COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION

CASE NO. 2016-00371

ELECTRONIC APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES AND FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY

DIRECT TESTIMONY OF DENNIS W. GOINS, PH.D. ON BEHALF OF KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

March 3, 2017

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INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Dennis W. Goins. I operate Potomac Management Group, an economics and management consulting firm. My business address is 5801 Westchester Street, Alexandria, Virginia 22310.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a Ph.D. degree in economics and a Master of Economics degree from North Carolina State University. I also earned a B.A. degree with honors in economics from Wake Forest University. Following graduate school I worked as a staff economist at the North Carolina Utilities Commission (NCUC), where I testified in numerous cases involving electric, gas, and telephone utilities. Since leaving the NCUC, I have

worked as an economic and management consultant to firms and organizations in the private and public sectors. My assignments focus primarily on policy, planning, and pricing issues involving firms that operate in energy markets. For example, I have conducted detailed analyses of product pricing, cost of service, rate design, and interutility planning, operations, and pricing issues; prepared analyses related to utility mergers, transmission access and pricing, and the development of competitive markets; evaluated and developed regulatory incentive mechanisms applicable to utility operations; and assisted clients in analyzing and negotiating interchange agreements and power and fuel supply contracts.

I have submitted testimony and affidavits and provided technical assistance in more than 200 proceedings before state and federal agencies as an expert in cost of service, rate design, competitive market issues, regulatory policy, and utility planning and operating practices. These agencies include the Federal Energy Regulatory Commission (FERC), the Government Accountability Office, state courts in Iowa, Montana, and West Virginia, and regulatory agencies in Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, West Virginia, Wyoming, and the District of Columbia.[1]

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I previously filed testimony in Case Nos. 2009-00548, 2009-00549, 2012-00221, and 2012-00222.

[1] *See* Exhibit DWG-1.

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A. I am appearing on behalf of the Kentucky Industrial Utility Customers, Inc. (KIUC). Two KIUC members are served by Louisville Gas and Electric Company (LG&E) under its curtailable service Rider CSR.[2]

Q. WHAT ASSIGNMENT WERE YOU GIVEN WHEN YOU WERE RETAINED?

A. I was asked to review LG&E's base rate filing, focusing on LG&E's proposals regarding curtailable rate options[3] that it offers. In particular, I was asked to determine whether LG&E's proposals are reasonable, and, if necessary, suggest recommended changes.

Q. WHAT INFORMATION DID YOU REVIEW IN CONDUCTING YOUR EVALUATION?

A. I reviewed LG&E's filing, testimony, exhibits, and responses to requests for information.[4] I also reviewed testimony and Commission orders in prior LG&E rate and integrated resource planning (IRP) cases. Finally, I reviewed information found on web sites operated by LG&E and KU, PPL Corporation, PJM—a regional transmission organization, FERC, and the Commission.

[2] Two additional KIUC members are served under curtailable rate options offered by Kentucky Utilities Company (KU), LG&E's sister operating company. One of the KIUC members has four different business divisions counted as separate CSR customers by KU. As a result, seven of the CSR customers served by LG&E and KU are represented by KIUC.

[3] LG&E uses *curtailable* in designating its current and proposed nonfirm rate options for large industrial customers. Curtailable or interruptible load is generally associated with a customer's agreement either to reduce load to zero or no more than the customer's firm contract demand, or to provide a contractually stated reduction in demand when requested by the host utility. In my testimony, I use *curtailable* and *interruptible* interchangeably except when referring to specific LG&E nonfirm rate options that are designated *curtailable*.

[4] Selected responses related to LG&E's Rider CSR are presented in Exhibit DWG-2.

CONCLUSIONS AND RECOMMENDATIONS

Q. WHAT CONCLUSIONS HAVE YOU REACHED?

A. On the basis of my review and evaluation, I have concluded the following:

1. LG&E currently offers curtailable service under Rider CSR, which includes administratively set credits (differentiated by service voltage) paid to customers for their curtailable load measured during specified periods. The current CSR rider includes both physical and economic curtailments, a 60-minutes notice before a curtailment begins, maximum annual hours of physical (100 hours) and economic (275 hours) curtailments permitted,[5] and, as noted, credits differentiated by a customer's service voltage. In addition, a CSR customer may choose either of two types of load reduction (Option A or Option B).[6]
2. In this case, LG&E has proposed four significant changes to Rider CSR—two of which unreasonably increase the cost of interruptible service to large manufacturers. (Some of these CSR customers have invested millions of dollars in production processes designed to operate efficiently using nonfirm electric service.) More specifically, LG&E has proposed:
   - Closing Rider CSR to new curtailable load that was not under contract at the end of 2016.
   - Changing the analytical method used to set CSR credits. In this case, LG&E abandoned the avoided cost approach to set CSR credits—an approach that has been used by LG&E and approved by this Commission in numerous prior cases. In this case, LG&E

[5] During a physical curtailment, a CSR customer must reduce load either to or below the customer's firm contract demand (Option A) or by a specified amount (Option B). During a physical curtailment, a CSR customer does not have the option to buy curtailable energy during the curtailment. During an economic curtailment, a CSR customer may either buy curtailable energy at the Automatic Buy-Through Price—a formula-based price specified in Rider CSR, or reduce load according to the terms of contract Option A or Option B.

[6] LG&E's affiliated operating company (KU) offers the same curtailable rate options.

switched to an arcane embedded cost approach that has no sound economic or engineering basis.

- Reducing CSR credits by 44 percent.[7] Most of LG&E's applications for base rate adjustments in the past 10 years have included proposals to slash CSR credits and/or impose more onerous CSR service conditions relative to the CSR rider in effect at the time of each rate case. This current case is no different. LG&E's proposed reduction in the CSR credits—combined with its proposed increases in applicable firm service rates used in conjunction with the CSR rider—dramatically increases the total cost of electric service for CSR customers. Despite these severe rate impacts, LG&E did not present or discuss its proposed changes to Rider CSR with interruptible customers prior to filing this case, nor did LG&E evaluate the potential customer impacts of its proposed CSR changes.[8]
- Changing the designated gas price index used to set economic buy-through prices in the Automatic Buy-Through Price formula. The current formula defines the designated gas price as the mid-point natural gas price for the buy-through day posted in *Platt's Gas Daily* for Dominion South Point delivery. LG&E wants to change the designated gas price to the most recently posted cash price for Henry Hub gas posted in the *Wall Street Journal* at least one day preceding the buy-through (Henry Hub daily spot price).

3. In its testimony and data responses in this case, LG&E has raised some important CSR issues—for example, the current limitation on physical curtailments and its inability to use CSR load as operating reserve because of the 60-minutes notice requirement before a

[7] Under LG&E's proposal, the CSR credits per kVA of curtailable load decrease from $6.50 (primary) and $6.40 (transmission) to $3.67 (primary) and $3.56 (transmission).
[8] *See* LG&E's responses to KIUC 1-48(b)-(d) in Exhibit DWG-2.

curtailment begins.[9] These issues are not addressed in LG&E's proposed changes to Rider CSR. Moreover, as I noted earlier, most of LG&E's recent base rate applications include a common theme—unilateral proposals that cut the value of interruptible service to CSR customers.

Q. WHAT DO YOU RECOMMEND ON THE BASIS OF THESE CONCLUSIONS?

A. I recommend that the Commission:

1. Reject LG&E's proposed embedded cost method for determining the CSR credits. This embedded cost method arbitrarily biases the estimated value of curtailable load downward dramatically relative to the avoided cost approach that has been vetted and approved in prior cases. Instead of LG&E's embedded cost approach, I recommend that the Commission require LG&E to continue using an avoided cost approach as the basis for setting CSR credits. LG&E uses the avoided (or marginal) cost approach to evaluate load management and energy efficiency programs offered to customers and in developing its integrated resource plans (IRPs). LG&E should not be allowed to single out Rider CSR and use a completely different cost method to evaluate its interruptible rate option for industrial customers.
2. Reject LG&E's proposed reduction in the CSR credits. Instead, the Commission should require LG&E to leave the credits unchanged. LG&E has provided no compelling evidence to justify arbitrarily reducing (by nearly half) CSR credits that were set just two years ago. LG&E's proposed CSR reductions contribute to unreasonably high rate increases for CSR customers, reduce the competitiveness of CSR manufacturers in Kentucky, and dramatically decrease the

[9] *See* LG&E's response to KIUC 1-55(c)-(e) in Exhibit DWG-2.

attractiveness of interruptible service. LG&E's CSR credits should not be changed.

3. Approve LG&E's proposed change in the designated gas price used in pricing buy-through energy purchased during economic curtailments under Rider CSR. The proposed change addresses market issues that could artificially depress the price of buy-through energy. Switching to the Henry Hub daily spot price is a reasonable way to address the problem.

4. Establish a post-rate case process in which stakeholders can work together to resolve recurring CSR-related issues. In my opinion, a collaborative approach to address and resolve CSR issues would be more reasonable and productive compared to the unilateral approach LG&E usually takes in rate cases. I recommend that the Commission establish a post-rate case process led by the Commission Staff and open to interested stakeholders in which the parties can identify, address, and try to reach consensus on ways to improve industrial interruptible rate options that will benefit firm as well as interruptible customers. The Commission should require a stakeholder report detailing the group's conclusions and recommendations regarding potential changes and improvements in LG&E's industrial interruptible rate options, including Rider CSR. This report could then be used as the framework for addressing CSR and other interruptible issues in LG&E's next base rate case.

BACKGROUND: INTERRUPTIBLE SERVICE

Q. HOW DOES INTERRUPTIBLE SERVICE DIFFER FROM FIRM SERVICE?

A. Interruptible service and firm service are separate utility products, with availability of the interruptible product dependent on the demand for the

firm product being less than available supply. On a daily basis, utilities serve interruptible loads using available generating resources that are not required to serve firm load. That is, the available supply of interruptible service depends on the relationship between available power supply resources and firm service demands at a point in time. From a long-term planning perspective, utilities are able to avoid building or acquiring new supply resources to serve interruptible load.[10]

Unlike customers buying firm service, interruptible customers agree to interrupt or curtail all or part of their loads under terms specified in applicable interruptible rates and/or contracts with their supplier. Service interruptions are normally required when reliability to firm service customers is threatened—for example, when firm demand exceeds available electric supply. At other times, when available generating resources are not required to serve firm load, service interruptions are unnecessary since the supplier has excess capacity available to serve firm load.[11] The price for interruptible service is less than firm service because it is a different, lower quality product. In addition, interruptible customers typically face significant financial penalties if they do not interrupt load when required.[12]

Q. DO FIRM CUSTOMERS AS WELL AS THE UTILITY SUPPLIER BENEFIT FROM INTERRUPTIBLE LOAD?

A. Yes. In general, interruptible load enables a supplier to maximize the value of existing capacity resources and to avoid acquiring new capacity resources. Utilities can also use interruptible load, if permitted, for high-value off-system sales or to mitigate high incremental fuel costs paid by

[10] In some wholesale markets, interruptible load is treated as a supply-side resource that can be bid into capacity resource auctions.
[11] Some interruptible rates and service agreements (including Rider CSR) permit curtailments for economic reasons even when capacity is available.
[12] In Rider CSR, the penalty for failing to comply with a curtailment request (Noncompliance Charge) is $16 per kVA of noncompliant load.

firm customers. Interruptible load creates environmental benefits by helping suppliers avoid the impacts of constructing and operating fossil generation, expands the range of resources available to meet contingencies, and can substitute, in certain cases, for spinning and operating reserves. Interruptible load can even be used to mitigate wholesale price volatility and curb potential market power problems. In addition, the availability of cost-based interruptible service options helps states promote economic development and the retention of manufacturing jobs.

Q. IS THERE A RECOGNIZED APPROACH FOR EVALUATING THE CAPACITY VALUE OF INTERRUPTIBLE LOAD?

A. Yes. The long-term avoided cost of peaking generation capacity--for example, the cost of a new combustion turbine (CT) -capacity)--is often the starting point. In addition to the marginal or avoided cost of CT capacity, measures of the economic value of interruptible load should reflect the cost of reserve capacity that would have been required if the interruptible load was firm, as well as the cost of transmission losses. That is, an interruptible capacity credit should reflect the utility's avoided cost of reserve capacity and losses.

Q. HOW DOES LG&E TREAT INTERRUPTIBLE CSR LOAD IN ITS CAPACITY PLANNING?

A. LG&E treats interruptible load as a capacity resource in its long-range capacity plans.[13] Simply stated, LG&E does not plan to build or acquire capacity to serve interruptible load.

[13] *See* LG&E's response to KIUC 1-55(a)-(b) in Exhibit DWG-2.

Q. WHY DO CUSTOMERS, PARTICULARLY LARGE MANUFACTURERS, BUY INTERRUPTIBLE INSTEAD OF FIRM SERVICE?

A. Manufacturers with flexible, electricity-intensive production processes often find it economically essential to use nonfirm electric service to control production costs and maintain or improve their competitive position in national and global markets. These manufacturers do not require firm service to make their products. Instead, they need reasonable and fairly priced interruptible rate options that provide mutual benefits to them, their supplier, and firm customers.

Q. IS THERE A FUNDAMENTAL PRINCIPLE UNDERLYING HOW INTERRUPTIBLE SERVICE SHOULD BE PRICED?

A. Yes. As I noted earlier, interruptible load does not drive a utility's need for capacity. A utility neither builds nor acquires capacity to serve interruptible load. As a result, the price of interruptible service should exclude fixed costs (both generation and bulk transmission) incurred to serve firm load. For utilities with rates reflecting their marginal cost of capacity (for example, the avoided cost of peaking capacity), applying this principle is fairly straightforward—interruptible service should be priced at or close to the utility's short-run marginal cost. However, most utilities (including LG&E and KU) have rates that reflect their embedded cost of capacity. For these utilities, interruptible service is typically priced at a discount to firm service prices using credits or discounts that reflect avoided cost savings and reduced costs of service. To the extent possible, the discount should reflect the utility's long-run avoided cost of peaking generation (CT) capacity, including the utility's avoided cost of reserve capacity and losses.

Q. WHY SHOULD CSR CREDITS BE BASED ON LONG-RUN AVOIDED COSTS INSTEAD OF THE EMBEDDED COST OF CT CAPACITY OR SHORT-TERM CAPACITY PRICES IN WHOLESALE MARKETS?

A. The embedded cost of CT capacity has no relationship to LG&E's cost of providing nonfirm service. Short-run market prices fluctuate to reflect current market conditions for existing generating capacity, while long-run avoided costs reflect the cost of adding new capacity to meet demand growth. Long-run—not short-run—capacity costs more accurately reflect avoided cost savings attributable to interruptible service. Neither embedded costs nor short-run prices are reasonable measures of LG&E's cost of capacity to serve future peak demands. Interruptible credits that reflect the long-run avoided cost of adding capacity—not a short-term value that reflects current capacity surpluses or shortages—should be the basis for setting CSR credits.

Setting administratively determined curtailable credits to reflect embedded CT costs or short-run market conditions is a short-sighted and improper approach that ignores the long-term contractual and/or operational commitment that interruptible customers make in choosing nonfirm service. Moreover, a short-run focus in setting interruptible credits is akin to asking a utility to base its test-year revenue requirement to reflect current market conditions instead of costs incurred to make long-lived investments in generation, transmission, and distribution plant and equipment. A utility might like that option when capacity is constrained and prices are high, but would abhor it when market conditions drive capacity prices down temporarily.

Q. SHOULD INTERRUPTIBLE RATES RECOVER ANY FIXED PRODUCTION COSTS?

A. No, although most interruptible rates include at least some recovery of demand-related fixed production costs. My conclusion is supported by Professor James C. Bonbright, a recognized pricing authority, who advocated pricing interruptible service to reflect no capacity-related cost of service:

> Interruptible service has been used by both gas and electric companies for peak shaving. The costs cannot be accurately determined because it is a byproduct resulting from generating and bulk transmission facilities built and operated for firm service (see Nissel, 1983). As a result, only the customer cost (e.g., customer-connected spur lines and substations) and energy costs (e.g., fuel and incremental maintenance cost) actually incurred and ***no capacity pricing cost should be included in pricing interruptible service***.
>
> While some feel that it is an impropriety to treat interruptible customers as if they were firm customers, they still opine that it would be fair and reasonable to obtain a small contribution from them for capacity costs. This is debatable.[14]

Q. WOULD EXCLUDING DEMAND-RELATED PRODUCTION COSTS FROM INTERRUPTIBLE PRICES RESULT IN INTERRUPTIBLE CUSTOMERS BECOMING FREE RIDERS?

A. No. Under an efficient pricing scheme, customers should only pay for costs attributable to their demands. Since a utility is not required to build or acquire generating capacity to serve interruptible load, only firm service customers should pay for the demand-related costs of this capacity. If interruptible rates recover part of the fixed costs of capacity built to serve only firm loads, then interruptible customers cannot be free riders.

[14] James C. Bonbright, *et al*., *Principles of Public Utility Rates*, (Arlington, Virginia: Public Utilities Reports, Inc., 1988), at 502 (emphasis added).

Q. SHOULD CSR CREDITS BE SET WELL BELOW LONG-RUN AVOIDED CT COSTS SINCE A CT MAY OPERATE MORE HOURS THAN ARE AVAILABLE FOR CURTAILMENT UNDER RIDER CSR?

A. No. This argument for low CSR credits confuses the nonfirm CSR product that LG&E sells with the CT generating capacity that it builds or buys. They are not the same. If LG&E avoids building or buying capacity because it serves interruptible load, then the standalone price for this nonfirm service should reflect only variable operating costs and exclude all production capacity charges. LG&E has chosen not to price CSR interruptible service this way. Instead, LG&E links the nonfirm CSR price to an otherwise applicable firm service rate using a credit against the demand charge(s) in the firm rate. The appropriate CSR credit in this case is one that approaches the annualized cost of peaking (CT) capacity, adjusted upward for reserves and losses.

LG&E'S RIDER CSR

Q. WHAT ARE SOME KEY DESIGN ELEMENTS IN LG&E'S CURRENT RIDER CSR?

A. Three LG&E customers are served under the current CSR Rider, which includes a 60-minutes curtailment notice, 375 hours of allowed curtailments—of which 100 hours may be physical curtailments and 275 hours may be economic curtailments, and credits of $6.50 per kVA (primary) and $6.40 per kVA (transmission). (See Table 1 below.)

Table 1. KU/ LG&E: Current Rider CSR

Notice (minutes)	60
Curtailment Hours	
Physical	100
Economis	275
Total	375
Credit ($/kVA-mo)	
Primary	$6.50
Transmission	$6.40
Customers	
KU	9
LG&E	3
Total	12

The rider also includes a penalty of $16 per kVA for failing to comply with a physical curtailment notice.

Q. ARE LG&E'S CURRENT CSR CREDITS IN LINE WITH INTERRUPTIBLE CREDITS OFFERED BY SOME NEARBY UTILITIES?

A. Yes. For example, I reviewed retail interruptible rate credits offered by several utilities with service areas reasonably close to LG&E and KU.[15] The monthly credits in their interruptible rate options range from $3.68 per kW to $8.61 per kW—a range that includes LG&E's current CSR credits.

Q. HAS LG&E PROPOSED ANY SIGNIFICANT CHANGES FOR RIDER CSR?

A. Yes. As I noted, LG&E has recommended:

- Closing Rider CSR to new load.
- Switching to an approach for setting CSR credits based on the embedded cost of selected CT generating units.
- Reducing the CSR credits by about half.

[15] These companies include Kentucky Power, East Kentucky Power Cooperative, AEP Ohio, and the First Energy-Ohio companies. Interruptible options for Kentucky Power and AEP Ohio include only physical interruptions for system emergencies (no economic interruptions).

- Changing the designated gas price index used to price economic curtailment buy-through energy.

While each of these proposed changes is important, my testimony focuses on the changes related to CSR credits and the gas price index.

Q. DID LG&E CONSULT CURRENT CURTAILABLE CUSTOMERS BEFORE DECIDING ON ITS PROPOSED CHANGES TO RIDER CSR?

A. No. Moreover, it appears that LG&E did not assess the potential bill impacts of its proposals.[16] LG&E's failure to conduct even a cursory examination of customers impacts of its CSR proposals is disturbing.

Q. WHAT TYPE OF COSTING METHOD HAS LG&E TRADITIONALLY USED IN DEVELOPING CSR CREDITS?

A. LG&E has traditionally used an avoided cost approach based on the marginal cost of combustion turbine capacity.[17] As I noted earlier, the avoided cost approach is widely used in evaluating resource options, including demand response (DR) options such as Rider CSR. Moreover, most utilities with which I am familiar—including LG&E and KU—use the avoided cost method to evaluate both DR and energy efficiency resource options considered in their IRPs. In other words, using avoided cost as the basis for evaluating resource options is widely recognized and accepted by regulators, utilities, and stakeholders.

[16] *See* LG&E's responses to KIUC 1-48 through 1-50 and 2-25 in Exhibit DWG-2.
[17] *See* the direct testimony of William Steven Seelye (Seelye Direct) at 51:12-17.

Q. IS THE EMBEDDED COST APPROACH LG&E HAS PROPOSED IN THIS CASE SIGNIFICANTLY DIFFERENT FROM THE AVOIDED COST APPROACH IT HAS TRADITIONALLY USED?

A. Yes. The two approaches are fundamentally different in concept, and produce dramatically different results. While the avoided cost approach looks at the expected cost of new CT capacity that can be avoided using CSR load, LG&E's embedded cost method looks at the embedded cost of a select group of CTs jointly owned by LG&E and KU.[18] LG&E's embedded CT cost approach produced estimated unit costs of the selected CT capacity of $3.56 per kVA-month (transmission) and $3.67 per kVA-month (primary).[19] LG&E set its proposed CSR credits equal to these estimated CT unit costs. In contrast, the joint LG&E/KU avoided cost from their most recent DSM (Case No. 2014-00003) and IRP (Case No. 2014-00131) filings was $99.92 per kW-year, or about $8.33 per kW-month.[20] This estimate is a reasonable benchmark for evaluating the reasonableness of LG&E's CSR credits. As can be seen from these embedded and avoided cost estimates, LG&E's proposed CSR credits are less than half the avoided cost used in its IRP and DSM cases.

Q. WHAT IS THE CLAIMED BASIS FOR LG&E'S SWITCH TO THE EMBEDDED CT COST METHOD?

A. According to LG&E witness David S. Sinclair:

> …[T]he circumstances when the Companies are allowed to call a physical CSR curtailment will likely be at peak times when the primary CTs would be expected to operate. Thus, the CSR customer would not be getting to utilize energy from the primary CTs during peak events, so it is reasonable to base the

[18] *See* Seelye Direct at 51-53 and Exhibit WSS-3.
[19] *See* Seelye Direct at Exhibit WSS-3.
[20] *See* LGE's response to Attorney General 1-79 in Exhibit DWG-2.

credit on the cost of the capacity CSR customers are agreeing not to use.[21]

Q. DO YOU AGREE WITH LG&E?

A. No. LG&E's rationale simply states the obvious—curtailments are most likely under peak load conditions. But electrons are not color-coded by type of generation. A CSR customer that is curtailed cannot know and does not care whether its unserved energy during the curtailment was produced by a CT, a combined cycle gas unit, or a baseload coal unit. LG&E's rationale actually supports using a slice of LG&E's total embedded generating capacity costs, not simply the embedded cost of primary CTs, to set CSR credits.

Q. WOULD APPLYING LG&E'S RATIONALE TO FIRM ENERGY PRODUCTS SOLD TO NON-CSR CUSTOMERS PRODUCE PERVERSE RESULTS?

A. Yes. For example, the rationale LG&E used to justify switching to the embedded CT cost method also implies that rates for off-peak users should primarily reflect demand-related baseload capacity costs since expensive baseload capacity is typically used to serve off-peak loads. Such an outcome runs counter to basic economic pricing principles that suggest assigning no (or at least minimal) capacity cost responsibility to off-peak sales. Off-peak rates (even those based on embedded costs) are set below peak rates for a simple reason—off-peak demands do not drive a utility's need for capacity and should bear little if any of demand-related cost responsibility.

[21] *See* the direct testimony of David S. Sinclair (Sinclair Direct) at 26:10-15.

Q. DOES LG&E'S EMBEDDED CT COST ANALYSIS YIELD RESULTS CONSISTENT WITH AN EMBEDDED COST APPROACH BASED ON ITS BIP COST ALLOCATION METHOD?

A. No. I used LG&E's BIP cost allocation method and an analytical approach similar to that presented in Witness Seelye's Exhibit WSS-3 to develop voltage-differentiated unit costs for the peak capacity category of demand-related production costs for LG&E, KU, and the joint LG&E/KU system. As shown in Exhibit DWG-3, the voltage-differentiated BIP peak capacity unit costs for the joint LG&E/KU system exceed $9.00 per kVA-month—around 2.5 times LG&E's selected CT unit costs. I am not endorsing a BIP peak capacity cost approach for setting CSR credits. The results shown in Exhibit DWG-3 simply demonstrate the unit costs derived in LG&E's CT cost analysis are far below the results derived using the BIP method.

Q. DID LG&E PROPOSE USING ITS EMBEDDED CT APPROACH IN ITS IRP AND DSM ANALYSES?

A. No. Such an approach would significantly reduce the estimated benefits of DSM programs, and also contradict accepted practices for evaluating these resource options. Instead, LG&E has chosen to single out CSR customers, and significantly understate the value of their interruptible load by using an untested and unaccepted embedded CT cost method. In my opinion, LG&E's singular focus on CSR load (while ignoring other demand response program options) is discriminatory and unjust. If LG&E's embedded CT approach is appropriate for evaluating CSR load, it is also appropriate for evaluating LG&E's other load management programs.

Q. ARE LG&E'S PROPOSED CSR CREDIT REDUCTIONS SIGNIFICANT?

A. Yes. As shown in Table 2 below, LG&E has proposed a 44-percent reduction in its CSR credits.

Table 2. LG&E: Present and Proposed CSR Credits

	Credit ($/kVA-mo)		
Voltage	**Pres**	**Prop**	**Chng**
Primary	6.50	3.67	-44%
Transmission	6.40	3.56	-44%

Q. DO THE PROPOSED CSR CREDIT REDUCTIONS HAVE A MAJOR IMPACT ON ELECTRICITY COSTS FOR CSR CUSTOMERS?

A. Yes. I have not conducted—and neither has LG&E—a bill impact assessment for all CSR customers. However, I did look at potential bill impacts on KIUC's CSR customers. This analysis indicates that the CSR credit reductions—combined with LG&E's proposed increases in firm rates—result in total bill increases approximately double LG&E's proposed 8.5 percent system average increase. I would expect similar results for any CSR customer whose nonfirm CSR load is large relative to its total load.

Q. ARE SUCH LARGE RATE INCREASES REASONABLE?

A. No—particularly when they are premised on LG&E's arcane embedded CT cost method. Moreover, LG&E's failure to consider the impacts of its CSR bill increases implies a callous disregard for the potential harmful effects of its proposals on business development and job retention in Kentucky. As I noted earlier, low-cost nonfirm service is often critical in helping electricity-intensive manufacturers be competitive in product markets.

Q. HOW DID LG&E JUSTIFY ITS PROPOSED CSR CREDIT REDUCTIONS?

A. LG&E witness Seelye stated:

> …LG&E has no need for additional generation capacity for the next decade or so. The Companies have not issued any curtailments under Rider CSR since January 2015. Because the current generation mix was planned to take into account CSR capacity and its use in avoiding combustion turbine capacity, the Companies believe that it is appropriate to provide *current* CSR customers a credit based on the actual fixed cost of the most recent combustion turbines that were installed by the Companies.[22]

Q. IS IT SURPRISING THAT LG&E HAS NO NEED FOR CAPACITY "FOR THE NEXT DECADE OR SO?"

A. No. It is not surprising given LG&E's and KU's recent 4-year (May 2015 – April 2019), 165-MW joint capacity purchase and tolling arrangement with Bluegrass Generation,[23] as well as the April 2014 announcement that effective May 2019, municipal customers with 325 MW of wholesale load currently served by KU would leave the LG&E/KU system. However, the current LG&E/KU capacity situation does not justify forcing CSR customers to suffer financially simply because LG&E and KU filled a 4-year capacity need with the Bluegrass purchase, and still have to face the financial consequences of losing 325 MW of wholesale load in May 2019.

[22] *See* Seelye Direct at 54:20 – 55:4.

[23] *See* the joint response of LG&E/KU to Commission Staff 1-2 in Case No. 2014-00321. This response indicates that the capacity charge plus fixed O&M cost for the Bluegrass purchase in 2017-2018 is around $4..90 per kW-month, or about 1.5 times the proposed CSR credits.

Q. WHEN THE COMMISSION ISSUED ITS JUNE 2015 ORDER APPROVING THE CURRENT CSR CREDITS IN LG&E'S LAST RATE CASE, WAS INFORMATION AVAILABLE ABOUT THE 4-YEAR BLUEGRASS PURCHASE, LG&E'S LONG-TERM CAPACITY NEEDS, AND THE PENDING LOSS OF MUNICIPAL LOAD?

A. Yes. By June 2015 when the Commission issued its order approving rates in Case No. 2014-00371 (which included approval of LG&E's current CSR credits), LG&E knew or should have known about each of these items. The Bluegrass purchase had already begun. LG&E's 2014 IRP indicated no long-term need for capacity until at least after 2020. And the pending loss of municipal load in 2019 had been announced in 2014. In the current case, the Bluegrass tolling arrangement continues, LG&E says it has no need for additional capacity in the near-term, and the municipal load is still leaving in 2019. Yet, in this case, LG&E has proposed slashing CSR credits that were set less than 2 years ago based on essentially the same market conditions that existed in 2015.

Q. DID LG&E PROPOSE CHANGING THE GAS PRICE INDEX USED TO PRICE BUY-THROUGH ENERGY DURING ECONOMIC CURTAILMENTS?

A. Yes. As I noted earlier, LG&E proposed changing the designated gas price in the Automatic Buy-Through Price formula from the Dominion South Point index to the Henry Hub spot price. Market imbalances at Dominion South Point have created artificially depressed and fluctuating gas prices that could make the cost of buy-through energy less than LG&E's cost of operating its natural gas generation. This result would be inconsistent with the intent of the buy-through formula. Using Henry Hub spot prices is less likely to cause this problem.

Q. DO YOU AGREE WITH LG&E'S PROPOSED CHANGE?

A. Yes. LG&E's proposal is a reasonable solution to this pricing problem.

Q. HAS LG&E RAISED CONCERNS ABOUT ELEMENTS OF RIDER CSR THAT IT IS NOT PROPOSING TO CHANGE IN THIS CASE?

A. Yes. LG&E has raised several concerns in testimony and responses to data requests related to the use and value of CSR load. These concerns include:

- Limitations on physical interruptions. Under terms of Rider CSR, LG&E can only call a physical interruption after all generating units have been dispatched and all off-system sales curtailed.[24]
- Curtailment notice. Although LG&E did not criticize the 60-minutes advance notice requirement, it pointed out how the notice requirement limited its ability to use CSR load as operating reserve capacity. According to LG&E, capacity resources must be available for service within 15 minutes to qualify as operating reserve capacity. The 60-minutes curtailment notice requirement in Rider CSR precludes CSR load as operating reserve.
- Limited hours of physical interruptions. Rider CSR limits physical interruptions to 100 hours annually.

Q. DOES ANY OTHER NON-CSR INDUSTRIAL RATE ALLOW LG&E TO EXERCISE CURTAILMENTS WITH SHORT NOTICE?

A. Yes. Under Rate FLS (which is available to customers with at least 20 MVA of load), LG&E can *electronically* interrupt up to 95 percent of the customer's load with 5-minutes notice for up to 10 minutes per interruption and 20 interruptions per month. More specifically, Rate FLS says in part:

[24] *See* LG&E responses to KIUC 1-61 and 1-62 in Exhibit DWG-2.

> Company reserves the right to interrupt up to 95% of Customer's load to ***facilitate Company compliance with system contingencies and with industry performance criteria***. Customer will permit Company to install electronic equipment and associated real-time metering to permit Company interruption of Customer's load. Such equipment will immediately notify Customer five (5) minutes before an electronically initiated interruption that will begin immediately thereafter and last no longer than ten (10) minutes nor shall the interruptions exceed twenty (20) per month. Such interruptions will not be accumulated nor credited against annual hours if any, under the CURTAILABLE SERVICE RIDER CSR. ***Company's right to interrupt under this provision is restricted to responses to unplanned outage or de-rates*** of LG&E and KU Energy LLC System ("LKE System") owned or purchased generation ***or when Automatic Reserve Sharing is invoked***. LKE System, as used herein, shall consist of LG&E and KU… (Emphasis added).

Q. DOES LG&E CONSIDER FLS LOAD AS OPERATING RESERVE CAPACITY GIVEN ITS ABILITY TO CURTAIL ANY FLS CUSTOMER WITH 5-MINUTES NOTICE?

A. No.[25] However, it is clear that the rate's short curtailment notice provision and utility-controlled curtailments make FLS load a valuable capacity resource for meeting system contingencies, industry performance criteria, unplanned outages and de-rates, and critical system events requiring automatic reserve sharing.

Q. DOES LG&E CURRENTLY SERVE ANY FLS CUSTOMERS?

A. No. Although LG&E currently serves no customers under Rate FLS, KU serves at least one—a KIUC member and one of KU's largest industrial loads. In the past two years, KU has frequently interrupted that customer's FLS load under the 5-minutes interruption notice provision of Rate FLS.

[25] *See* LG&E's response to KIUC 2.26(b) in Exhibit DWG-2.

Q. DO YOU RECOMMEND ANY SPECIFIC CHANGES TO RIDER CSR OTHER THAN THOSE INCLUDED IN LG&E'S PROPOSALS?

A. No. The concerns that LG&E raised are a rate design problem that can be solved without gutting the CSR program or imposing unilateral changes without customer input. KIUC's members with CSR and FLS load would welcome the opportunity to work with LG&E (and KU) in evaluating options to improve interruptible rate options for large industrial customers. In my opinion, the most efficient and productive way to address issues related to Rider CSR (as well as Rate FLS) would be a Commission-ordered, post-rate-case collaborative of stakeholders.

Q. HOW WOULD THIS POST-RATE-CASE COLLABORATIVE WORK?

A. The collaborative, led by the Commission Staff, would allow interested stakeholders to identify, address, and try to reach consensus on ways to improve industrial interruptible programs for the benefit of all customers—both firm and nonfirm. For example, one issue that could be addressed is whether LG&E should once again offer an interruptible service product with a 10-minutes curtailment notice provision. The Commission should require a stakeholder report detailing the group's conclusions and recommendations regarding potential changes and improvements. This report would provide the Commission with valuable information that would help frame CSR issues in LG&E's next base rate case.

Q. SHOULD THE COLLABORATIVE INCLUDE RATE FLS IN ADDRESSING WAYS TO IMPROVE LG&E'S INTERRUPTIBLE SERVICE OPTIONS?

A. Yes. Any examination of issues regarding large nonfirm industrial loads served under Rider CSR—particularly an examination looking at ways to improve the rider—should also include an examination of Rate FLS. Both CSR and FLS loads provide valuable capacity and reliability benefits for LG&E and its firm customers. Ways to improve these interruptible rate options should be examined jointly.

Q. SHOULD THE CSR CREDITS BE REDUCED AS LG&E RECOMMENDS?

A. No. In my opinion, LG&E's proposed CSR credit reductions are unjustified, unreasonable, and discriminatory. Moreover, adopting LG&E's CSR credits will make CSR customers less competitive and make Kentucky a less attractive business environment. I recommend leaving the current CSR credits unchanged.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION

CASE NO. 2016-00371

ELECTRONIC APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES AND FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY

EXHIBITS TO THE DIRECT TESTIMONY OF DENNIS W. GOINS, PH.D. ON BEHALF OF KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

March 3, 2017

EXHIBIT DWG-1

QUALIFICATIONS OF DENNIS W. GOINS

DENNIS W. GOINS

PRESENT POSITION

Economic Consultant, Potomac Management Group, Alexandria, VA

PREVIOUS POSITIONS

- Vice President, Hagler, Bailly & Company, Washington, DC
- Principal, Resource Consulting Group, Inc., Cambridge, MA
- Senior Associate, Resource Planning Associates, Inc., Cambridge, MA
- Economist, North Carolina Utilities Commission, Raleigh, NC

EDUCATION

College	Major	Degree
Wake Forest University	Economics	BA
North Carolina State University	Economics	ME
North Carolina State University	Economics	PhD

RELEVANT EXPERIENCE

Dr. Goins specializes in pricing, planning, and market structure issues affecting firms that buy and sell products in electricity and natural gas markets. He has extensive experience in developing product pricing strategies, setting rates for energy-related products and services, negotiating power supply and natural gas contracts for private and public entities, evaluating competitive market conditions, and analyzing power and fuel requirements, prices, market operations, and transactions. He has participated in more than 200 cases as an expert on cost of service, rate design, competitive market issues, utility restructuring, power market planning and operations, utility mergers, and management prudence before the Federal Energy Regulatory Commission, the General Accounting Office (now the Government Accountability Office), the First Judicial District Court of Montana, the Circuit Court of Kanawha County, West Virginia, the Linn County District Court of Iowa, and regulatory commissions in Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, West Virginia, Wyoming, and the District of Columbia. He has also prepared an expert report on behalf of the United States regarding electricity pricing and contract issues in a case before the United States Court of Federal Claims.

DENNIS W. GOINS

PARTICIPATION IN REGULATORY, ADMINISTRATIVE, AND COURT PROCEEDINGS

1. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1139 (2016), on behalf of the General Services Administration, re cost of service and retail rate design.
2. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 532 (2016), on behalf of Nucor Steel-Hertford, re cost of service and retail rate design.
3. Washington Gas Light Company, before the District of Columbia Public Service Commission, Formal Case No. 1137 (2016), on behalf of the General Services Administration, re cost of service and retail rate design.
4. Baltimore Gas and Electric Company, before the Maryland Public Service Commission, Case No. 9406 (2016), on behalf of the Department of Defense and all other Federal Executive Agencies, re Baltimore City conduit tax and retail rate design.
5. PECO Energy Company, before the Pennsylvania Public Utility Commission, Docket No. R-2015-2468981 (2015), on behalf of the General Services Administration, re retail distribution standby electric service.
6. Consolidated Edison of New York, Inc., before the New York Public Service Commission, Case No. 15-E-0050 (2015), on behalf of the General Services Administration, re retail delivery service cost recovery.
7. PJM Interconnection, LLC, before the Federal Energy Regulatory Commission, Docket No. ER15-623-000 (2015), on behalf of the Department of Defense/Federal Executive Agencies, re RPM market design and capacity performance resources.
8. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 14-1297-EL-SSO, (2014), on behalf of Nucor Steel Marion, Inc., re standard service offer and demand response.
9. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1121 (2014), on behalf of the General Services Administration, re infrastructure cost allocation and surcharge design.
10. Consolidated Edison of New York, Inc., *et al*., before the New York Public Service Commission, Case No. 14-M-0101 (2014), on behalf of the General Services Administration, re *Reforming the Energy Vision* issues.
11. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1116 (2014), on behalf of the General Services Administration, re infrastructure cost allocation and surcharge design.
12. Potomac Electric Power Company *et al.*, before the Maryland Public Service Commission, Case No. 9361 (2014), on behalf of the General Services Administration, re Exelon-PHI merger issues.

13. Potomac Electric Power Company *et al*., before the District of Columbia Public Service Commission, Formal Case No. 1119 (2014), on behalf of the General Services Administration, re Exelon-PHI merger issues.
14. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1114 *et al*. (2014), on behalf of the General Services Administration, re retail dynamic pricing.
15. Entergy Texas, Inc., before the Public Utilities Commission of Texas, PUC Docket No. 41791 (2013), on behalf of Texas Cities, re cost of service and retail rate design.
16. Entergy Gulf States Louisiana, before the Louisiana Public Service Commission, Docket No. U-32707 (2013), on behalf of the Department of Energy, re retail cost recovery.
17. Entergy Texas, Inc., before the Public Utilities Commission of Texas, PUC Docket No. 40979 (2013), on behalf of Texas Cities, re analysis of JSP PPA termination.
18. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1103 (2013), on behalf of the General Services Administration, re retail delivery service cost recovery.
19. Consolidated Edison of New York, Inc., before the New York Public Service Commission, Case No. 13-E-0030 (2013), on behalf of the General Services Administration, re retail delivery service cost recovery.
20. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 11-5201-EL-RDR *et al*., (2013), on behalf of the Ohio Energy Group and Nucor Steel Marion, Inc., re alternative energy rider.
21. Potomac Electric Power Company, before the Maryland Public Service Commission, Case No. 9311 (2013), on behalf of the General Services Administration, re retail cost recovery.
22. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 12-2190-EL-POR *et al*., (2012), on behalf of the Ohio Energy Group and Nucor Steel Marion, Inc., re energy efficiency and peak demand reduction portfolios.
23. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 485 (2012), on behalf of Nucor Steel-Hertford, re fuel rate adjustment.
24. Kentucky Utilities, Inc., before the Kentucky Public Service Commission, Case No. 2012-00221 (2012), on behalf of the Kentucky Industrial Utility Customers, re interruptible rates.
25. Louisville Gas and Electric Company, Inc., before the Kentucky Public Service Commission, Case No. 2012-00222 (2012), on behalf of the Kentucky Industrial Utility Customers, re interruptible rates.

26. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 479 (2012), on behalf of Nucor Steel-Hertford, re cost of service and retail rate design.
27. Kansas City Power & Light Company, before the Missouri Public Service Commission, Case No. ER-2012-0174 (2012), on behalf of the U.S. Department of Energy (Federal Executive Agencies), re cost-of-service and rate design issues.
28. Potomac Electric Power Company, before the Maryland Public Service Commission, Case No. 9286 (2012), on behalf of the General Services Administration, re retail cost recovery.
29. Indiana Michigan Power Company, before the Indiana Utility Regulatory Commission, Cause No. 44075 (2012), on behalf of Steel Dynamics, Inc., re retail cost-of-service and fuel and purchased power cost recovery.
30. Entergy Texas, Inc., before the Public Utilities Commission of Texas, PUC Docket No. 39896 (2012), on behalf of Texas Cities, re cost of service and retail rate design.
31. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1087 (2012), on behalf of the General Services Administration, re retail cost recovery.
32. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 474 (2011), on behalf of Nucor Steel-Hertford, re fuel rate adjustments.
33. Mid-Kansas Electric Company, before the Kansas Corporation Commission, Docket No. 11-GIME-597-GIE (2011), on behalf of Kansas Electric Power Cooperative, Inc., re local delivery service and operating agreements.
34. Duke Energy Corporation *et al*., before the Federal Energy Regulatory Commission, Docket No. EC11-60-000 (2011), on behalf of the North Carolina Electric Membership Corporation, re merger-related market power issues.
35. Resale Power Group of Iowa *et al*., before the Linn County District Court of Iowa, Case No. LACV 054271 (2011), on behalf of Central Iowa Power Cooperative, re compensation for unauthorized transmission access.
36. Columbus Southern Power Company *et al*., before the Public Utilities Commission of Ohio, Case No. 11-346-EL-SSO *et al*., (2011), on behalf of the OMA Energy Group., re standard service offer electric security plan rate design issues.
37. Appalachian Power Company and Wheeling Power Company, dba American Electric Power, before the Public Service Commission of West Virginia, Case No. 11-0274-E-GI (2011), on behalf of Steel of West Virginia, Inc., re expanded net energy cost rate issues.

38. Rocky Mountain Power Company, before the Wyoming Public Service Commission, Docket No. 20000-384-ER-10 (2011), on behalf of Cimarex Energy Company, QEP Field Services Company, and Kinder Morgan Interstate Gas Transmission, re utility rates, cost-of-service, and resource acquisition issues.
39. Duke Energy Indiana, Inc., before the Indiana Utility Regulatory Commission, Cause No. 43955 (2011), on behalf of Nucor Steel and Steel Dynamics, Inc., re utility-sponsored energy efficiency programs.
40. Kansas City Power & Light Company, before the Missouri Public Service Commission, Case No. ER-2010-0355 (2010), on behalf of the U.S. Department of Energy (Federal Executive Agencies), re cost-of-service and rate design issues.
41. Appalachian Power Company and Wheeling Power Company, dba American Electric Power, before the Public Service Commission of West Virginia, Case No. 10-0699-E-42T (2010), on behalf of Steel of West Virginia, Inc., re cost-of-service and rate design issues.
42. Entergy Arkansas, Inc., before the Arkansas Public Service Commission, Docket No. 10-010-U (2010), on behalf of Arkansas Electric Energy Consumers, Inc., re industrial opt out of utility-sponsored energy efficiency programs.
43. Indiana Michigan Power Company, before the Indiana Utility Regulatory Commission, Cause No. 38702 – FAC 62-S1 (2010), on behalf of Steel Dynamics, Inc., re fuel and purchased power cost recovery.
44. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 459 (2010), on behalf of Nucor Steel-Hertford, re cost of service and retail rate design.
45. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 461 (2010), on behalf of Nucor Steel-Hertford, re fuel rate adjustments.
46. Entergy Texas, Inc., before the Public Utilities Commission of Texas, PUC Docket No. 37744 (2010), on behalf of Texas Cities, re cost of service and retail rate design.
47. Kentucky Utilities, Inc., before the Kentucky Public Service Commission, Case No. 2009-00548 (2010), on behalf of the Kentucky Industrial Utility Customers, re interruptible rates.
48. Louisville Gas and Electric Company, Inc., before the Kentucky Public Service Commission, Case No. 2009-00549 (2010), on behalf of the Kentucky Industrial Utility Customers, re interruptible rates.
49. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 09-1948-EL-POR *et al*., (2010), on behalf of Nucor Steel Marion, Inc., re energy efficiency and peak demand reduction portfolios.

50. Kauai Island Utility Cooperative, before the Hawaii Public Utilities Commission, Docket No. 2009-0050 (2010), on behalf of Kauai Marriott Resort & Beach Club, re retail cost allocation and rate design issues.
51. Entergy Arkansas, Inc., before the Arkansas Public Service Commission, Docket No. 09-024-U (2009), on behalf of Arkansas Electric Energy Consumers, Inc., re power plant environmental retrofit.
52. Appalachian Power Company, before the Virginia State Corporation Commission, Case No. PUE-2009-00030 (2009), on behalf of Steel Dynamics, Inc., re retail cost allocation and rate design issues.
53. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 09-906-EL-SSO (2009), on behalf of Nucor Steel Marion, Inc., re market rate offer.
54. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 456 (2009), on behalf of Nucor Steel-Hertford, re fuel cost adjustment.
55. Appalachian Power Company, before the Virginia State Corporation Commission, Case No. PUE-2009-00068 (2009), on behalf of Steel Dynamics, Inc., re demand response programs.
56. Indiana Michigan Power Company, before the Indiana Utility Regulatory Commission, Cause No. 43750 (2009), on behalf of Steel Dynamics, Inc., re wind power purchased power agreement.
57. Entergy Arkansas, Inc., before the Arkansas Public Service Commission, Docket No. 07-085-TF (2009), on behalf of Arkansas Electric Energy Consumers, Inc., re energy efficiency cost recovery.
58. CenterPoint Energy Arkansas Gas, before the Arkansas Public Service Commission, Docket No. 07-081-TF (2009), on behalf of Arkansas Gas Consumers, Inc., re energy efficiency cost recovery.
59. South Carolina Electric & Gas Company, before the South Carolina Public Service Commission, Docket No. 2009-261-E (2009), on behalf of CMC Steel-SC, re DSM cost recovery surcharge.
60. Duke Energy Indiana, Inc., before the Indiana Utility Regulatory Commission, Cause No. 38707 FAC81 (2009), on behalf of Steel Dynamics, Inc., re fuel and purchased power cost recovery.
61. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1076 (2009), on behalf of the General Services Administration, re retail cost allocation and standby rate design issues for distributed generation resources.
62. Appalachian Power Company, before the Virginia State Corporation Commission, Case No. PUE-2009-00039 (2009), on behalf of Steel Dynamics, Inc., re environmental and reliability cost recovery.

63. Indiana Michigan Power Company, before the Indiana Utility Regulatory Commission, Cause No. 38702 – FAC 63 (2009), on behalf of Steel Dynamics, Inc., re fuel and purchased power cost recovery.
64. Appalachian Power Company, before the Virginia State Corporation Commission, Case No. PUE-2009-302-00038 (2009), on behalf of Steel Dynamics, Inc., re fuel and purchased power cost recovery.
65. South Carolina Electric & Gas Company, before the South Carolina Public Service Commission, Docket No. 2008-302-E (2008), on behalf of CMC Steel-SC, re fuel and purchased power cost recovery.
66. South Carolina Electric & Gas Company, before the South Carolina Public Service Commission, Docket No. 2008-196-E (2008), on behalf of CMC Steel-SC, re base load review order for a nuclear facility.
67. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 08-935-EL-SSO *et al*. (2008), on behalf of Nucor Steel Marion, Inc., re standard service offer via an electric security plan.
68. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 08-936-EL-SSO (2008), on behalf of Nucor Steel Marion, Inc., re market rate offer via a competitive bidding process.
69. Alabama Power Company, before the Alabama Public Service Commission, Docket No. 18148 (2008), on behalf of CMC Steel Alabama, Nucor Steel Birmingham, Inc., and Nucor Steel Tuscaloosa, Inc., re energy cost recovery.
70. Entergy Texas, Inc., before the Public Utilities Commission of Texas, PUC Docket No. 35269 (2008), on behalf of Texas Cities, re jurisdictional allocation of system agreement payments.
71. Duke Energy Indiana, Inc., before the Indiana Utility Regulatory Commission, Cause No. 43374 (2008), on behalf of Nucor Steel and Steel Dynamics, Inc., re alternative regulatory plan.
72. Entergy Gulf States Inc., before the Public Utilities Commission of Texas, PUC Docket No. 34800 (2008), on behalf of Texas Cities, re affiliate transactions.
73. Commonwealth Edison Company, before the Illinois Commerce Commission, Docket No. 07-0566 (2008), on behalf of Nucor Steel Kankakee, Inc., re cost-of-service and rate design issues.
74. Ohio Edison *et al*., before the Public Utilities Commission of Ohio, Case No. 07-0551-EL-AIR *et al*. (2008), on behalf of Nucor Steel Marion, Inc., re cost-of-service and rate design issues.
75. Appalachian Power Company dba American Electric Power, before the Public Service Commission of West Virginia, Case No. 06-0033-E-CN (2007), on behalf of Steel of West Virginia, Inc., re power plant cost recovery mechanism.

76. Oncor Electric Delivery Company and Texas Energy Future Holdings Limited Partnership, before the Public Utilities Commission of Texas, PUC Docket No. 34077 (2007), on behalf of Nucor Steel - Texas, re acquisition of TXU Corp. by Texas Energy Future Holdings Limited Partnership.
77. Arkansas Oklahoma Gas Company, before the Arkansas Public Service Commission, Docket No. 07-026-U (2007), on behalf of West Central Arkansas Gas Consumers, re gas cost-of-service and rate design issues.
78. Idaho Power Company, before the Idaho Public Utilities Commission, Case No. IPC-E-07-08 (2007), on behalf of the U.S. Department of Energy (Federal Executive Agencies), re cost-of-service and rate design issues.
79. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1056 (2007), on behalf of the General Services Administration, re demand-side management and advanced metering programs.
80. South Carolina Electric & Gas Company, before the South Carolina Public Service Commission, Docket No. 2007-229-E (2007), on behalf of CMC Steel-SC, re cost-of-service and rate design issues.
81. Potomac Electric Power Company, before the Maryland Public Service Commission, Case No. 9092 (2007), on behalf of the General Services Administration, re retail cost allocation and standby rate design issues for distributed generation resources.
82. Potomac Electric Power Company, before the District of Columbia Public Service Commission, Formal Case No. 1053 (2007), on behalf of the General Services Administration, re retail cost allocation and standby rate design issues for distributed generation resources.
83. Entergy Gulf States Inc., before the Public Utilities Commission of Texas, PUC Docket No. 32907 (2006), on behalf of Texas Cities, re hurricane cost recovery.
84. Entergy Gulf States Inc., before the Public Utilities Commission of Texas, PUC Docket No. 32710/ SOAH Docket No. 473-06-2307 (2006), on behalf of Texas Cities, re reconciliation of fuel and purchased power costs.
85. Florida Power & Light Company, before the Florida Public Service Commission, Docket No. 060001-EI (2006), on behalf of the U.S. Air Force (Federal Executive Agencies), re fuel and purchased power cost recovery.
86. Arizona Public Service Company, before the Arizona Corporation Commission, Docket No. E-01345A-05-0816 (2006), on behalf of the U.S. Air Force (Federal Executive Agencies), re retail cost allocation and rate design issues.
87. PacifiCorp (dba Rocky Mountain Power), before the Utah Public Service Commission, Docket No. 06-035-21 (2006), on behalf of the U.S. Air Force (Federal Executive Agencies), re rate design issues.

88. South Carolina Electric & Gas Company, before the South Carolina Public Service Commission, Docket No. 2006-2-E (2006), on behalf of CMC Steel-SC, re fuel and purchased power cost recovery.
89. Entergy Gulf States Inc., before the Public Utilities Commission of Texas, PUC Docket No. 31544/ SOAH Docket No. 473-06-0092 (2006), on behalf of Texas Cities, re transition to competition rider.
90. Idaho Power Company, before the Idaho Public Utilities Commission, Case No. IPC-E-05-28 (2006), on behalf of the U.S. Department of Energy (Federal Executive Agencies), re cost-of-service and rate design issues.
91. Alabama Power Company, before the Alabama Public Service Commission, Docket No. 18148 (2005), on behalf of SMI Steel-Alabama, re energy cost recovery.
92. Florida Power & Light Company, before the Florida Public Service Commission, Docket No. 050001-EI (2005), on behalf of the U.S. Air Force (Federal Executive Agencies), re fuel and capacity cost recovery.
93. Entergy Gulf States Inc., before the Public Utilities Commission of Texas, PUC Docket No. 31315/ SOAH Docket No. 473-05-8446 (2005), on behalf of Texas Cities, re incremental purchased capacity cost rider.
94. Florida Power & Light Company, before the Florida Public Service Commission, Docket No. 050045-EI (2005), on behalf of the U.S. Air Force (Federal Executive Agencies), re cost-of-service and interruptible rate issues.
95. Arkansas Electric Cooperative Corporation, before the Arkansas Public Service Commission, Docket No. 05-042-U (2005), on behalf of Nucor Steel and Nucor-Yamato Steel, re power plant purchase.
96. Arkansas Electric Cooperative Corporation, before the Arkansas Public Service Commission, Docket No. 04-141-U (2005), on behalf of Nucor Steel and Nucor-Yamato Steel, re cost-of-service and rate design issues.
97. Dominion North Carolina Power, before the North Carolina Utilities Commission, Docket No. E-22, Sub 412 (2005), on behalf of Nucor Steel-Hertford, re cost-of-service and interruptible rate issues.
98. Public Service Company of Colorado, before the Colorado Public Utilities Commission, Docket No. 04S-164E (2004), on behalf of the U.S. Air Force (Federal Executive Agencies), re cost-of-service and interruptible rate issues.
99. CenterPoint Energy Houston Electric, LLC, *et al*., before the Public Utility Commission of Texas, PUC Docket No. 29526 (2004), on behalf of the Coalition of Commercial Ratepayers, re stranded cost true-up balances.
100. PacifiCorp, before the Utah Public Service Commission, Docket No. 04-035-11 (2004), on behalf of the U.S. Air Force (United States Executive Agencies), re time-of-day rate design issues.

101. Arizona Public Service Company, before the Arizona Corporation Commission, Docket No. E-01345A-03-0347 (2004), on behalf of the U.S. Air Force (Federal Executive Agencies), re retail cost allocation and rate design issues.

102. Idaho Power Company, before the Idaho Public Utilities Commission, Case No. IPC-E-03-13 (2004), on behalf of the U.S. Department of Energy (Federal Executive Agencies), re retail cost allocation and rate design issues.

103. PacifiCorp, before the Utah Public Service Commission, Docket No. 03-2035-02 (2004), on behalf of the U.S. Air Force (United States Executive Agencies), re retail cost allocation and rate design issues.

104. Dominion Virginia Power, before the Virginia State Corporation Commission, Case No. PUE-2000-00285 (2003), on behalf of Chaparral (Virginia) Inc., re recovery of fuel costs.

105. Jersey Central Power & Light Company, before the New Jersey Board of Public Utilities, BPU Docket No. ER02080506, OAL Docket No. PUC-7894-02 (2002-2003), on behalf of New Jersey Commercial Users, re retail cost allocation and rate design issues.

106. Public Service Electric and Gas Company, before the New Jersey Board of Public Utilities, BPU Docket No. ER02050303, OAL Docket No. PUC-5744-02 (2002-2003), on behalf of New Jersey Commercial Users, re retail cost allocation and rate design issues.

107. South Carolina Electric & Gas Company, before the South Carolina Public Service Commission, Docket No. 2002-223-E (2002), on behalf of SMI Steel-SC, re retail cost allocation and rate design issues.

108. Montana Power Company, before the First Judicial District Court of Montana, *Great Falls Tribune et al. v. the Montana Public Service Commission*, Cause No. CDV2001-208 (2002), on behalf of a media consortium (*Great Falls Tribun*e, *Billings Gazett*e, *Montana Standar*d, *Helena Independent Recor*d, *Missoulia*n, Big Sky Publishing, Inc. dba *Bozeman Daily Chronicl*e, the Montana Newspaper Association, *Miles City Sta*r, *Livingston Enterpris*e, Yellowstone Public Radio, the Associated Press, Inc., and the Montana Broadcasters Association), re public disclosure of allegedly proprietary contract information.

109. Louisville Gas & Electric *et al*., before the Kentucky Public Service Commission, Administrative Case No. 387 (2001), on behalf of Gallatin Steel Company, re adequacy of generation and transmission capacity in Kentucky.

110. PacifiCorp, before the Utah Public Service Commission, Docket No. 01-035-01 (2001), on behalf of Nucor Steel, re retail cost allocation and rate design issues.

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204. Southern Bell Telephone Company, before the North Carolina Utilities Commission, Docket No. P-5, Sub 48, on behalf of the Commission Staff.

205. Western Carolina Telephone Company, before the North Carolina Utilities Commission, Docket No. P-58, Sub 93, on behalf of the Commission Staff.

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210. Duke Power Company, *et al*., Investigation of Peak-Load Pricing, before the North Carolina Utilities Commission, Docket No. E-100, Sub 21, on behalf of the Commission Staff.

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EXHIBIT DWG-2

LG&E'S RESPONSES TO SELECTED REQUESTS FOR INFORMATION

EXHIBIT DWG-3

BIP ANALYSIS OF CSR CREDITS