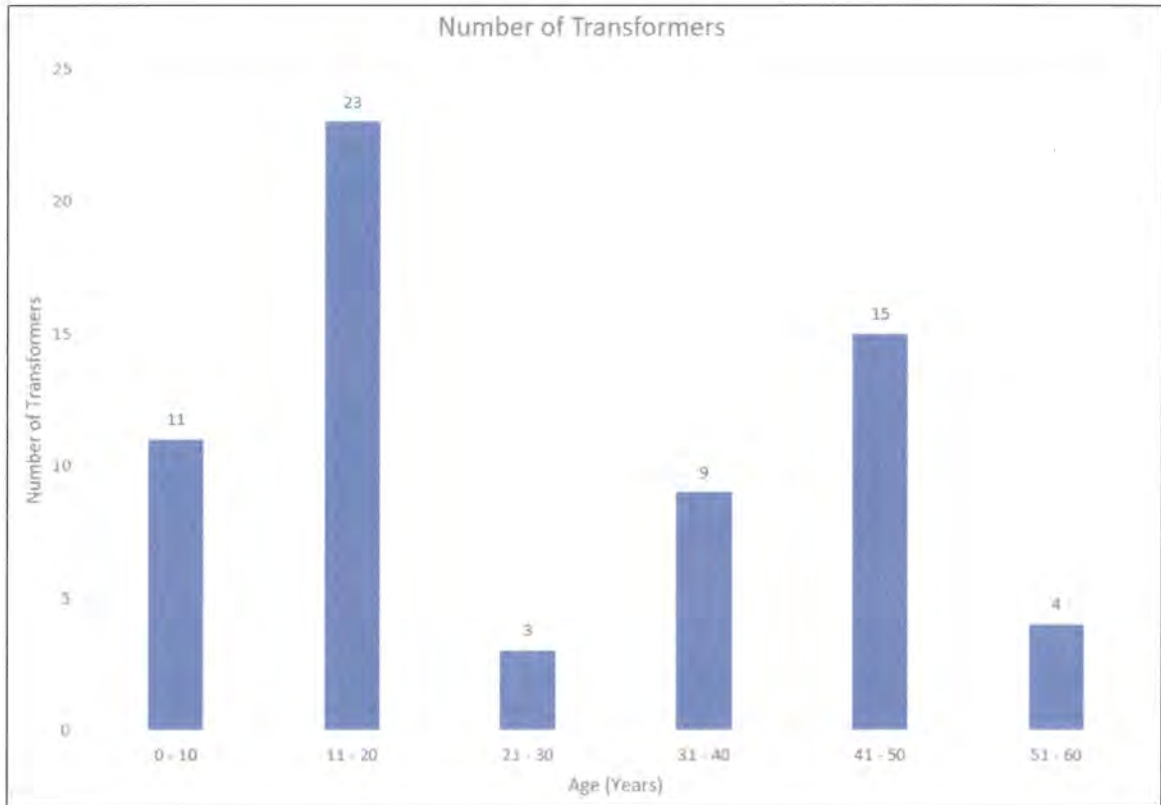




**Figure 2 – Duke Energy Kentucky**  
**Distribution Circuit Breakers Age Distribution As Of Spring 2019**



**Figure 3 – Duke Energy Kentucky Distribution Transformer Age Distribution as of Spring of 2019**



1            Another challenge Duke Energy Kentucky and other utilities are seeing is  
2            that replacement parts are becoming harder to find and, when they are located,  
3            can be quite expensive. For example, this very issue surfaced during Hurricane  
4            Sandy with Consolidated Edison, Inc., (a/k/a ConEd) reaching out to mutual  
5            assistance partners attempting to locate rare fuses.

6            Duke Energy Kentucky is also experiencing localized load growth with  
7            significant residential and commercial expansion projects in Boone County,  
8            Kentucky.

1 **Q. DO CUSTOMERS' EXPECTATIONS PRESENT A CHALLENGE?**

2 A. Yes. Customers are increasingly using equipment that is highly sensitive to  
3 voltage fluctuations; therefore, customers are demanding highly reliable service  
4 that minimizes the number of voltage fluctuations. This presents a challenge for  
5 Duke Energy Kentucky to strike the correct balance between reliable and  
6 economic service.

7 **Q. DOES THE INTRODUCTION OF ADDITIONAL REGULATION**  
8 **PRESENT A CHALLENGE?**

9 A. Yes. As our scores on the reliability indices demonstrate, Duke Energy Kentucky  
10 has delivered reliable service under the current regulatory environment.  
11 Additional reliability regulations may be imposed that could impose additional  
12 compliance costs on the Company. Duke Energy Kentucky supports efforts to  
13 maintain and improve distribution system reliability, however, there will certainly  
14 be increased costs associated with such improvements.

15 **Q. ARE THE PRACTICES AND PROGRAMS YOU DESCRIBED ABOVE**  
16 **COUPLED WITH THE CURRENT LEVEL OF SPENDING SUFFICIENT**  
17 **FOR THE COMPANY TO MAINTAIN ITS PRESENT LEVEL OF**  
18 **SERVICE RELIABILITY AND MEET CUSTOMER EXPECTATIONS?**

19 A. Maintaining prior levels of investment and not adapting to incorporate new  
20 technology and data will not serve to maintain, let alone enhance reliability or  
21 customer satisfaction. Duke Energy Kentucky will need to increase their  
22 investments to continue to meet customers' increased expectations. Customer  
23 expectations are evolving as technology changes. Customers are requiring a

1 higher degree of reliability, performance, and response. Customers are expecting  
2 service restorations to be made more quickly, as so much of their daily life  
3 depends upon the availability of electricity. This ranges from the ability to power  
4 and charge cellular phones, computers, and other mobile devices, in order to  
5 maintain communication access, beyond just heating and cooling homes.

6 Although Duke Energy Kentucky's current practices have served it well in  
7 the past, the Company must continue to evolve to meet these growing customer  
8 expectations. Duke Energy Kentucky cannot be stagnant and simply rely upon the  
9 premise that past practices will continue to be sufficient to maintain future  
10 performance. Rather, the Company must adapt its practices and implement new  
11 programs to respond to industry demands, changes in technology, and continually  
12 evolving customer needs and expectations.

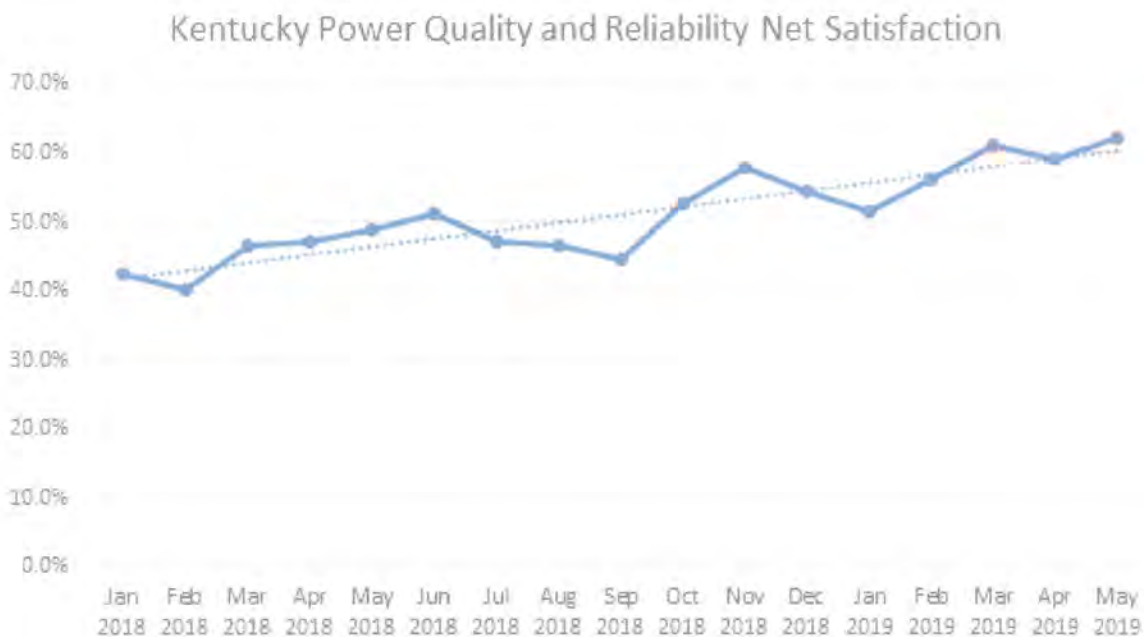
13 **Q. DOES THE COMPANY MEASURE OR ATTEMPT TO QUANTIFY**  
14 **CUSTOMER EXPECTATIONS?**

15 A. Yes. Ms. Spiller explains the Company's initiatives to measure customer  
16 satisfaction and its performance through both its internal Fastrack post-transaction  
17 surveys and national benchmark surveys such as J.D. Power. Ms. Spiller further  
18 supports the most recent survey data available.

1   **Q.   PLEASE DESCRIBE WHAT THE MOST RECENT SURVEYS INDICATE**  
2       **WITH RESPECT TO CUSTOMER EXPECTATIONS, SATISFACTION,**  
3       **AND PERFORMANCE AS IT RELATES TO POWER QUALITY AND**  
4       **RELIABILITY.**

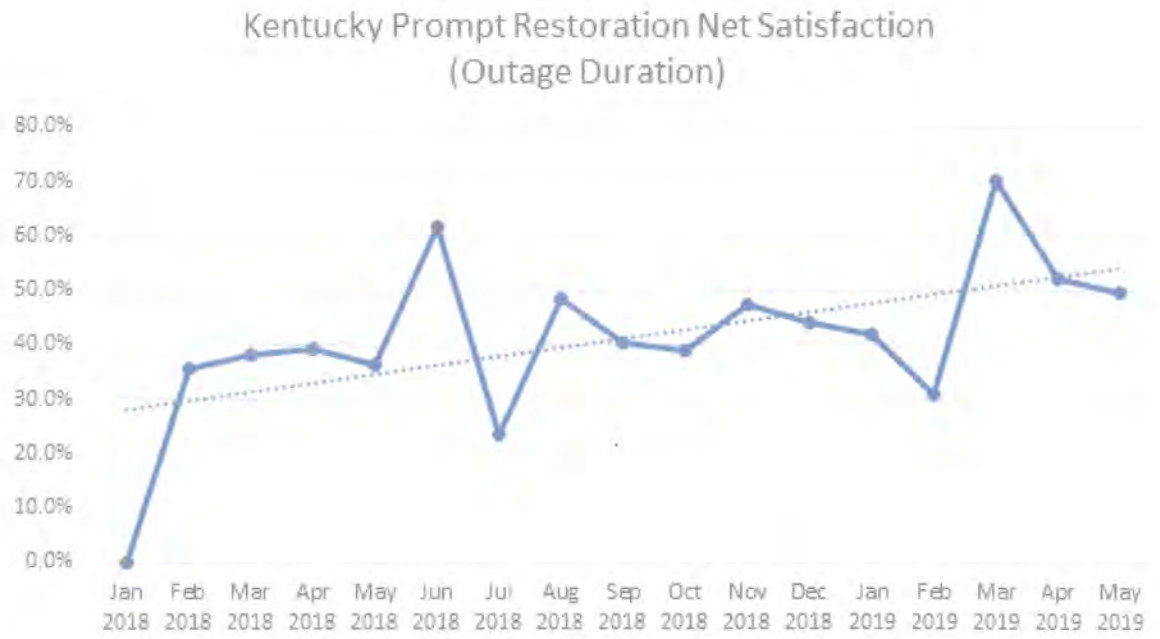
5   A.   Beginning January 1, 2018, the Company transitioned into a new proprietary  
6       census-based survey, called the Customer Experience Monitor (CX Monitor). The  
7       CX Monitor survey measures customers' perceptions and satisfaction across  
8       several key experiences over a period of the previous 12 months. Customers are  
9       able to answer a CX Monitor survey once per year. The CX Monitor survey  
10      results indicate that customers care about power reliability. While there are some  
11      expected seasonal dips that correspond to summer and spring storms, the CX  
12      Monitor survey indicates a 14-point month-over month increase between January  
13      of 2018 and May of 2019 in customers' net satisfaction with their power quality  
14      and reliability (PQR) in Kentucky. The graph below captures reliability  
15      satisfaction overall.

**Figure 4 – Duke Energy Kentucky  
Power Quality and Reliability Net Satisfaction**



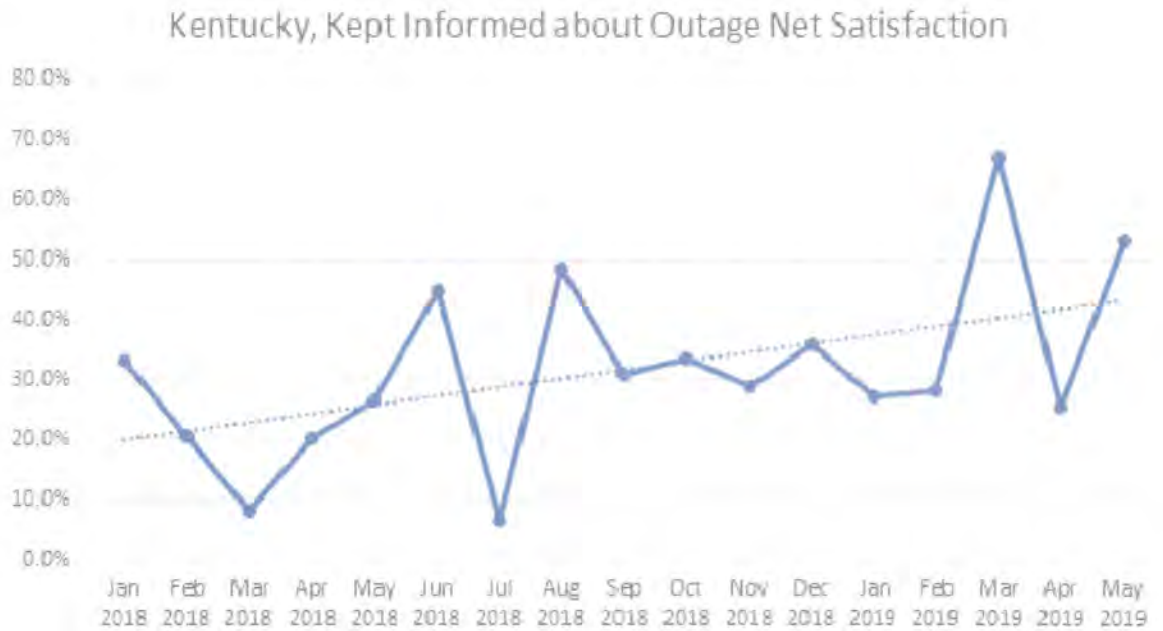
1 Duration of an outage and outage-related communication are also two significant  
 2 components to PQR satisfaction for Duke Energy Kentucky customers. Both of  
 3 these areas independently saw improvements, which help explain the overall  
 4 satisfaction in PQR. (\*\*Please note in the below graphs, January 2018 results  
 5 have been excluded due to a statistically insignificant sample size of customers.)  
 6 Despite expected seasonal dips due to summer and spring storms, customers  
 7 report an average 13-point month over month net satisfaction increase from  
 8 February of 2018 through May of 2019 with the duration of / prompt restoration  
 9 of their outage.

**Figure 5 – Duke Energy Kentucky Prompt Restoration Net Satisfaction**



1 An exciting increase in customer satisfaction comes from customers reporting that  
2 they feel better informed about the status of their outage. Duke Energy’s  
3 Proactive Outage Alerts text SMS communication system, improved customer  
4 outage maps and improved field updates have all contributed to a 24-point month  
5 over month increase between February 2018 and May 2019. These increases offer  
6 validation that Duke Energy’s investments in highly-satisfying digital channels  
7 for customers are yielding significant satisfaction gains.

**Figure 6 – Duke Energy Kentucky  
Kept Information about Outage Net Satisfaction**



1    **Q.    WHAT DO THESE SURVEYS INDICATE IN TERMS OF DUKE**  
 2    **ENERGY KENTUCKY’S STRATEGY TO MEET CUSTOMER POWER**  
 3    **QUALITY AND RELIABILITY EXPECTATIONS?**

4    A.    Even though the majority of Duke Energy Kentucky’s customers appear to be  
 5    satisfied with the Company’s overall performance, customers have low tolerance  
 6    for outage durations and lack of timely outage information. Even though the  
 7    Company’s reliability scores (CAIDI, SAIDI, and SAIFI) and new CX Monitor  
 8    scores demonstrate the Company is performing well and continuing to make  
 9    significantly measurable gains in terms of customer net satisfaction, there will  
 10   always be room for improvement. Duke Energy Kentucky’s customers clearly  
 11   have high expectations of their utility service. Failure to be proactive to resolve  
 12   grid reliability issues before they manifest will result in a decline in system



1 performance and customer satisfaction. In order to meet these high expectations,  
2 Duke Energy Kentucky must be proactive and take corrective actions before a  
3 larger reliability problem manifests itself. Identifying these issues and employing  
4 the necessary resources presents challenges from a budgeting perspective when  
5 the sole source of funding for O&M and capital is limited to base rates established  
6 through base rate proceedings.

7 **Q. HOW IS THE COMPANY ADAPTING TO ADDRESS CUSTOMER'S**  
8 **HIGH EXPECTATIONS?**

9 A. The deployment of the CX Monitor survey has been a watershed moment for  
10 Duke Energy's ability to identify, measure and diagnose customer issues on a  
11 monthly basis throughout our Kentucky territory. Duke Energy Kentucky is  
12 continually looking for opportunities to enhance and improve its service to  
13 customers. Overall increases in Duke Energy Kentucky's PQR, outage  
14 duration/prompt restoration and outage communication net satisfaction scores are  
15 encouraging and exciting. We believe that continuing to make delivery system  
16 investments that will enable the Company to better communicate with customers,  
17 have better data regarding their usage, and then monitor and improve the health  
18 and performance of the electric delivery system are vital to continuing to improve  
19 Duke Energy's core mission of powering the lives of our customers and the  
20 vitality of our communities.

1 **Q. PLEASE EXPLAIN HOW THE DELIVERY SYSTEM INVESTMENTS**  
2 **AND RELIABILITY PROGRAMS YOU PREVIOUSLY DESCRIBED ARE**  
3 **INTENDED TO ADDRESS THESE CHALLENGES??**

4 A. Duke Energy Kentucky must adapt its practices and implement new programs to  
5 respond to industry demands, changes in technology, and continually evolving  
6 customer needs and expectations. Customers' increasing expectations regarding  
7 reliability and outage-related communications require increased investment. The  
8 delivery system investments and reliability programs described will position the  
9 Company to address the challenges of aging infrastructure, localized load growth,  
10 and customers' low tolerance for outages and lack of outage-related information  
11 by keeping pace with the changes in technology and customer demands.

**VI. SCHEDULES AND FILING REQUIREMENTS SPONSORED BY**  
**WITNESS**

12 **Q. PLEASE DESCRIBE FR 16(7)(b).**

13 A. FR 16(7)(b) consists of the most recent capital construction budget containing the  
14 forecasted construction expenditures for a minimum of three years. I provided the  
15 forecasted capital construction budget for the local transmission and distribution  
16 facilities contained in FR 16(7)(b) and for Mr. Jacobi's use for the forecasted  
17 financial data.

18 **Q. PLEASE DESCRIBE FR 16(7)(f).**

19 A. FR 16(7)(f) includes the following information for major projects constituting five  
20 percent or more of the annual construction budget during the three-year capital  
21 expenditure forecast: the starting date and completion date for each project and

1 construction cost per year. I provided this information for the local transmission  
2 and distribution facilities contained in FR 16(7)(f).

3 **Q. PLEASE DESCRIBE FR 16(7)(g).**

4 A. FR 16(7)(g) includes the following information for projects constituting less than  
5 five percent of the annual construction budget during the three-year capital  
6 expenditure forecast: the starting date and completion date for each project and  
7 construction cost per year. I provided this information for the local transmission  
8 and distribution facilities contained in FR 16(6)(g).

#### **VII. CONCLUSION**

9 **Q. WAS THE INFORMATION YOU PROVIDED FOR FR 16(7)(b), FR**  
10 **16(7)(f), AND FR 16(7)(g) AND ATTACHMENT PREPARED BY YOU OR**  
11 **UNDER YOUR SUPERVISION?**

12 A. Yes.

13 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

14 A. Yes.

**VERIFICATION**

STATE OF ~~OHIO~~ <sup>Kentucky</sup> )  
COUNTY OF ~~HAMILTON~~ <sup>Boone</sup> ) SS:

The undersigned, Ash M. Norton, Director Distribution Design Engineering and its subsidiary, Duke Energy Kentucky, Inc., being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing testimony and that it is true and correct to the best of her knowledge, information and belief.

Ash M. Norton  
Ash M. Norton, Affiant

Subscribed and sworn to before me by Ash M. Norton, on this 9<sup>th</sup> day of August, 2019.

**MONICA OBERSCHMIDT**  
Notary Public  
State at Large  
Kentucky  
My Commission Expires Feb. 26, 2022

Monica Oberschmidt  
NOTARY PUBLIC

My Commission Expires: Feb. 26, 2022

## Distribution Reliability Programs and Brief Description

Programs	Description
Underground Cable Injection Planned	Planned Cable Injection Program
Underground Small Cable Primary-only Replace	Replacement of Underground Cable as a program due to failure rates or testing results. If it is replaced during an outage, it would fall under Restore process. This is for the replacement of primary cable only. Small cable (size 1/0 or smaller), Corrective and Planned.
Underground Large Cable Primary-only Replace	Replacement of Underground Cable as a program due to failure rates or testing results. If it is replaced during an outage, it would fall under Restore process. This is for the replacement of primary cable only. Large cable (size larger than 1/0) Corrective and Planned.
Pole Replace Insp Follow Up (FUP)	Distribution Poles replaced as part of the Pole Inspection Program only.
Pole Emergency Inspection Based Replace	Replacement of Imminent hazard poles found as part of the Pole Inspection Program. These pole replacements will be field initiated to address any safety concerns associated to aggressively deteriorated poles, as described in the imminent hazard criteria.
Pole Inspection Other Units of Property FUP	Replacements of other units of property (UOP) outside a complete pole change out. Part of the Pole Inspection Program only. (E.g. arrestor, cutout)
Pole Reinforcement	Distribution Poles reinforced as part of the Pole Inspection Program only.
Recloser Electronic Replace	Replacement of electronic recloser unit or controller and all capital components
Recloser Hydraulic Replace	Replacement of hydraulic recloser unit and all capital components, including sectionalizers
Cutout Oil to Vacuum Switch Replace	Change out of Oil to Vacuum switches, cutouts, arresters on capacitor banks. Capacitor reactive/corrective work should be charged to the "Capacitor Replace" program.
Over Head Line Switch Replace	Replacement of Over Head line switches, including gang and solid blade disconnects.
Switch Gear Replace	Underground Switchgear Replacement (manually operated). Includes inspection capital follow up, and corrective replacements (PME-style, switching module, etc.). Automatic Throw Over Switch (ATS) replacements identified through inspection should be charged to the ATS Replace program.
Live Front Transformer Replace	Upgrade Live Front Transformers to dead front.
Capacitor Auto	Upgrade of capacitors by adding controls and modem.
Circuit Sectionalization	Installation of sectionalizing devices that are not on the mainline circuit (reclosers, sectionalizers, outdoor vacuum reclosers (OVRs), etc.). Reactive only. Mainline sectionalization devices should be charged to the Circuit Segmentation Program
Over Head Deteriorated Conductor Replace	Replacement of primary conductors that are likely to fail, due to poor performance, condition, or construction method, with a more reliable heavier gauge industry standard wire.
Transformer Retrofit	Retrofitting transformers, replacing Cutouts failed to interrupt and execution of the AB Chance cutout replacement program for efficiency purposes.
Recloser Controller Replacement	Smart Grid (SG) - Recloser Control Replacement

Switchgear Upgrades-Automation	General Switchgear Inspection Capital Follow-up, which replaces units that failed inspection.
Modem Replace	Proactive program to replace smart device modems (Line Sensor, Reclosers, Regulators, & Capacitors) that are reaching end of useful life
Removal Non-Utilized Infrastructure-Over Head	Removal of Non-Utilized Infrastructure – Over Head
DTUG Emergency Replace	Emergency DTUG Corrective Replacements - Imminent/ Emergency work requiring immediate response. “An DTUG emergency is a situation in which a field performer cannot leave the site until the identified hazard is mitigated and resolved. An emergency would be a situation identified to be a danger to the public, to utility personnel, imminent outage, or to prevent an impact on the environment. An emergency can be applied to any DTUG asset at any location. Emergency repairs can be mitigated or ‘made safe’ until a more comprehensive repair or replace is performed. Any additional work performed after the emergency hazard has been mitigated and personnel have left the site is no longer considered emergency work.” (i.e. Communication Equipment, MVS, RA Switches, Sump Pump)
Pothead Termination	Replacement Distribution Poles typically "found in field" by operations or engineering and not associated with an outage, public damage, or pole inspection. This includes Poles identified as part of the 360 poles inspection that are not the direct or adjacent poles. These poles must be referred as a service request to be reviewed and prioritized by a program owner. Poles found while performing other capital work must be included in the scope of the original capital project, unless the pole was not the direct or adjacent pole found in the original 360 pole inspection. Includes pole replacements part of new service work to provide service to new customers. Includes all emergency and non-emergency pole replacements found in field. Emergency (Imminent) corrective pole replacements associated with an inspection program will roll up to ‘Pole Emergency Inspection Based Replace’.
Underground Cable Secondary Service Replace	Underground Cable Replace Secondary / Service
Manhole Lid Retrofit	Manhole Lid Retrofits/Replace for Explosion Mitigation across the system.
Line Patrol Replace FUP	Replacement of capital items identified through the regulatory required line patrol inspection.
SMEI Insp Replace FUP	Replacement of other units of property identified through the Surface Mounted Equipment Inspection (SMEI), except for switchgear and pad transformer replacements. Switchgear replacements identified through the SMEI program should be charged to Switchgear Replace program. Pad Transformers replacements identified through the SMEI program should be charged to one of the following programs: Pad Transformer 1-phase (1PH) Oil Leak Insp Replace FUP; Pad Transformer 3PH Oil Leak Inspection Replace FUP; Pad Transformer 1PH Non Leak Inspection Replace FUP; Pad Transformer 3PH Non Leak Insp Replace FUP; Pedestals are O&M only and should be charged to Underground Repairs (Other Planned)
Limited Access Cross Upgrade - D	Bringing interstate crossings up to NESC grade B construction.

Line Sensor Replace	Replacement of stand-alone line sensors (IE: toll grade or Cooper) only. Includes the controller if it is separate than the line sensor.
NAN Device Replace	Replacement of neighborhood area network (NAN) devices, which includes Silver Springs, Erickson/Ambient and Cisco Itron devices, such as communication nodes electric only and Cisco Grid Routers. These devices were originally used as a part of AMI but are not limited to communicating metering traffic. Does not include modems and line sensors for reclosers, capacitors, or regulators as they should go to the modem replace or line sensor replace programs
Over Head Replace (Other - Planned)	Overhead Corrective Replacements - Work found in the field that is not part of inspections, outages, or power quality, that can be prioritized or scheduled. Over Head Wire Primary Replacements will be charged to "Over Head Wire Primary Replace" program
Over Head Stolen Conductor Replace	Replacement of stolen overhead conductor, including neutrals that are in service.
Over Head Wire Primary Replace	Replacement of at least one span of Over Head Wire Primary, including neutral
Over Head Wire Secondary Service Replace	Replacement of at least one span of Over Head Wire Secondary, including neutral
Underground Replace (Other - Planned)	Underground Corrective Replacements - Work found in the field that is not part of inspections, outages, or power quality, that can be prioritized or scheduled.
Pole Stub Removal	Stub Pole Removal (Planned). This is a removal project only. It is only to be used for pulling of poles that are a part of the Pulled Pole backlog or the project that the pole removal has already been closed.
Pole Replacement (Non- Insp Based)	Replacement Distribution Poles typically "found in field" by operations or engineering and not associated with an outage, public damage, or pole inspection. This includes Poles identified as part of the 360 poles inspection that are not the direct or adjacent poles. These poles must be referred as a service request to be reviewed and prioritized by a program owner. Poles found while performing other capital work must be included in the scope of the original capital project, unless the pole was not the direct or adjacent pole found in the original 360 pole inspection. Includes pole replacements part of new service work to provide service to new customers. Includes all emergency and non-emergency pole replacements found in field. Emergency (Imminent) corrective pole replacements associated with an inspection program will roll up to 'Pole Emergency Inspection Based Replace'.
Over Head Transf Replace	Overhead corrective transformer replacements found in the field that is not part of inspections, outages, or power quality, that can be prioritized or scheduled.
Pad Transformer 1PH Non-Leak Replace	Single phase dry Transformer replacement, includes inspection follow up and corrective.
Pad Transformer 1PH Oil Leak Replace	Padmount Transformer single-phase replacement resulting from oil leak, includes inspection follow up and corrective.
Pad Transformer 3PH Non-Leak Replace	Padmount Transformer three-phase non-leak replacement, includes inspection follow up and corrective.
Pad Transf 3PH Oil Leak Replace	Padmount Transformer three-phase replacement resulting from oil leak, includes inspection follow up and corrective.

Capacitor Replace	Change out of entire capacitor bank or individual components including controller, cutouts, arrestors or switches not identified as part of the Oil-to-Vacuum switch replacement program. New installs will be charged to New Capacitor Installation program
Regulator Replace	Change out of entire regulator bank or individual components including controller, cutouts, arrestors or switches not identified as part of the Oil-to-Vacuum switch replacement program. New installs will be charged to New Regulator Installation program.
Distribution Auto New Installation	New installation of Self-Healing Networks, Integrated Volt-VAR Control (IVVC), and remotely monitored systems.
Declared Protection Zone	Proactive solution to a chronic problem, by identifying and improving a section of a feeder. Done when all other reliability efforts are not successful. Driven by internal analysis of performance.
Over Head Outage Investigation Improve Replace	Over Head outage investigation and replacements identified by Reliability Engineering through Common Reliability Standard. May also include issue reported by Customers, Commission, or daily outage reports. Corrective action should be identified and corrected within a pre-determined amount of time.
Underground Outage Investigation Improve Replace	Underground Outage Investigation and replacements identified by Reliability Engineering through Common Reliability Standard. May also include issue reported by Customers, Commission, or daily outage reports. Corrective action should be identified and corrected within a pre-determined amount of time.
Proactive Pad Transf 1PH Non- Leak Replace	Proactive single phase dry Transformer replacement, within 100 feet of active waterway (not a retention pond; active flowing waterway), and greater than 210 gallons of oil.
NEW Proactive Pad Transf 1PH Oil Leak Replace	Proactive Padmount Transformer single-phase replacement resulting from oil leak, within 100 feet of active waterway (not a retention pond; active flowing waterway), and greater than 210 gallons of oil. (MODEF)
NEW Proactive Pad Transf 3PH Non-Leak Replace	Proactive Padmount Transformer three-phase non- leak replacement, within 100 feet of active waterway (not a retention pond; active flowing waterway), and greater than 210 gallons of oil.
NEW Proactive Pad Transf 3PH Oil Leak Replace	Proactive Padmount Transformer three-phase replacement resulting from oil leak, within 100 feet of active waterway (not a retention pond; active flowing waterway), and greater than 210 gallons of oil. (MODEF)
Underground Cable Loop Closeout	Install additional cable on radial Underground Residential (URD) to create loop that allows back feed of the URD
Oil Minder Sensor Replace	Install or Replace sump pump with oil stop valve or oil minder sensor in network vaults with drains
AMI-AMI-169	Kentucky Smart Grid Automated Meter Interface (AMI) Deployment
Circuit Connectivity	Projects Driven by Distribution Capacity needs outside the substation and not associated with a substation upgrade.
Small Cable Replacement-432	Replacement of Underground Cable <1/0 as a program due to failure rates or testing results (Non-Paper Insulated Lead Cable (PILC))



Deteriorated Conductor-433	Replace Primary Voltage Conductors that are likely to fail, due to poor performance, condition, or construction method
Capacitor Automation-435	SG- Upgrade of capacitors by adding controls and modem
Cap Cutout Repl-Oil-to-Vac-436	Change of oil to vacuum switches, cutouts, arrestors on capacitor banks identified through the program only.
Segmentation & Automation	Smart Grid Self-Healing
Switchgear Upgrade-Automat-439	General Switchgear Inspection Capital Follow-up, which replaces units that failed inspection.
Sect Coord to Branch/Tap-440	Installation of Sectionalizing Devices (Reclosers, sectionalizers, ovr, etc)
D Line Pothead Termination-441	D-line pothead termination inspection follow-up.
PILC Reactive-442	Replacement of Underground cable due to failure rates or testing results, for PILC type cable.
Under Ground Cable Injection-443	SG-SMG Cable Injection Planned Program
Live Front Switchgear -444	SG-Upgrade Live Front to Dead Front
Transformer Retrofit - 520	SG-Retro CSP Transformer
Substation Capacity	Load Growth, Load Transfers and Tie Lines for Distribution
Over Head Line Switch Replace - 586	SG-Replacement of 3PH Switches (Including Gang or Manual Single Blade Switch)
Targeted Over Head Under Ground-990151	Replace Existing Over Head Distribution System with Under Ground Facilities on a targeted basis.
Circuit Capacity	Upgrade D-lines or addition of new circuit driven by the addition of a new retail substation to serve load growth.
Large Cable Replacement	Replacement of Underground cable as a program due to failure rates or testing results, for cable that is not PILC type cable.
Recloser Controller Replacement	SG - Recloser Control Replacement
Pole Replacement	PIA - Duke Priority Pole Replacement due to Pole Inspection Program.
Pole Reinforcement	Distribution Poles Reinforced as part of the Pole Inspection Program Only.
Pole Inspection	Pole Inspection GEO Boundary DEK
Pole Emergency Inspection	EWQ MB-Emergency Non-Outage Inspection Based Pole Replacement
Modem Replacement	Proactive Replacement of Smart Device (RECL, REG, CAP) Modems that are nearing end of useful life.
Electronic Recloser Replacement	Recloser Replacement as a Program - Includes Hydraulic and Electronic.
Recloser Hydraulic Replacement	Proactive Replacement of Hydraulic Reclosers based on lifecycle.

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

The Electronic Application of Duke )  
Energy Kentucky, Inc., for: 1) An )  
Adjustment of the Electric Rates; 2) ) Case No. 2019-00271  
Approval of New Tariffs; 3) Approval of )  
Accounting Practices to Establish )  
Regulatory Assets and Liabilities; and 4) )  
All Other Required Approvals and Relief. )

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**DIRECT TESTIMONY OF**  
  
**JOHN R. PANIZZA**  
  
**ON BEHALF OF**  
  
**DUKE ENERGY KENTUCKY, INC.**

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September 3, 2019

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**I. INTRODUCTION AND PURPOSE**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is John R. Panizza and my business address is 550 South Tryon Street,  
3 Charlotte, North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Duke Energy Business Services LLC (DEBS) as Director, Tax  
6 Operations. DEBS provides various administrative and other services to Duke  
7 Energy Kentucky, Inc., (Duke Energy Kentucky or Company) and other affiliated  
8 companies of Duke Energy Corporation (Duke Energy).

9 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL  
10 BACKGROUND AND PROFESSIONAL EXPERIENCE.**

11 A. I have a Bachelor of Science degree in Accounting from Montclair State  
12 University and a Master's in Taxation from Seton Hall University. I am a  
13 Certified Public Accountant in the state of New Jersey. My professional work  
14 experience began in 1989 as an auditor with KPMG. From 1993 to 2002, I held a  
15 number of financial positions primarily at two companies, in telecommunications  
16 and automotive (AT&T Corp., and Collins & Aikman Inc.). In 2002, I joined  
17 Duke Energy and have held a number of financial positions of increasing  
18 responsibilities, including various accounting and tax related positions. In March  
19 2018, after a three-year rotation primarily in Corporate Accounting, I moved back  
20 into the role of Director, Tax Operations, a position that I had previously held.

1 **Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AS DIRECTOR,**  
2 **TAX OPERATIONS.**

3 A. As Director, Tax Operations, I have overall responsibility for corporate tax  
4 compliance, and accounting for Duke Energy. The Duke Energy Tax Operations  
5 Department is responsible for all federal, state, and local income tax returns for  
6 Duke Energy-including various joint ventures if Duke Energy is the designated  
7 tax matters partner.

8 The Tax Department is responsible for maintaining and reconciling Duke  
9 Energy's tax accounts and for the reporting and disclosure of tax-related matters,  
10 to the extent required.

11 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY**  
12 **PUBLIC SERVICE COMMISSION?**

13 A. Yes. I previously submitted written testimony in Duke Energy Kentucky's natural  
14 gas base rate case, Case No. 2018-00261.

15 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
16 **PROCEEDING?**

17 A. My testimony addresses Duke Energy Kentucky's income tax expense presented  
18 in this filing and certain other tax matters. I discuss changes to the Company's  
19 balances of excess accumulated deferred income taxes (EDITs) stemming from  
20 the Tax Cuts and Jobs Act (TCJA) since the Company's last electric base rate  
21 case. I sponsor Schedule B-6 and Schedule E-1 and E-2 in response to Filing  
22 Requirements FR 16(8)(b) and FR 16(8)(e) respectfully. I also provided certain

1 additional tax information to other witnesses for their use in certain calculations  
2 for the base period and the forecasted period.

**II. SCHEDULES SPONSORED BY WITNESS**

3 **Q. PLEASE DESCRIBE SCHEDULE B-6.**

4 A. Schedule B-6 includes the Accumulated Deferred Investment Tax Credit,  
5 Accumulated Deferred Income Tax (ADIT) and EDIT balance information.

6 **Q. PLEASE DESCRIBE SCHEDULE E-1.**

7 A. Schedule E-1 is the calculation of adjusted jurisdictional federal and state taxable  
8 income and federal and state income tax expense for the base period under current  
9 income tax rates and for the forecasted period at income tax rates in effect for that  
10 period. Included within this calculation is an amortization of EDITs.

11 **Q. PLEASE DESCRIBE SCHEDULE E-2.**

12 A. Schedule E-2 is for the calculation of jurisdictional federal and state taxable  
13 income and federal and state income tax expense. Since the utility taxes are 100%  
14 jurisdictional, this schedule is not applicable.

15 **Q. WHAT TAX INFORMATION DID YOU PROVIDE TO OTHER  
16 WITNESSES?**

17 A. I provided Duke Energy Kentucky witness Mr. Christopher M. Jacobi with the  
18 property tax expense for the forecasted financial data. These expenses are based  
19 on projected property tax rates applied to the most recent valuations as approved  
20 by the Kentucky Department of Revenue (KDR), updated for projected additions,  
21 retirements, and additional depreciation.

1 I also provided Mr. Jacobi with the income tax rates and the amortization  
2 of the investment tax credit for both the forecasted portion of the base period  
3 consisting of the six months ending November 30, 2019, and the forecasted test  
4 period ending March 31, 2021.

5 I reviewed Mr. Jacobi's calculation of deferred income taxes for the base  
6 period and the forecasted period, I provided the amount of tax depreciation he  
7 used for this calculation, and I support the methodology he used for calculating  
8 deferred income taxes. I also provided Duke Energy Kentucky witness Mr. Jacobi  
9 with the accumulated deferred investment tax credit balance for his use on  
10 Schedule J-1.

### III. CHANGES IN EDIT TAX BALANCES

11 **Q. PLEASE EXPLAIN WHY THE UNAMORTIZED EXCESS DEFERRED**  
12 **INCOME TAX LIABILITY CHANGED SINCE THE LAST RATE CASE?**

13 A. EDITs reported in the last rate case were based on the tax provision estimate  
14 recorded as of December 31, 2017. Subsequent to the last rate case, the 2017  
15 federal tax return was filed and the gross temporary differences were updated to  
16 reflect return to provision differences. Total EDIT, not grossed up for income  
17 taxes, increased by \$5.3 million as a result of the tax return true-up. Protected  
18 EDIT increased by \$12.9 million and unprotected EDIT decreased by \$7.6  
19 million.

1 **Q. PLEASE EXPLAIN HOW THAT CHANGE IMPACTS THE COMPANY'S**  
2 **APPLICATION IN THIS PROCEEDING.**

3 A. The change increases the overall amount of EDIT that the Company proposes to  
4 refund to its customers by \$5.3 million, not grossed up for taxes. Because the  
5 protected EDIT balances increased and the unprotected EDIT balances decreased,  
6 the overall annual amortization of EDIT decreased by approximately \$0.8 million  
7 as compared to what was authorized in the Company's last electric base rate case.

**IV. INCOME TAX EXPENSE**

8 **Q. WHAT TAX RATE DID THE COMPANY USE TO CALCULATE ITS**  
9 **TEST PERIOD FEDERAL INCOME TAX EXPENSE?**

10 A. The Company used the statutory Federal corporate income tax rate of 21 percent  
11 for both the base period and forecasted period.

12 **Q. WHAT TAX RATE DID THE COMPANY USE TO CALCULATE ITS**  
13 **TEST PERIOD STATE INCOME TAX EXPENSE?**

14 A. The Company used the recently enacted composite statutory Kentucky corporate  
15 income tax rate of 5 percent for both the base period and the forecast period.

16 **Q. HOW IS THE EXCESS DEFERRED INCOME TAXES RELATING TO**  
17 **THE KY STATE INCOME TAX REDUCTION BEING FLOWED BACK**  
18 **TO CUSTOMERS?**

19 A. Kentucky State Excess Deferred Income Taxes are being returned to the customer  
20 over a 10-year amortization period.



1 **Q. WHAT IS THE COMBINED FEDERAL AND STATE STATUTORY**  
2 **INCOME TAX RATE APPLICABLE DURING THE TEST PERIOD?**

3 A. The combined statutory federal and state statutory income tax rate for Duke  
4 Energy Kentucky, which is expected to be in effect during the base period and for  
5 the forecasted period is 24.925 percent. This rate includes the corporate statutory  
6 federal income tax rate of 21 percent and the composite statutory Kentucky  
7 corporate income tax rate of 5 percent. State income taxes are deductible in  
8 computing the federal tax liability and this deduction is considered in computing  
9 the overall effective tax liability. I provided this information to Ms. Lawler for her  
10 use in calculating the revenue requirement. I also provided her with the amount of  
11 income tax expense for the base period and the forecasted test period, based on  
12 these income tax rates.

13 **Q. WHY DID YOU USE THE STATUTORY KENTUCKY INCOME TAX**  
14 **RATE INSTEAD OF THE EFFECTIVE KENTUCKY INCOME TAX**  
15 **RATE TO CALCULATE DUKE ENERGY KENTUCKY'S INCOME TAX**  
16 **EXPENSE?**

17 A. In my opinion, Duke Energy Kentucky should use the income tax rate that most  
18 accurately reflects the actual state income tax for its business on a stand-alone  
19 basis, which is the composite statutory rate of 5.0 percent. These are the proper  
20 tax rates to apply to Duke Energy Kentucky's natural gas business operations.

**V. PROPERTY TAX EXPENSE**

1 **Q. HOW DID DUKE ENERGY KENTUCKY CALCULATE THE PROPERTY**  
2 **TAX EXPENSE FOR THE FORECASTED TEST PERIOD?**

3 A. We calculated the property tax expense based on the assessed value of Duke  
4 Energy Kentucky's property located in Kentucky and Ohio with adjustments for  
5 anticipated property tax rate increases, additions including the power plant  
6 transfers, retirements and additional depreciation. As in past years, Duke Energy  
7 Kentucky will attempt to negotiate proper assessment values with the Kentucky  
8 Department of Revenue (KDR). The Company will notify the Commission of the  
9 result of its negotiations with the KDR for the 2019 tax year so the Commission  
10 can determine whether to adjust Duke Energy Kentucky's property tax expense  
11 for the forecasted test period. The Ohio real property is assessed on a triennial  
12 basis, with the next re-assessment expected to occur in 2020. The Ohio personal  
13 property assessment for the 2018 tax year will be available in the fall of 2019.

**VI. CONCLUSION**

14 **Q. WAS THE TAX INFORMATION YOU SUPPLIED FOR SCHEDULE B-6**  
15 **AND SCHEDULES E-1 AND E-2 AND THE TAX INFORMATION YOU**  
16 **SUPPLIED TO OTHER WITNESSES, PREPARED UNDER YOUR**  
17 **DIRECTION AND SUPERVISION?**

18 A. Yes.

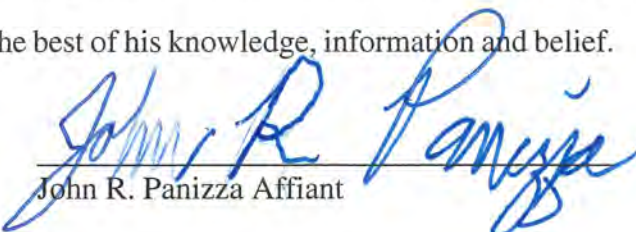
19 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

20 A. Yes.

VERIFICATION

STATE OF NORTH CAROLINA     )  
  )     SS:  
COUNTY OF MECKLENBURG     )

The undersigned, John R. Panizza, Director, Tax Operations, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing testimony and that it is true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
John R. Panizza Affiant

Subscribed and sworn to before me by John R. Panizza on this 8 day of  
August, 2019.

  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:  
10/2/21



**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

The Electronic Application of Duke )  
Energy Kentucky, Inc., for: 1) An )  
Adjustment of the Electric Rates; 2) ) Case No. 2019-00271  
Approval of New Tariffs; 3) Approval of )  
Accounting Practices to Establish )  
Regulatory Assets and Liabilities; and 4) )  
All Other Required Approvals and Relief. )

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**DIRECT TESTIMONY OF**

**BENJAMIN WALTER BOHDAN PASSTY, PH.D.**

**ON BEHALF OF**

**DUKE ENERGY KENTUCKY, INC.**

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September 3, 2019

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**ATTACHMENTS:**

Attachment BWP-1	Normal weather used for monthly peak model forecasts
Attachment BWP-2	Duke Kentucky MWH Sales History and Forecast
Attachment BWP-3	Duke Kentucky MW Sales History and Forecast
Attachment BWP-4	Annual weather history, 1981-2018
Attachment BWP-5	Comparison of Weather Normal Forecasts to Actual Heating Degree Day forecasts, Annual, 2013-2016; Annual Degree Days, 1981-2015 Heating and Cooling

**I. INTRODUCTION AND PURPOSE**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Benjamin Walter Bohdan Passty. My business address is 550 South  
3 Tryon Street, Charlotte, North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Duke Energy Business Services LLC (DEBS) as a Lead Load  
6 Forecasting Analyst in the Load Forecasting group. DEBS provides various  
7 administrative and other services to Duke Energy Kentucky, Inc., (Duke Energy  
8 Kentucky or Company) and other affiliated companies of Duke Energy  
9 Corporation (Duke Energy).

10 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**  
11 **BACKGROUND AND PROFESSIONAL EXPERIENCE.**

12 A. I received a Bachelor of Arts degree in Economics and a Bachelor of Science  
13 Degree in Mathematics from Trinity University in 2002, a Master of Arts degree  
14 in Economics from Northwestern University in 2003, and a Doctor of Philosophy  
15 in Economics from Northwestern University in 2008.

16 I joined Duke Energy Corp. in July 2013 as a Lead Forecaster in the Load  
17 Forecasting Department. My current title is Lead Load Forecasting Analyst.

18 **Q. ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?**

19 A. I am a dues-paying member of the Charlotte Economics Club, a local chapter of  
20 the National Association For Business Economists.

1 **Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND**  
2 **RESPONSIBILITIES AS SENIOR FORECASTER IN THE LOAD**  
3 **FORECASTING GROUP.**

4 A. My primary responsibility is to develop Duke Energy's long-term electric and gas  
5 forecasts for portions of its Midwest service area, currently Kentucky, Ohio and  
6 Indiana. These forecasts and analyses are provided to departments throughout  
7 Duke Energy and are used for budgeting, generation planning, and regulatory  
8 filings, such as long-term forecast reports, integrated resource plans, and rate  
9 cases. In addition to my primary duties, I regularly support special projects,  
10 requiring statistical analysis and forecasting, including assessment of current  
11 economic conditions.

12 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY**  
13 **PUBLIC SERVICE COMMISSION?**

14 A. Yes. Most recently, I provided testimony in support of Duke Energy Kentucky's  
15 application for an increase in base natural gas rates in Case No. 2018-00261.

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
17 **PROCEEDING?**

18 A. My testimony presents and explains Duke Energy Kentucky's long-term energy  
19 and demand forecast prepared and utilized in the Company's 2019 rate case filing.  
20 This includes a discussion of the level of normal weather utilized in the  
21 preparation of the forecast. In addition, I describe how Duke Energy Kentucky's  
22 current portfolio of regulated demand side management (DSM), energy efficiency  
23 (EE) and load management programs –which help Duke Energy Kentucky meet

1 its energy and peak demand requirements—are factored into the load forecast.  
2 Because of some differences in terminology, I will refer to these programs  
3 collectively as Utility Energy Efficiency (UEE) Programs throughout my  
4 testimony. I sponsor Filing Requirement (FR) 16(7)(h)(5). I also discuss certain  
5 information that I supplied to Duke Energy Kentucky witness Mr. Christopher  
6 Jacobi and Mr. Jeff Kern for their use in preparing additional testimony.

## II. LOAD FORECAST

7 **Q. DID YOU PREPARE THE COMPANY'S LOAD FORECAST?**

8 A. Yes, I did.

9 **Q. HOW IS DUKE ENERGY KENTUCKY'S LOAD FORECAST**  
10 **DEVELOPED?**

11 A. The Load Forecast is developed in three steps: first, a service area economic  
12 forecast is obtained; next, an energy forecast is prepared; and finally, using the  
13 energy forecast, summer and winter peak demand forecasts are developed.

14 The forecast methodology is essentially the same as that presented in past  
15 Integrated Resource Plans filed with the Kentucky Public Service Commission  
16 (Commission), with a major difference being that the models have been updated  
17 to include more recent data.

18 **Q. PLEASE DESCRIBE HOW THE SERVICE AREA ECONOMIC**  
19 **FORECAST IS OBTAINED.**

20 A. The economic forecast for northern Kentucky and the greater Cincinnati region is  
21 obtained from Moody Analytics' portal *Economy.com* (Moody's), a nationally  
22 recognized economic forecasting firm. Based upon its forecast of the national



1 economy, Moody's prepares a forecast of key economic concepts specific to the  
2 greater Cincinnati area, including the portion of northern Kentucky served by  
3 Duke Energy Kentucky. This forecast provides detailed projections of  
4 employment, income, wages, industrial production, inflation, prices, and  
5 population. This information serves as input into the energy forecast models.

6 The Duke Energy Kentucky service area is located in northern Kentucky  
7 adjacent to the city of Cincinnati, which is contained within the service area of  
8 Duke Energy Ohio, another subsidiary of Duke Energy. The economy of northern  
9 Kentucky is contained within the Cincinnati Primary Metropolitan Statistical Area  
10 (PMSA) and is an integral part of the regional economy.

11 **Q. DO YOU ALSO PRODUCE THE FORECAST FOR THE NUMBER OF**  
12 **CUSTOMERS?**

13 A. Yes, the forecasts for the number of customers are produced using the same  
14 modeling techniques and data sources as our forecasts for volumes.

15 **Q. HOW IS THE ENERGY FORECAST DEVELOPED?**

16 A. The energy forecast projects the load required to serve Duke Energy Kentucky's  
17 retail customer classes - residential, commercial, industrial, government or other  
18 public authority (OPA), and street lighting. The projected energy requirements for  
19 Duke Energy Kentucky's retail customers are determined through econometric  
20 analysis. Econometric models are a means of representing economic behavior  
21 through the use of statistical methods, such as regression analysis, which  
22 attributes historically measured changes in sales to variation in a series of  
23 predictive variables.

1 **Q. WHAT ARE THE PRIMARY FACTORS AFFECTING ENERGY USAGE?**

2 A. Some of the major factors are the number of residential customers, weather, and  
3 economic activity measures such as employment, industrial production, income  
4 and price. For the residential sector, the key factors are the population of the area,  
5 real median per capita income, real energy prices, weather, appliance saturations,  
6 and appliance efficiencies. For the commercial sector, the key factors include the  
7 weather, employment and income, and real energy prices. The appliance data on  
8 saturation and efficiencies are incorporated into the residential usage and  
9 commercial models through the use of an additive term commonly referred to as a  
10 “statistically adjusted end-use” term (SAE term). The SAE term allows for these  
11 data to be interacted with the key factors named above. In the industrial sector, the  
12 key factors include manufacturing GDP, manufacturing employment, real energy  
13 prices, and the weather. The governmental sector model includes the specific  
14 portion of economic output that Moody’s classifies as government gross domestic  
15 product (Government GDP), as well as energy prices and weather. Finally, for the  
16 street lighting sector, the key factor is the number of residential customers, and  
17 we also included the residential lighting end-use as provided from U.S. Energy  
18 Information Administration (EIA) data.

19 Generally, energy use increases with higher industrial and commercial  
20 activity along with the increased saturation of residential appliances, including  
21 space heating and cooling equipment. As energy prices increase, energy usage  
22 tends to decrease due to customers’ conservation activities.

1 **Q. ARE THESE FACTORS RECOGNIZED IN THE EQUATIONS USED TO**  
2 **PROJECT THE ENERGY REQUIREMENTS OF DUKE ENERGY**  
3 **KENTUCKY'S RETAIL CUSTOMERS?**

4 A. Yes, they are. By exposing the forecasting models to these variables, we can  
5 project future energy consumption conditional on forecasts of these economic and  
6 weather conditions.

7 **Q. HOW IS THE FORECAST OF ENERGY REQUIREMENTS FOR DUKE**  
8 **ENERGY KENTUCKY'S RETAIL CUSTOMERS PREPARED?**

9 A. While many economic and weather variables are relevant to the entire greater  
10 Cincinnati area, the Duke Energy Kentucky sales forecast is developed by  
11 maintaining specific forecasting models for sales only to Duke Energy Kentucky  
12 customers in the residential, commercial, industrial, government or OPA, and  
13 street lighting sectors. Forecasts are also prepared for three minor categories:  
14 interdepartmental use, Company use, and line losses associated with transmission  
15 and distribution. Rather than there being separate customer class models, the peak  
16 forecast model—discussed in greater detail down below—is estimated on a total  
17 retail basis.

18 **Q. ARE THERE ANY ADJUSTMENTS MADE TO THE ALLOCATED**  
19 **FORECASTS DERIVED FROM THE ECONOMETRIC MODELS?**

20 A. The output of the model estimation is adjusted for the impacts of projected growth  
21 in behind-the-meter solar generation, electric vehicle usage, and the impacts of  
22 new energy efficiency programs. The Company may adjust the forecast for  
23 anticipated increases in load due to a major new customer or a significant

1 expansion at a current customer's site. However, for the 2019 Load Forecast there  
2 were no adjustments for new customer loads or expansion at a current customer's  
3 site.

4 **Q. PLEASE EXPLAIN HOW THE PEAK FORECASTS ARE DEVELOPED.**

5 A. The Company projects both a winter and a summer peak for the total region using  
6 econometric equations that forecast peak demand as a function of economic  
7 growth, as measured by energy sales, end-use data, and several key weather  
8 factors. The Duke Energy Kentucky peak load forecast is estimated separately  
9 from any other system peak. The model is exposed to monthly peak data, with  
10 normalized weather conditions for the day of peak based on thirty-year data.  
11 Attachment BWP-1 shows the monthly peak weather normal degree days used to  
12 compute peaks for Duke Energy Kentucky.

13 **Q. DOES DUKE ENERGY KENTUCKY'S ENERGY AND PEAK LOAD**  
14 **FORECAST ALREADY INCLUDE THE IMPACT OF HISTORICAL UEE**  
15 **PROGRAMS?**

16 A. Yes, the impact of the historical UEE programs that have been implemented in the  
17 Duke Energy Kentucky service area are already reflected in these forecasts. The  
18 data used to develop the 2019 Load Forecast incorporate the historical impact of  
19 those existing programs prior to model estimation. The model output is then  
20 readjusted downwards for those, as well as future UEE program projections.

1 **Q. DOES DUKE ENERGY KENTUCKY'S LOAD FORECAST USED IN**  
2 **THIS CASE INCLUDE CONSIDERATION OF THE IMPACT FROM THE**  
3 **INSTALLATION OF COST-EFFECTIVE ENERGY UEE PROGRAMS?**

4 A. Yes. It is my understanding that, according to the Commission's Order, in  
5 Administrative Case 2008-00408, utilities must explain consideration of cost-  
6 effective energy efficiency resources and the impacts of such resources on the  
7 utility test year. For Duke Energy Kentucky, incremental peak load reductions  
8 due to current and future UEE programs are used to adjust the historical data as  
9 part of the process of calculating the 2019 Load Forecast. The projected  
10 incremental impact of existing programs through the next two fiscal years (July 1,  
11 2019, through June 30, 2020) is an additional reduction of almost 1.9 million kWh  
12 total, and 70 kW at time of peak. The load forecast provided here does reflect  
13 those projected energy efficiency impacts.

14 **Q. ARE THERE ANY OTHER PEAK LOAD REDUCTIONS THAT ARE**  
15 **NOT INCLUDED IN DUKE ENERGY KENTUCKY'S LOAD**  
16 **FORECAST?**

17 A. Yes. The load forecast has not been reduced for the impact of load reductions due  
18 to the Company's special contract interruptible customers, or for load reductions  
19 attributable to the Real-Time Pricing (RTP) program. While there is no explicit  
20 adjustment for these programs, I believe that their results are embedded within the  
21 historical data on peak that are used for the model estimation, so not accounting  
22 for them separately is appropriate.

1 **Q. IS DUKE ENERGY KENTUCKY'S LOAD FORECASTING**  
2 **METHODOLOGY SIMILAR TO THAT EMPLOYED AT THE TIME OF**  
3 **THE COMPANY'S LAST BASE ELECTRIC RATE CASE?**

4 A. Yes, the econometric forecasting methodology used to create the Load Forecast is  
5 basically the same as that used by the Company in prior cases. Two differences  
6 that are worthy of mention are the inclusion of a SAE-term, as I discuss above,  
7 and the rolling thirty-year weather normalization period, which I will discuss  
8 below.

9 **Q. ARE YOU FAMILIAR WITH OTHER ELECTRIC UTILITIES' LONG-**  
10 **TERM LOAD FORECASTS?**

11 A. Yes, I am.

12 **Q. ARE THE FACTORS THAT ARE USED BY DUKE ENERGY**  
13 **KENTUCKY IN FORMULATING ITS LOAD FORECASTS SIMILAR TO**  
14 **THE FACTORS USED BY OTHER UTILITIES IN THEIR LOAD**  
15 **FORECASTS?**

16 A. Yes. While other utilities might use a variety of load forecasting approaches, such  
17 as econometric, end-use, trend analysis, or time series analysis, nearly all of the  
18 utilities I am familiar with use the same or similar factors as listed above as  
19 considered by Duke Energy Kentucky, to varying degrees. In addition, price  
20 forecasts for alternate fuels including natural gas and fuel oil are considered. I am  
21 aware of survey data indicating that many large utilities utilize an approach  
22 consistent with this methodology.

1 **Q. HOW DOES MANAGEMENT JUDGMENT FIT INTO THE LOAD**  
2 **FORECASTS?**

3 A. Under any approach to load forecasting, judgment is an essential element. Each  
4 utility must use the approach that, in its judgment, best suits its particular  
5 situation, taking into account the various factors. Examples of this would be  
6 advice from the sales team about conditions on the ground that are related to  
7 regional growth, or advice from the managers of energy efficiency and demand  
8 side management programs that provide incentives for customers to reduce energy  
9 usage.

10 **Q. PLEASE DESCRIBE ATTACHMENT BWP-2.**

11 A. Attachment BWP-2 is a summary of Duke Energy Kentucky's energy forecast.  
12 The projected annualized rate of growth in total retail sales—measured on a  
13 calendar basis—for the five-year period 2019 to 2024 is 1.7 percent and for the  
14 ten-year period 2019 to 2029 is 1.5 percent per year.

15 That growth rate—while mathematically correct for the period in  
16 question—is not adequate for summarizing several opposing dynamics that affect  
17 demand for energy in both directions during the near term. Energy projections for  
18 2019-2021 are reduced because of downward momentum in energy sales as well  
19 as soft economic data that come from a withdrawal of fiscal stimulus associated  
20 with the Tax Cut and Jobs Act at the Federal Level. In the later years, that growth  
21 is projected to resume, and there are also adjustments made for at least one very  
22 large customer that has committed to begin doing business within the region and  
23 to necessary purchases of energy associated with that new activity.

1 **Q. PLEASE DESCRIBE ATTACHMENT BWP-3**

2 Attachment BWP-3 is a summary of Duke Energy Kentucky's peak load forecast.  
3 The projected annualized rate of growth in energy demand at time of peak is 1.3  
4 percent for the five-year period, and 1.2 percent for the ten-year period.

**III. DEGREE DAY DATA USED IN THE FORECAST**

5 **Q. HOW IS WEATHER MEASURED FOR PURPOSES OF THE**  
6 **FORECAST?**

7 A. Weather is expressed in terms of Heating Degree Days (HDD) and Cooling  
8 Degree Days (CDD).

9 **Q. WHAT IS A HEATING DEGREE DAY AND A COOLING DEGREE**  
10 **DAY?**

11 A. A HDD is calculated using a base temperature measured on the Fahrenheit scale  
12 and occurs when the daily average temperature is below the base. HDD measures  
13 the difference of the daily average temperature and the base temperature. The  
14 formula is:

15 
$$\text{Heating Degree Days} = \text{Base Temperature} - \text{Daily Average Temperature}$$

16 A CDD is also calculated using a base temperature measured on the  
17 Fahrenheit scale. However, it occurs when the daily average temperature is above  
18 the base. CDD measures the difference of the daily average temperature and the  
19 base temperature. The formula is:

20 
$$\text{Cooling Degree Days} = \text{Daily Average Temperature} - \text{Base Temperature}$$

21 Any negative result of these calculations is taken to be zero. These generally do  
22 not affect the gas volumes forecasts.



1 **Q. PLEASE EXPLAIN “NORMAL” WEATHER.**

2 A. The energy forecast projects Duke Energy Kentucky’s volume sales for the test  
3 period. In order to project this, one must make a judgment about the weather  
4 conditions expected to occur during the test period. This is known as “normal”  
5 weather. The forecast is based on such expected weather conditions, which are  
6 forecast from historical weather data. Because this forecast is forward-looking  
7 and intended to predict what is likely to happen in the future, an assumption must  
8 be made as to what impact weather is likely to have on future volume sales. There  
9 is no “actual” weather available for a future period; so, a projection must be used.  
10 A reasonable, accepted and industry standard methodology to factor the impact of  
11 weather is to use an average of prior actual weather to predict what future weather  
12 patterns are likely to be experienced.

13 **Q. PLEASE DESCRIBE HOW DUKE ENERGY KENTUCKY**  
14 **CALCULATED NORMAL WEATHER.**

15 A. Duke Energy Kentucky uses a rolling thirty-year period to calculate the Normal  
16 Weather in its electric and natural gas forecasts.

17 **Q. DOES THE NATIONAL OCEANIC AND ATMOSPHERIC**  
18 **ADMINISTRATION (NOAA) PROVIDE NORMAL WEATHER DATA**  
19 **FOR DUKE ENERGY KENTUCKY’S SERVICE AREA?**

20 A. Yes. NOAA is responsible for monitoring climate conditions in the United States.  
21 Additional information about NOAA is available at their web site at  
22 [www.noaa.gov](http://www.noaa.gov). The standard time period prescribed by the United Nations World  
23 Meteorological Organization for measuring climate conditions is thirty years, and

1 NOAA updates its calculations for the United States for these thirty-year periods  
2 at the end of each decade. The most current thirty-year period used by NOAA is  
3 1981-2010. NOAA's next thirty-year normal weather period will be released  
4 several years from now and will encompass the period spanning 1991-2020.

5 Because of its infrequent updates, Duke Energy Kentucky's forecast does  
6 not use the NOAA calculations. Rather, the Company uses more  
7 contemporaneous weather data in performing its forecasts, rolling in the latest  
8 year available at the time of the forecast.

9 **Q. WHAT YEARS ARE USED TO CALCULATE THE ROLLING THIRTY-**  
10 **YEAR WEATHER NORMAL FOR THE MOST RECENT DUKE**  
11 **ENERGY KENTUCKY ELECTRIC FORECAST?**

12 A. As a new year of weather data—subject to a delay—becomes available, it is our  
13 practice to roll off the oldest year and replace it. The years 1988-2017 were used  
14 to calculate normal weather.

15 **Q. WHAT HAS BEEN THE LONG-TERM TREND IN HDD AND CDD FOR**  
16 **COVINGTON, KENTUCKY?**

17 A. The years 1988 through 2017 suggest a slight warming trend. Basic econometric  
18 analysis confirms that this trend is statistically significant under several different  
19 specifications, including ones that use data from years before that period. A slight  
20 decreasing trend in heating degree days over the same period—while visually  
21 hinted at—fails to hold up under statistical testing. The graph in Attachment BWP-  
22 4 shows these charts.

1 **Q. WHAT HAS BEEN THE TREND IN HDD AND CDD FOR COVINGTON,**  
2 **KENTUCKY, OVER THE LAST TEN YEARS?**

3 A. The last ten years indicate a slight increase of cooling degree days during the  
4 summer; however, because so few observations are involved, these results are not  
5 statistically significant. The data on winter heating degree days show a very slight  
6 declining trend over this period.

7 **Q. HOW DO THE ACTUAL ANNUAL HEATING DEGREE DAYS FOR THE**  
8 **LAST TEN YEARS FOR COVINGTON, KENTUCKY, COMPARE TO**  
9 **THIRTY-YEAR NORMALS?**

10 A. See Attachment BWP-5 for a graph comparing the annual degree days in  
11 heating/cooling to the forecasts of the thirty-year normal scheme, as well as the  
12 ten-year normal scheme and the NOAA static thirty-year normal. The ten-year  
13 normal calls for slightly more extreme summer weather (cooling degree days)  
14 than the thirty-year normal. Annual weather is much more variable than the  
15 degree to which the various forecasts vary from each other. The difference  
16 between the ten-year normal and thirty-year normal isn't nearly as dramatic with  
17 regard to winter weather (heating degree days), wherein both methods for  
18 calculating normal weather appear to be similar upon visual inspection.

19 **Q. DID YOU MEASURE HOW RELIABLE THE VARIOUS WEATHER**  
20 **NORMALS ARE?**

21 A. Yes. One way to compare the relationship between the expected normal level of  
22 degree days to the actual number of degree days is to use a statistic known as the  
23 Mean Percent Error (MPE). MPE indicates whether the measure of normal degree

1 days contains any bias to over-estimate or under-estimate the actual weather  
2 conditions. If MPE is positive, this indicates that there is a bias for the measure of  
3 normal to be higher than the actual. The formula to calculate MPE is the sum of  
4 (Normal Degree Days minus Actual Degree Days) divided by Actual Degree  
5 Days. The sum is then divided by the number of observations. Mathematically:

$$6 \quad \text{MPE} = \frac{1}{N} \sum_{t=1}^N \frac{\hat{Y}_t - Y_t}{Y_t}$$

7 Where  $\hat{Y}$  = Normal Annual Degree Days

8 and  $Y$  = Actual Annual Degree Days

9 A difficulty with using this sum to compare the options for weather  
10 normalization is data availability: because so many years are required to compute  
11 the thirty-year weather normal, this statistic basically compares normal over a  
12 narrow sample space, implying a large standard error relative to any measurement  
13 difference. Because standard errors shrink for larger samples, the standard error of  
14 a thirty -year forecast for normal weather should have a confidence interval that is  
15 40 percent as large as the confidence interval around ten-year estimates.  
16 Therefore, it is only possible to compare accuracy for years beginning with 2011  
17 (which implies many too few years for conclusive statistical testing). An informal  
18 comparison of the two forecasts for degree days shows slightly greater mean  
19 square error for the weather predictions in years beginning with 2011 when using  
20 the thirty-year normal instead of the ten-year normal, but with so few data  
21 points—eight years as of this filing—it is impossible to reject the statistical  
22 hypothesis that the expected errors are equal.

**IV. DUKE ENERGY KENTUCKY'S UEE/LOAD  
MANAGEMENT PROGRAMS**

1 **Q. WHAT HAS BEEN THE IMPACT OF THE COMPANY'S UEE**  
2 **PROGRAMS ON THE LOAD FORECAST?**

3 A. Through 2016, the Company's UEE programs are estimated to have reached an  
4 annual savings level of over 154,000 MWh and reduced the summer peak load  
5 by—in some cases—as much as 16 MW.

6 **Q. PLEASE BRIEFLY DESCRIBE DUKE ENERGY KENTUCKY'S**  
7 **CURRENT PORTFOLIO OF UEE AND LOAD CONTROL PROGRAMS.**

8 A. Duke Energy Kentucky offers its customers multiple regulated UEE (EE and  
9 DSM) related services and products, as well as low income assistance programs  
10 within the Commonwealth of Kentucky. The various UEE are vetted through one  
11 of two collaborative processes (residential and industrial) before being submitted  
12 to the Commission for review and approval. Duke Energy Kentucky recovers its  
13 costs and receives compensation for these services pursuant to its Commission-  
14 approved DSM tariff riders. The current suite of programs includes the following:

- 15 • Program 1: Low Income Services Program
- 16 • Program 2: Residential Energy Assessments Program
- 17 • Program 3: Residential Smart Saver<sup>®</sup> Efficient Residences Program
- 18 • Program 4: Residential Smart Saver<sup>®</sup> Energy Efficient Products  
19 Program
- 20 • Program 5: Smart Saver<sup>®</sup> Prescriptive Program
- 21 • Program 6: Smart Saver<sup>®</sup> Custom Program
- 22 • Program 7: Power Manager<sup>®</sup> Program

- 1           • Program 8: PowerShare®
- 2           • Program 9: Low Income Neighborhood
- 3           • Program 10: My Home Energy Report
- 4           • Program 11: Non-Residential Small Business Energy Saver Program
- 5           • Program 12: Non-Residential Pay for Performance<sup>1</sup>

6           The Commission has approved each of these programs and reviews the costs  
7           and results of these programs on an annual basis.

8   **Q. PLEASE BRIEFLY DESCRIBE HOW THE POWERSHARE**  
9   **QUOTE OPTION LOAD REDUCTIONS ARE REPRESENTED IN DUKE**  
10 **ENERGY KENTUCKY'S IRP.**

11 A. This is an elective program without contractual commitment, meant to be used as  
12 a hedge against the effects of extreme weather. For this reason, the QuoteOption  
13 load reduction is currently not represented in Duke Energy Kentucky's IRP.

14 **Q. DOES DUKE ENERGY KENTUCKY OFFER ANY OTHER PROGRAMS**  
15 **THAT PROVIDE LOAD CONTROL OPPORTUNITIES TO**  
16 **CUSTOMERS?**

17 A. Yes. The Company also offers a Real-Time Pricing opportunity for non-  
18 residential customers that allow them the opportunity to manage their load in  
19 response to market signals.

20 **Q. PLEASE DESCRIBE THE REAL TIME PRICING (RTP) PROGRAM.**

21 A. Duke Energy Kentucky's RTP program (Rate RTP – Experimental Real Time  
22 Pricing Program) consists of a two-part rate: an access charge for the customer's

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<sup>1</sup> Marketed as Smart Saver® Performance

1 historic load that is billed at standard tariff rates (commonly referred to as the  
2 “CBL”); and an energy charge for the customer’s incremental or decremental  
3 energy usage that is billed at a real-time price. Once customers receive  
4 information on the next day hourly prices, they can adjust their energy usage to  
5 either increase loads during low price times and/or decrease usage during high  
6 priced times.

7 **Q. WHAT IS THE LOAD IMPACT OF DUKE ENERGY KENTUCKY’S**  
8 **LOAD MANAGEMENT PROGRAMS?**

9 A. Currently, the Duke Energy Kentucky customer accounts that participate in RTP  
10 provide an expected peak load reduction of approximately 1 MW. Historically,  
11 the load impact from the RTP program has been projected to be in that range,  
12 although lately we have had some mild summers, which limit the number of high-  
13 price periods in the data; there have not been significant changes to the program.  
14 The Duke Energy Kentucky RTP customers haven’t been very price responsive.  
15 Impacts from any other programs can be treated as embedded in the load forecast,  
16 as they fall within the margin of error of our models.

17 **Q. WAS THE LOAD FORECAST MODIFIED TO ACCOUNT FOR FUTURE**  
18 **IMPACTS OF ALL OF THESE DSM/UEE PROGRAMS?**

19 A. Yes, it was. The raw forecast produced by the econometric models was modified  
20 by taking UEE program forecasts and subtracting their volume accordingly. In  
21 addition, the cumulative impact of these programs was mitigated by a roll-off  
22 schedule that accounts for the fact that codes and standards organically evolve in  
23 ways that would naturally reduce energy usage over time.

**V. FILING REQUIREMENTS AND INFORMATION  
SPONSORED BY WITNESS**

1 **Q. PLEASE DESCRIBE FR 16(7)(h)(5).**

2 A. FR 16(7)(h)(5) consists of the load forecast, which I described earlier in my  
3 testimony.

4 **Q. DID YOU SUPPLY ANY INFORMATION TO OTHER WITNESSES IN**  
5 **THIS PROCEEDING?**

6 A. Yes, I supplied Mr. Jacobi with the gas Mcf and electric kWh sales for the  
7 forecasted portion of the base period, consisting of the twelve months ending  
8 November 30, 2018, and the forecasted test period, consisting of the twelve  
9 months ending March 31, 2020.

10 **Q. DO YOU BELIEVE THE FORECAST IS A REASONABLE AND**  
11 **ACCURATE DEPICTION OF THE COMPANY'S ANTICIPATED**  
12 **FUTURE ELECTRIC LOAD?**

13 A. Yes.

**VI. CONCLUSION**

14 **Q. WERE FR 16(7)(h)(5), THE INFORMATION YOU PROVIDED TO MR.**  
15 **JACOBI AND ATTACHMENTS BWP-1 THROUGH BWP-5 PREPARED**  
16 **BY YOU OR UNDER YOUR SUPERVISION?**

17 A. Yes.

18 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

19 A. Yes.





Duke Energy Kentucky  
RankSort Normal Degree Days (on day of Peak) (a,b)

Day of Peak		Heating		Cooling	
		Degree Days	Implied Average Temp	Degree Days	Implied Average Temp
1/1/2019	1/17/2019	45	14	0	--
2/1/2019	2/11/2019	36.2	22.8	0	--
3/1/2019	3/4/2019	25.22	33.78	0	--
4/1/2019	4/24/2019	0.3	58.7	5.22	70.22
5/1/2019	5/29/2019	0	--	10.77	75.77
6/1/2019	6/24/2019	0	--	15.6	80.6
7/1/2019	7/17/2019	0	--	17.95	82.95
8/1/2019	8/2/2019	0	--	16.76	81.76
9/1/2019	9/5/2019	0	--	15.81	80.81
10/1/2019	10/3/2019	0.16	58.84	9.48	74.48
11/1/2019	11/27/2019	30.23	28.77	0	--
12/1/2019	12/17/2019	34.85	24.15	0	--

DUKE ENERGY KENTUCKY  
SERVICE AREA ENERGY FORECAST (MEGAWATT HOURS) (a)

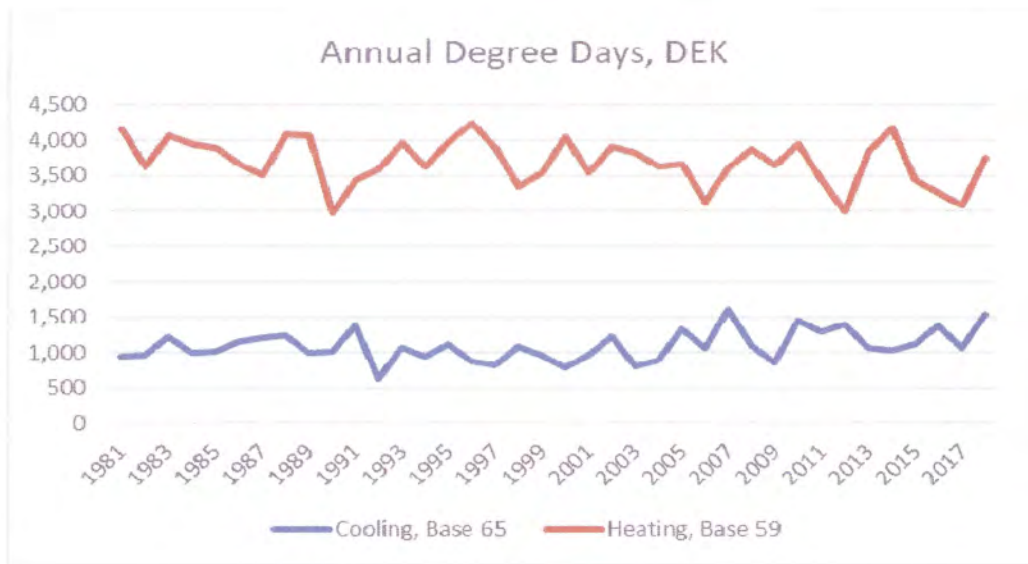
	(1)	(2)	(3)	(4)	(5)	(6)	(7) (1+2+3+4+5 +6) TOTAL CONSUMPTI ON
YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	STREET- HWY LIGHTING	OPA	OTHER	
-5 2014	1,489,005	1,469,671	828,328	16,228	291,990	804	4,096,026
-4 2015	1,432,815	1,477,124	812,690	15,924	291,085	757	4,030,395
-3 2016	1,450,727	1,483,496	807,422	16,021	292,100	716	4,050,482
-2 2017	1,449,551	1,462,040	803,532	16,213	279,085	1,136	4,011,557
-1 2018	1,451,822	1,451,337	806,064	15,007	279,580	726	4,004,535
0 2019	1,457,669	1,436,730	813,219	14,960	278,420	715	4,001,713
1 2020	1,465,953	1,448,900	815,469	14,901	279,845	717	4,025,786
2 2021	1,466,896	1,458,281	897,224	14,868	278,122	715	4,116,106
3 2022	1,473,531	1,465,081	1,056,481	14,871	279,172	715	4,289,852
4 2023	1,483,281	1,468,640	1,075,610	14,887	280,639	715	4,323,772
5 2024	1,493,303	1,474,308	1,095,956	14,916	282,008	717	4,361,207
6 2025	1,508,411	1,483,852	1,123,130	14,949	283,572	715	4,414,629
7 2026	1,523,175	1,489,073	1,149,166	14,974	285,614	715	4,462,717
8 2027	1,544,607	1,503,236	1,182,365	15,000	287,940	715	4,533,863
9 2028	1,564,676	1,516,280	1,207,871	15,019	290,187	717	4,594,750
10 2029	1,586,475	1,529,727	1,204,530	15,037	292,085	715	4,628,570
11 2030	1,613,124	1,537,441	1,201,054	14,991	293,570	715	4,660,895
12 2031	1,634,201	1,541,035	1,197,236	14,948	294,723	715	4,682,859
13 2032	1,654,747	1,545,544	1,192,916	14,909	295,742	717	4,704,576
14 2033	1,680,916	1,554,136	1,188,093	14,874	296,725	715	4,735,459
15 2034	1,707,434	1,561,956	1,182,629	14,847	297,728	715	4,765,310
16 2035	1,737,241	1,573,264	1,176,430	14,822	298,726	715	4,801,198
17 2036	1,764,395	1,583,030	1,170,271	14,799	299,553	717	4,832,765
18 2037	1,794,807	1,594,077	1,163,996	14,773	300,384	715	4,868,753
19 2038	1,824,893	1,605,668	1,157,207	14,745	301,151	715	4,904,379
20 2039	1,854,155	1,616,840	1,149,894	14,717	301,910	715	4,938,231

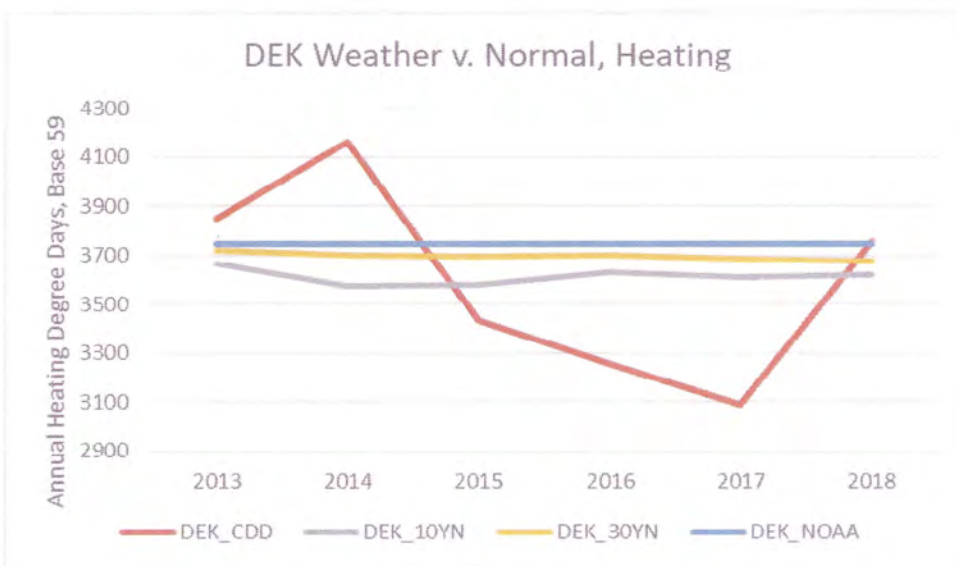
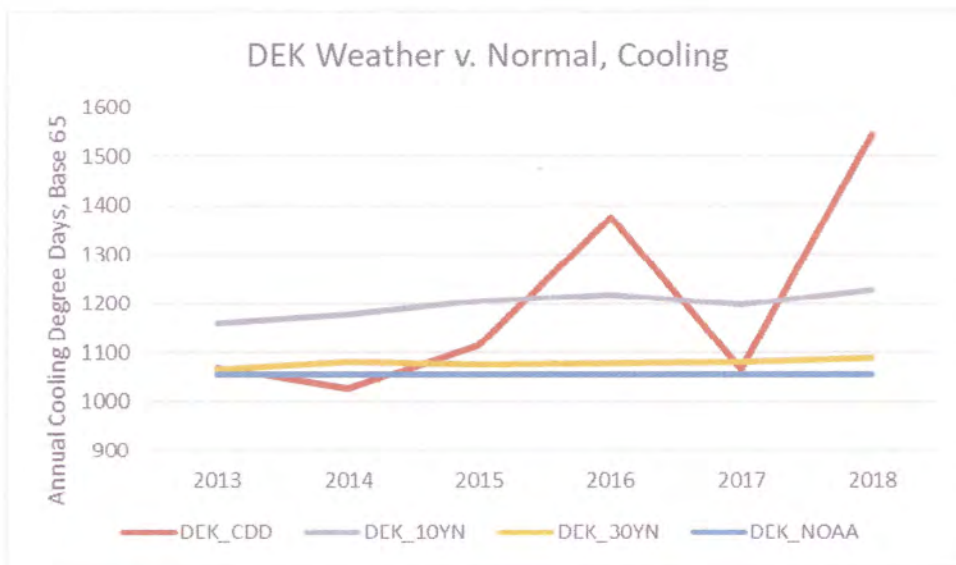
(a) Figures in years -5 through -1 reflect the impact of historical demand side programs

Duke Energy Kentucky  
SYSTEM SEASONAL PEAK LOAD FORECAST (MEGAWATTS) (a,b)

	YEAR	LOAD	SUMMER		WINTER ( e)		
			CHANGE (c)	PERCENT CHANGE (d)	CHANGE (c)	PERCENT CHANGE (d)	
-5	#REF!	837			860		
-4	#REF!	814	-23	-2.7%	799	-61	-7.0%
-3	#REF!	877	63	7.8%	739	-60	-7.5%
-2	#REF!	841	-36	-4.1%	733	-6	-0.8%
-1	#REF!	847	6	0.7%	797	64	8.7%
0	#REF!	846	-1	-0.1%	714	-83	-10.5%
1	#REF!	849	3	0.4%	727	13	1.8%
2	#REF!	858	8	1.0%	744	17	2.3%
3	#REF!	886	29	3.4%	767	23	3.2%
4	#REF!	893	6	0.7%	770	4	0.5%
5	#REF!	901	8	0.9%	773	3	0.3%
6	#REF!	911	10	1.1%	782	9	1.2%
7	#REF!	920	9	1.0%	788	6	0.8%
8	#REF!	934	14	1.5%	798	11	1.4%
9	#REF!	947	13	1.4%	805	7	0.9%
10	#REF!	956	9	1.0%	813	8	1.0%
11	#REF!	964	8	0.9%	819	6	0.7%
12	#REF!	971	7	0.7%	822	3	0.4%
13	#REF!	979	7	0.8%	823	1	0.2%
14	#REF!	987	9	0.9%	831	8	0.9%
15	#REF!	996	9	0.9%	836	5	0.6%
16	#REF!	1007	11	1.1%	843	7	0.8%
17	#REF!	1016	10	1.0%	846	3	0.4%
18	#REF!	1027	11	1.1%	855	9	1.1%
19	#REF!	1038	10	1.0%	862	7	0.8%
20	#REF!	1048	10	1.0%	869	7	0.8%

- (a) Figures in years -5 through -1—which are not weather-normalized—reflect the impact of historical demand side programs.
- (b) Includes interruptible and demand response load.
- (c) Defference between reportin year and previous year.
- (d) Difference expressed as a percent of previous year.
- (e ) Winter load reference is to peak loads which occure in the following winter.





**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

The Electronic Application of Duke )  
Energy Kentucky, Inc., for: 1) An )  
Adjustment of the Electric Rates; 2) ) Case No. 2019-00271  
Approval of New Tariffs; 3) Approval of )  
Accounting Practices to Establish )  
Regulatory Assets and Liabilities; and 4) )  
All Other Required Approvals and Relief. )

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**DIRECT TESTIMONY OF**  
**LESLEY G. QUICK**  
**ON BEHALF OF**  
**DUKE ENERGY KENTUCKY, INC.**

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September 3, 2019

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**I. INTRODUCTION AND PURPOSE**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Lesley G. Quick and my business address is 400 South Tryon Street,  
3 Charlotte, North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Duke Energy Carolinas, LLC (DEC) as Vice President  
6 Revenue Services. DEC is a subsidiary of Duke Energy Corporation (Duke  
7 Energy) which provides various services to Duke Energy Kentucky, Inc. (Duke  
8 Energy Kentucky or Company) and other affiliated companies of Duke Energy.

9 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND**  
10 **PROFESSIONAL EXPERIENCE.**

11 A. I obtained a Bachelor's degree in Financial Management from Clemson  
12 University in 2002. I started with the Duke Energy two weeks after graduation  
13 and have remained an employee for the past 17 years. Since 2002, I have worked  
14 for the Company in a variety of roles, each with increasing responsibility, in  
15 Finance, Rates and Regulatory Compliance, Corporate Strategy and Customer  
16 Solutions products and services. I assumed my current position in Customer  
17 Services in 2017.

18 **Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES AS VICE PRESIDENT**  
19 **REVENUE SERVICES.**

20 A. I am responsible for developing the strategy, operational plans, business controls  
21 and workforce strategy for the Company's billing operations, advanced meter  
22 infrastructure operations, payment processing across multiple channels and credit

1 and collection processes for approximately 8 million retail electric and gas  
2 customers across all six jurisdictions.

3 I am also responsible for the customer experience across these operations  
4 and ensuring appropriate compliance with regulatory guidelines and policies  
5 throughout the critical billing, revenue and payment streams.

6 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY**  
7 **PUBLIC SERVICE COMMISSION?**

8 A. No.

9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
10 **PROCEEDING?**

11 A. The purpose of my testimony is to highlight Duke Energy Kentucky's exceptional  
12 service to our customers and how that translates to customer satisfaction. I also  
13 describe some of the steps the Company is taking to further improve the  
14 experience and satisfaction of our customers when they engage with us. Finally, I  
15 support the Company's proposal to establish a fee-free payment option for  
16 residential customers who use credit cards, debit cards, and electronic checks to  
17 pay their electric bills (hereinafter, "fee-free program") as well as support the  
18 Company's proposal to implement a new charge that is intended to discourage  
19 customers from engaging in behaviors related to meter tampering and fraudulent  
20 activities as it relates to electric service.

## **II. OVERVIEW OF CUSTOMER SERVICES**

1 **Q. PLEASE DESCRIBE THE COMPANY'S CUSTOMER SERVICE GOAL.**

2 A. One of the Company's most important goals is to provide excellent customer  
3 service. Customer service is a factor in the policies, programs and decisions that  
4 the Company implements.

5 **Q. PLEASE BRIEFLY DESCRIBE HOW THE COMPANY MEASURES**  
6 **EXCELLENCE IN CUSTOMER SERVICE?**

7 A. The Company is using a proprietary survey, CX Monitor, to measure Net  
8 Promoter Score (NPS) by asking customers to rate 'How likely it is that they will  
9 recommend Duke Energy Kentucky to a friend or colleague' on a '0-10' scale.  
10 NPS is a top metric utilized by companies across industries to measure customer  
11 advocacy.

12 In addition to measuring customer advocacy, the CX Monitor survey also  
13 measures customer satisfaction with key experiences they have had with Duke  
14 Energy Kentucky over the past 12 months, and asks for prompt customer  
15 feedback, which is reviewable by the Company in near real-time. Examples of  
16 these experiences may be an outage experience or a payment experience.  
17 Customers provide a score for each experience they have had on a '0-10' scale  
18 and allows for open-end verbatim comments detailing the primary reason(s) for  
19 their score.

20 The value of the CX Monitor over other surveys is that it asks our own  
21 customers about their perceptions, which can be compared against their actual  
22 experiences. Duke Energy has been using NPS since January 2018, and has

1 already collected responses from more than 410,000 residential electric customer  
2 surveys and over 25,000 small / medium (SMB) surveys enterprise wide. Duke  
3 Energy Kentucky has been able to leverage the data to generate insights, which  
4 has helped it prioritize investment to drive customer satisfaction. The Company  
5 also has implemented Fastrack 2.0, a proprietary post-transaction measurement  
6 program. Fastrack 2.0 measures the quality of interactions customers have with  
7 the Company, helping the evaluation of its customer performance.

8 **Q. HOW DOES THE COMPANY UTILIZE CUSTOMER CARE CENTERS,**  
9 **ITS CALL CENTER OPERATION?**

10 A. Duke Energy Kentucky has the ability to utilize two Customer Care Centers in the  
11 Midwest to support our Kentucky utility operations and serve our customers.  
12 These two Midwest customer care centers are located at 139 East Fourth Street,  
13 Cincinnati, Ohio, and at 1000 East Main Street, Plainfield, Indiana, respectively.  
14 Both centers are open from 7:00 a.m. to 7:00 p.m. Monday through Friday for  
15 normal business. We also utilize vendor call centers in Alabama and Atlanta to  
16 supplement our Midwest customer care centers.

17 Additionally, the Company has recently implemented the Duke Energy  
18 Social Media Customer Care program, which operates Monday through Friday  
19 from 8:00 a.m. to 5:00 p.m. assisting customers on Facebook, Twitter, LinkedIn,  
20 and Instagram. Utilizing resources from the Consumer Affairs organization,  
21 employees assist customers in a private, one-on-one conversation using  
22 Messenger to address any questions or issues that they may be having. The top

1 most frequent inquiries that we receive on social media are related to outages,  
2 billing and payment, website, and vegetation management.

3 **Q. HOW HAS DUKE ENERGY KENTUCKY MODERNIZED ITS**  
4 **COMMUNICATION CAPABILITIES FOR CUSTOMERS?**

5 A. The Company has made available a free mobile app for customers to utilize for  
6 managing their account. The mobile app allows residential and small business  
7 customers to easily manage their account from anywhere. The app was developed  
8 based on customers' most requested features – with it, customers can: view and  
9 pay their bill, use the app to set reminders, schedule automatic payments or view  
10 their billing history, report an outage and receive restoration updates, monitor  
11 their energy use over time so they can better manage it, and receive personalized  
12 offers that help them save. The app uses the same log-in as customers current  
13 account and has an option to use fingerprint or facial recognition for a fast, secure  
14 sign-in.

**III. TRANSFORMING THE CUSTOMER EXPERIENCE**

15 **Q. PLEASE DESCRIBE THE COMPANY'S EFFORTS TO ENHANCE**  
16 **CUSTOMER SATISFACTION.**

17 A. Duke Energy Kentucky is working hard across the business to further improve the  
18 customer experience. For example, new technology is shortening and sometimes  
19 eliminating power outages. Smart meters are giving customers new ways to  
20 manage and reduce electricity usage, saving them money. In the Customer  
21 Services organization, we are doing our part to transform the customer experience  
22 by making strategic, value-based investments for the benefit of our customers.

1 **Q. PLEASE PROVIDE EXAMPLES OF WAYS YOUR ORGANIZATION IS**  
2 **HELPING TO TRANSFORM THE CUSTOMER EXPERIENCE.**

3 A. Two key examples are enhancements to our interactive voice response (IVR)  
4 system and the future deployment of a new customer information system (CIS)  
5 called Customer Connect.

6 **Q. PLEASE DESCRIBE THE IVR SYSTEM.**

7 A. Duke Energy launched an effort to replace the existing IVR system across all  
8 jurisdictions with advanced technology focused on transforming the caller's  
9 experience. The IVR design reflects learnings from customer feedback and  
10 industry best practices that led to several key areas of focus, which include: 1)  
11 proactively identifying the customers and why they are calling the Company; 2) a  
12 tailored customer experience similar to what they receive from other consumer  
13 product companies; and 3) less menu options to complete their request in the IVR.  
14 Options available after the deployment of the new IVR include call intent  
15 prediction, easy self-serve options, customer call back and a post-call survey. The  
16 call intent prediction functionality predicts the reason the customer is calling the  
17 Company. For example, "I see you have a pending service order scheduled for  
18 tomorrow. Is this why you are calling?" The Company recognizes customers want  
19 the ability to self-serve while navigating seamlessly through the IVR. Existing  
20 self-service functionality such as requesting a payment arrangement and reporting  
21 a power outage will be improved supporting a positive customer experience. New  
22 self-serve options include texting a link to local payment locations, allowing

1 customers the ability to update their phone number in the IVR and requesting  
2 their account number through the IVR.

3 An increased number of calls during a specified timeframe may result in  
4 longer than usual hold times to speak with a specialist. The new IVR will also  
5 allow customers the option to continue holding until a specialist is available, or  
6 have the place in line reserved for them allowing for us to return their call at the  
7 phone number of their choice. The Company's ongoing focus to understand "the  
8 voice of the customer" has been expanded to the new IVR with the  
9 implementation of the post-call survey. The post-call survey offers customers the  
10 option to provide feedback on their experience by year end 2019.

11 **Q. PLEASE DESCRIBE THE NEW CIS.**

12 A. Duke Energy Kentucky witness Retha Hunsicker provides greater detail regarding  
13 the legacy CIS and the new CIS in her direct testimony. In summary, Duke  
14 Energy has begun conversion of its antiquated and incompatible customer  
15 information systems into a single and modern customer service platform, known  
16 as Customer Connect. Through this conversion, the Company will be able to  
17 deliver a customer experience that will simplify, strengthen and advance our  
18 ability to serve our customers. The platform will be leveraged to provide real-time  
19 insights to enhance the customer experience.

**IV. TRANSACTION FEE-FREE PROGRAM**

1 **Q. HAS THE COMPANY IDENTIFIED ADDITIONAL PROGRAMS THAT**  
2 **IT MAY OFFER TO IMPROVE CUSTOMER SATISFACTION?**

3 A. Yes. The Company is seeking to implement a fee-free card/electronic check  
4 payment program to eliminate convenience fees for credit card, debit card, and  
5 electronic check payments made by our customers to our third party pay vendor.  
6 The requirement for a customer to pay a convenience fee when making a payment  
7 for their utility bill is one of the largest frustrations customers experience.  
8 Customers have grown accustomed to paying for other products and services with  
9 a credit card or debit card without a separate, additional fee. According to J.D.  
10 Power, customer satisfaction ratings for utilities that assess convenience fees are  
11 lower than ratings for utilities that fold those convenience fees into their utility  
12 rates.

13 **Q. PLEASE EXPLAIN THE COMPANY'S PROPOSAL FOR A**  
14 **TRANSACTION FEE-FREE PROGRAM.**

15 A. Currently, customer payments made by mailing a check or money order, paying  
16 with cash or check at a free pay station, using bank draft or paperless billing are  
17 free of charge. The costs for the Company to offer these methods are paid for by  
18 all customers and not recovered exclusively by those specific customers that use  
19 any of the above methods of payment. However, residential customers using a  
20 credit card, debit card or electronic check through any authorized Duke Energy  
21 payment channel (IVR, web, Mobile App, or over the phone via live customer  
22 service representative) are subject to a \$1.50 convenience fee per transaction. The



1 convenience fee is collected from the customer by the Company's third-party  
2 vendor, SpeedPay, and is applicable to all channels listed above including live  
3 customer service. The Company receives no portion of this fee.

4 As customer expectations change and more payments are processed  
5 electronically, utility companies are beginning to offer fee-free payment programs  
6 for their residential customers for all methods of payment. The Company believes  
7 it is reasonable to offer a fee-free payment program for all payment methods to its  
8 residential customers, and recover the costs associated with such a program from  
9 all customers through rates. Duke Energy has seen a 13 percent average year-  
10 over-year growth in credit/debit card transactions over the past several years, and  
11 with this change we expect the growth rate to double once fees are removed – so  
12 26 percent more transactions in 2020 than projected in 2019. Eliminating these  
13 fees for the Company's residential customers would provide additional options for  
14 residential customers to pay their bills.

15 **Q. HOW IS THE COMPANY PROPOSING TO MODIFY THE CURRENT**  
16 **METHODS OF PAYMENT AND ANY ASSOCIATED FEES?**

17 A. The Company is proposing to offer a fee-free payment program for credit card,  
18 debit card and electronic check payment methods to its residential customers, and  
19 to recover the costs associated with that program from all customers through our  
20 cost of service. This would eliminate the \$1.50 convenience fee currently directly  
21 charged to these residential customers paying by credit, debit or electronic check.

1 **Q. WHY IS THE COMPANY PROPOSING THESE MODIFICATIONS AT**  
2 **THIS TIME?**

3 A. As customer expectations change and more payments are processed  
4 electronically, utility companies are beginning to offer fee-free payment programs  
5 for their residential customers for all methods of payment.<sup>1</sup> Customers are  
6 increasingly making more payments today by credit or debit card. The number of  
7 payments made by credit and debit cards continues to grow as a preferred method  
8 of payment by many consumers.<sup>2</sup> The Company believes it is reasonable to offer a  
9 fee-free payment program for these payment methods to its residential customers,  
10 and recover the costs associated with that program from all customers through  
11 cost of service.

12 **Q. HAVE THE COMPANY'S RESIDENTIAL CUSTOMERS REQUESTED**  
13 **COST FREE ALTERNATIVE BILLING PAYMENTS?**

14 A. Yes. Customers have grown accustomed to paying for other products and services  
15 with a credit card or debit card without a separate, additional fee. The requirement  
16 to pay a transaction fee when making a payment is one of the largest frustrations  
17 customers experience when paying their utility bill. Customer complaints over  
18 these additional fees stem from the fact that these fees are already accounted for  
19 in the retail price of virtually all other products that consumers purchase every

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<sup>1</sup> According to J.D. Power and Associates, as of 2016, about 28 percent of surveyed electric utilities provide a fee-free card payment option. *See* J.D. Power Catalog. J.D. Power and Associates, 2016 Electric Utility Residential Customer Satisfaction Study.

<sup>2</sup> According to the Federal Reserve Payments Study: 2018 Annual Supplement. The number of payments made by credit, non-prepaid debit, and prepaid debit cards grew more rapidly than the number of payments made by any other payment type in the 2012 to 2015 and 2016 to 2017 periods.

1 day. For example, in the Company’s 2019 monthly residential surveys, residential  
2 customers noted the following when asked what they liked least about their billing  
3 and payment experience:

4 *“I Pay with a credit card and I wish Duke accepted credit cards without a service*  
5 *fee”*

6 *“I was disappointed that there is a charge to pay your bill online, seems counter*  
7 *intuitive”*

8 *“The processing fee seems unnecessary.”*

9 *“I like being able to pay online but I don’t like the convenience fee that is applied*  
10 *to do so”*<sup>3</sup>

11 We know our residential customers will appreciate having the ability to use credit  
12 and debit cards with the Company the same way they can with other companies.

13 **Q. HOW WOULD COST FREE ALTERNATIVE PAYMENT METHODS**  
14 **BENEFIT THE COMPANY’S RESIDENTIAL CUSTOMERS?**

15 A. Eliminating these fees for the Company’s residential customers would provide  
16 additional fee-free options for residential customers to pay their bills. In addition,  
17 the option of a fee-free payment when using a credit card, debit card or electronic  
18 check would lead to greater satisfaction for all customers who primarily pay for  
19 goods and services with these payment methods. There are many reasons why

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<sup>3</sup> Source- internal surveys.

1 customers would prefer to use their credit or debit card, which include: 1)  
2 customers feel safer using a debit or credit card that includes security protections  
3 from their bank; 2) using a prepaid card; 3) receiving loyalty rewards; or 4)  
4 younger generations that are most likely to pay digitally because they do not use  
5 paper checks. Regardless of the reason a customer may have, they would be more  
6 satisfied with the ability to pay by the method of their choice without incurring  
7 additional fees.

8 **Q. WHAT IS THE COMPANY PROPOSING WITH RESPECT TO THESE**  
9 **FEES AS PART OF THIS PROCEEDING?**

10 A. The Company proposes to recover the costs associated with the fee-free payment  
11 program through base rates, thereby eliminating the per-transaction convenience  
12 fees directly charged. The Company is proposing to accomplish this through an  
13 adjustment to the test year revenue requirement as explained by Duke Energy  
14 Kentucky witness Ms. Sarah E. Lawler.

15 **Q. WHY IS IT EQUITABLE TO CHANGE THE MODEL FROM A PER**  
16 **TRANSACTION DIRECT CHARGE TO A COST SPREAD ACROSS THE**  
17 **ENTIRE CUSTOMER BASE?**

18 A. The more convenient the Company can make the bill paying process for  
19 customers to pay bills, the more all customers will benefit. Customers who self-  
20 serve, pay on time, and are satisfied with the options available to them are the  
21 least expensive to serve, which is a benefit to all customers. Customers who do  
22 not pay on time and enter the credit collections cycle drive increased costs, which

1 are paid for by all customers. Lastly, customers who are not satisfied tend to call  
2 the Customer Care Center more often. Every call into the call center results in  
3 increased costs for all customers. This means that every call that can be avoided  
4 leads to savings for all customers. Giving customers options to pay by the method  
5 of their choice without incurring additional fees will lead to more satisfied  
6 customers.

7 **Q. CAN YOU SUMMARIZE THE ADOPTION RATE THAT THE**  
8 **COMPANY ANTICIPATES IF THIS PROGRAM WERE**  
9 **IMPLEMENTED?**

10 A. Yes. Based on market research, analytics, and industry trends, the Company  
11 anticipates that increase in adoption once the fee-free program is double the  
12 current growth in transaction volume during the first 12 months. This expectation  
13 is aligned with what vendors have experienced with other utilities that make the  
14 switch from a convenience fee model to a fee-free payment model.

15 **Q. IS THE COMPANY PROPOSING A FEE-FREE PROGRAM FOR ITS**  
16 **COMMERCIAL AND INDUSTRIAL CUSTOMERS AT THIS TIME?**

17 A. The Company is not. More cost-effective payment methods are generally  
18 available to commercial and industrial customers, because these customers'  
19 average payment amount is significantly higher than residential (which leads to  
20 higher processing costs). Based on these considerations, at this time the Company  
21 is not proposing a fee-free program for commercial and industrial customers.

**V. FRAUD AND METER TAMPERING DETERRENT PROPOSAL**

1 **Q. PLEASE EXPLAIN DUKE ENERGY KENTUCKY'S PROPOSAL TO**  
2 **DISCOURAGE FRAUD AND METER TAMPERING.**

3 A. The Company seeks to implement this new proposal for a tampering penalty as a  
4 deterrent for customers from tampering with meters. Not only is tampering with a  
5 meter considered theft and is punishable by law, it also creates safety hazards for  
6 customers and utility employees. When someone tampers with a meter, it also adds  
7 to the Company's cost of doing business. When a customer tampers with Company  
8 equipment, the customer is responsible for previous usage, field personnel  
9 investigation charge, and equipment damage. However, there presently is not a  
10 penalty or fee to deter customers from doing it again.

11 **Q. HOW DOES DUKE ENERGY KENTUCKY CURRENTLY HANDLE**  
12 **SITUATIONS INVOLVING FRAUD OR METER TAMPERING?**

13 A. Currently, customers who are caught stealing gas and/or electricity are back-billed  
14 for the usage they didn't pay and damage to equipment, if any, and billed for the  
15 cost of any investigation.

16 **Q. WHY IS DUKE ENERGY KENTUCKY MAKING THIS PROPOSAL?**

17 A. When someone tampers with a meter, not only is it extremely dangerous, it also adds  
18 to our cost of doing business and that affects everyone's bills. Duke Energy  
19 Kentucky works hard to serve all customers in the most cost-efficient manner  
20 possible.

1 **Q. WHAT IS THE COMPANY PROPOSING?**

2 A. The Company proposes to impose an additional penalty for tampering with  
3 Company equipment. The proposed fee is \$200 for residential customers and  
4 \$1,000 for nonresidential customers.

5 **Q. WHAT IS THE EXPENSE ASSOCIATED WITH THE PROPOSED**  
6 **PROGRAM?**

7 A. The cost of implementation of the additional fee is negligible, as its existing  
8 Company labor, legal, and regulatory personnel would implement the program.  
9 There would be a small cost associated with training, as well as communications  
10 to stakeholders.

11 **Q. HAD THE TAMPER PENALTY FEE PROGRAM BEEN IN PLACE IN**  
12 **2018, HOW MUCH REVENUE WOULD HAVE BEEN COLLECTED**  
13 **FROM THE PROGRAM?**

14 A. In 2018, there were 112 cases of residential tampering, and zero instances of non-  
15 residential tampering. The total penalty under the proposed program would have  
16 been \$22,400.

17 **Q. WHAT ARE THE ANTICIPATED REVENUES TO BE COLLECTED**  
18 **FROM THE TAMPER PENALTY FEE PROGRAM?**

19 A. As described by Company witness Ms. Lawler, set forth on the Applicant's  
20 Schedule D-2.21, the Company is providing an adjustment to its revenue  
21 requirement of \$22,400 to reflect the anticipated revenues collected from the  
22 proposed Tamper Penalty Program.

**VI. CONCLUSION**

1 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

2 **A. Yes.**



VERIFICATION

STATE OF NORTH CAROLINA )  
 ) SS:  
COUNTY OF MECKLENBURG )

The undersigned, Lesley G. Quick, Vice President Revenue Services, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing testimony and that it is true and correct to the best of her knowledge, information and belief.

*Lesley G. Quick*  
\_\_\_\_\_  
Lesley G. Quick Affiant

Subscribed and sworn to before me by Lesley G. Quick on this 8 day of August, 2019.

*Lori S. Thompson*  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: March 18, 2022

