

TABLE OF CONTENTS

I. QUALIFICATIONS AND SUMMARY..... 1

II. KENTUCKY POWER’S FAC 4

III. UTILIZATION OF THE EKPC FUEL COST 12

1 I have over thirty years of experience in the electric utility industry, in which
2 I have worked in the areas of generation resource planning, economic analysis, and
3 rate analysis. I began my career with Energy Management Associates ("EMA" now
4 known as Venytx), an Atlanta based utility consulting firm, in which I developed an
5 expertise in utility operations and dispatch principles by providing support to utility
6 clients in their use of the PROMOD IV™ ("PROMOD") and Strategist clients
7 production cost simulation models. In 1996 I began my own consulting firm, Hayet
8 Power Systems Consulting, and in 2000, I joined Kennedy and Associates on a non-
9 exclusive basis, making my utility operations, production cost modeling, and
10 resource planning skills available in their regulatory consulting practice.

11
12 **Q. Have you previously filed testimony at the Kentucky Public Service Commission**
13 **("Commission" or "PSC")?**

14 A. I have testified before the Kentucky Public Service Commission, including the recent
15 Kentucky Power Company ("Kentucky Power" or "the Company") Mitchell
16 acquisition proceeding, Case No. 2012-00578, Big Rivers Electric Corporation's
17 ("Big Rivers") proceedings involving its 2012 Environmental Compliance Plan, Case
18 No. 2012-00063, and its 2013 Application for a General Rate Increase, Case No. 2013-
19 00199. I have also filed testimony and testified before other state regulatory
20 commissions and before the Federal Energy Regulatory Commission. Many of these
21 proceedings involved fuel cost recovery, utility generation dispatch and operations,
22 production cost modeling, and resource planning issues. My qualifications and
23 regulatory appearances are further detailed in my Exhibit ___(PH-1).

1 **Q. On whose behalf are you testifying?**

2 A. I am testifying on behalf of the Kentucky Industrial Utility Customers, Inc.
3 (“KIUC”), a group of large customers taking electric service on the Kentucky Power
4 Company system, and on behalf of the Attorney General of the Commonwealth of
5 Kentucky (“AG”). The members of KIUC participating in this case are: Air
6 Products and Chemicals, Inc., Air Liquide Large Industries U.S. LP, AK Steel
7 Corporation, EQT Corporation and Catlettsburg Refining LLC, a subsidiary of
8 Marathon Petroleum LP. Collectively, I will refer to both KIUC and the AG as
9 KIUC/AG.

10

11 **Q. Please describe the purpose of your testimony.**

12 A. I have been asked to review whether the process by which Kentucky Power allocates
13 fuel costs between native load and off-system sales in the monthly fuel adjustment
14 charge (“FAC”) is reasonable. I conclude that it is not. I conclude that native load
15 customers are being charged excessive fuel costs which enhanced the profitability of
16 the Company’s off-system sales. The primary flaw in the Company’s methodology is
17 that Kentucky Power improperly allocates 100% of its theoretical “no load” fuel
18 costs to native load, and none to off-system sales. The Company did this even though
19 a portion of the no load costs were incurred to enable Kentucky Power to make off-
20 system sales.

21 I recommend that the Commission require Kentucky Power to adopt the
22 allocation methodology followed by East Kentucky Power Cooperative (EKPC). The
23 EKPC methodology ensures that native load ratepayers are first assigned the lowest

1 fuel cost generation through an economic stacking process, and that off-system sales
2 are then assigned fuel costs (including no-load costs) from higher cost generation at
3 the top of the dispatch stack. Both EKPC and Kentucky Power are members of PJM.

4 The use of the EKPC allocation methodology results in an FAC reduction to
5 Kentucky Power's native load ratepayers during the first four months of 2014 of
6 approximately \$12.6 million. As discussed by Mr. Kollen, in order to result in fair,
7 just and reasonable fuel costs, interest should be added and the total amount should
8 be refunded so that retail consumers are made whole. Finally, the EKPC FAC
9 allocation methodology should be implemented going forward.

10 II. KENTUCKY POWER'S FAC

11
12 **Q. Please explain how Kentucky Power determines the fuel cost that it allocates to**
13 **retail customers through the FAC.**

14 A. During the review period, Kentucky Power allocated its fuel and purchased power
15 expense between native load and off-system sales based on an after-the-fact
16 reconstruction process. This allocation does not change the actual dispatch of the
17 Company's units or the amount of off-system sales that were made. The Company's
18 process was conducted as follows: First, Kentucky Power calculated the theoretical
19 "no load" fuel costs for its units and assigned all of those costs to native load
20 customers. The theoretical "no load" fuel costs are equivalent to the constant in the
21 dispatch equation, which assumes no generation at that level for actual dispatch
22 purposes. The assumption of no generation represents more of a theoretical

1 construct as generating units do not typically operate at such a “no load” level.
2 Kentucky power claims that this first step has been part of its FAC process for more
3 than 20 years. The second step is new and has been in effect only since January 1,
4 2014. That is, if the sum of the minimum segment capacity in the hour exceeded
5 native load, Kentucky Power allocated its minimum segment costs between native
6 load customers and off-system sales. Otherwise, all minimum segment costs were
7 allocated to native load. Finally, Kentucky Power allocated the remaining fuel costs
8 in excess of the “no-load” costs and the costs incurred to generate at the minimum
9 segments by economically “stacking” those costs in dispatch order, assigning the
10 next increments of available generation each hour first to native load and then the
11 final increments to off-system sales. This last step resulted in the economic stacking
12 of only part of the Company’s fuel costs, not all of its fuel costs.

13
14 **Q. Does Kentucky Power generate the exact amount required to serve native load**
15 **requirements?**

16 A. No. On an hourly basis, the Company balances the needs of its system by making
17 purchases, and it seeks opportunities to sell power to the market when it has energy
18 in excess of its load requirements. In addition to fuel costs, the Company is also
19 permitted to recover through the FAC certain purchase power expenses. Previously,
20 profits from off-system sales were shared between the Company and ratepayers and
21 were treated as an offset to the FAC. Pursuant to the Stipulation in the Mitchell
22 Asset Transfer Case, beginning January 1, 2014 Kentucky Power is now permitted to

1 keep 100% of the profits from off-system sales at least until the next base rate case.¹
2 Nothing in my testimony undermines or changes the Mitchell Stipulation. Kentucky
3 Power is entitled to 100% of off-system sales profits. But, those profits must be
4 properly calculated and must not be subsidized by native load ratepayers.
5

6 **Q. How has the Mitchell asset transfer impacted Kentucky Power's off-system**
7 **sales?**

8 A. The acquisition of the Mitchell units has significantly increased the volume of off-
9 system sales as well as the profits from those sales. That was expected as a result of
10 the Mitchell Stipulation. However, the issue being raised by KIUC and the Attorney
11 General is the allegation that the Company's FAC procedure subsidizes off-system
12 sales, thus resulting in improperly inflated profits. As part of its FAC allocation
13 process, the Company allocates 100% of its theoretical "no load" fuel costs (totaling
14 approximately \$40 million during the six-month review period)² in every hour to
15 native load customers, without sharing any of those costs with off-system sales. This
16 is improper because the Company could not generate a single MW of energy without
17 incurring the so-called "no load" fuel costs, and without those fuel costs, off-system
18 sales could not be made.

19 In light of the significant changes that occurred to the Kentucky Power
20 System, the focus of my analysis begins in January 1, 2014. The significant changes
21 to the Kentucky Power System that I refer to are: 1) the dissolution of the AEP

¹ Mitchell Stipulation at 7.

² KIUC 1-7.

1 Interconnection Agreement; and 2) the acquisition of Mitchell Units 1 and 2 that
2 both occurred beginning January 1, 2014. However, the rationale behind my
3 analysis applies to the pre-January 1, 2014 portion of the review period as well.
4

5 **Q. What is the theoretical basis for the no-load cost?**

6 A. No load cost is thought of as the cost of fuel input into a generator in order to keep
7 the generator operating, but without actually producing any electricity. Generating
8 units rarely, if ever, operate in this manner, and therefore, the concept of a no load
9 cost exists more as a mathematical concept rather than a real cost. That is why PJM
10 repeatedly refers to no-load fuel costs as “theoretical”. In mathematical terms, the no
11 load cost is part of the heat rate input-output curve used in modeling the expected
12 efficiency behavior of a generating unit for purposes of dispatching units
13 economically. The efficiency of a unit varies depending on the capacity of the unit.
14 PJM defines no load cost as the “...cost needed to create the starting point of a
15 monotonically increasing incremental cost curve.”³ An example of a heat rate input-
16 output curve is:

$$\text{Fuel in MBTU} = 399.3 + 8.0528 x + .00179 x^2$$

17
18 This equation derives the amount of fuel required to input into in a generating unit to
19 produce energy at each capacity level (represented in the equation by x). 399.3 is
20 considered the no-load MBTUs and it is included in the calculation of heat input at
21 every capacity level evaluated.

³ PJM Cost Development Guidelines, Kentucky Power response to KIUC 2-1.

1 Utilizing no-load fuel costs is proper for purposes of PJM dispatching the
2 generation under its control. When PJM dispatches the generation of EKPC, PJM
3 uses no-load fuel costs in the same way as it does for Kentucky Power. But
4 generation dispatch and fuel cost allocation to ensure that the FAC rate is reasonable
5 are two completely different matters.

6
7 **Q. How have the Kentucky Power System generating units operated since the**
8 **acquisition of Mitchell?**

9 A. Mitchell was acquired in January 2014, which was in the third month of the rate
10 review period, and the Company began to dramatically increase the amount of off-
11 system sales it made. In the first quarter of 2014 alone, the Company made more
12 off-system sales (2,063 GWh) than it did in all of 2013 (1,801 GWh).⁴ In a
13 comparison of just the first quarter of 2013 to the same period in 2014, average
14 hourly off-system sales increased from 262 MW of sales per hour in 2013 to 716
15 MW in 2014, which is a 174% increase over the prior period. This is close to the
16 amount of capacity acquired in the Mitchell purchase.

17
18 **Q. What were the Company's fuel cost allocation results in the January – April**
19 **2014 period?**

20 A. The following table presents the results showing that the amount allocated to off-
21 system sales on a \$/MWh basis averages about 31% lower than the amount allocated
22 to native load customers.

⁴ KIUC 1-5.

Kentucky Power Fuel Generated Fuel Cost Allocation Native Load and Off-System Sales (\$/MWH)				
	Jan. 2014	Feb. 2014	Mar. 2014	Apr. 2014
Fuel Cost	29.38	29.34	27.18	27.83
Allocation to Off-System Sales	24.42	25.95	24.39	22.36
Allocation to Native Load	32.14	31.61	28.99	34.40

Source: Kentucky Power Response to Staff 1-29, Attachment 1

The end result of the Kentucky Power FAC allocation process is that consumers are paying an unreasonable FAC rate. Native load ratepayers should receive below average fuel costs, not above average. Not only does allocating 100% of no-load fuel costs to native load result in an inherently unreasonable FAC rate, as shown above; it is also contrary to how all of the other utilities in Kentucky operate under the uniform FAC regulation.

Mr. Kollen discusses this at greater length in his testimony; however, as one example, EKPC explained how it allocates no load costs between native load and off-system sales in a data response the Commission Staff asked in Docket No. 2014-00226. In response to PSC Request 29, EKPC stated that it does not parse no load costs out and:

...they are included in the fuel costs that are assigned to both serving native load and off-system sales. Fuel is allocated between native-load sales and off-system sales on a stacked cost basis. EKPC considers each hour of operation, determines if a sale was made from its system during the hour and then allocates the highest cost resource(s) to that sale for FAC purposes. The process of stacking and assigning the highest cost

1 resources to off-system sales protects EKPC's native load from having no-
2 load cost assigned inappropriately.

3 EKPC's response highlights some of the flaws that I discuss concerning
4 Kentucky Power's allocation approach at greater length in the next section. One is
5 that EKPC's approach does not separately identify no load costs and ensure that they
6 are allocated strictly to native load customers. EKPC states that they are included in
7 fuel costs that are assigned to both native load and off-system sales. Second, as
8 opposed to Kentucky Power's method, EKPC states that its method protects native
9 load customers from having no load costs assigned to them inappropriately.

10 Third it does not appear that EKPC allocates costs using a reconstruction
11 similar to Kentucky Power's, but instead it allocates costs on a stacked cost basis,
12 which allocates the highest cost resource to off-system sales for FAC purposes.

13

14 **Q. How did the acquisition of Mitchell in 2014 trigger a problem with the**
15 **Company's fuel cost allocation logic?**

16 A. The Company added an additional 780 MW of capacity when it acquired the
17 Mitchell capacity, and it increased the sum of all of its units' minimum capacity by
18 425 MW to 975 MW (550 + 425). Minimum capacity is as its name suggests the
19 lowest level of output that a power plant can operate at. When running at minimum,
20 power plant average fuel costs are high. Base load coal plants run best and most
21 efficiently at or near their maximum capacity. Given that the Company's native load
22 ranged from a minimum of 495 MW to a peak of 1622 MW hours, this meant that
23 there were many hours that its FAC reconstruction process could not create a

1 hypothetical case in which its units were able to back down low enough to dispatch
2 at just the native load, because units do not generally operate below minimum
3 capacity levels. With the acquisition of the Mitchell capacity, the sum of the
4 minimum capacity of the Company's online resources exceeded native load for more
5 than 31% of the hours in the four-month period of January through April 2014.
6 Therefore, the excess capacity resulting from the Mitchell acquisition meant that
7 Kentucky Power had to change its FAC reconstruction process.

8
9 **Q. How did Kentucky Power change its FAC effective January 1, 2014?**

10 A. This was addressed in the Company's response to KIUC DR 2-5, in which we asked
11 for programming specifications changes to the Company's post-period
12 reconstruction process as a result of the Mitchell asset acquisition. Though the
13 Company said that there is no documentation explaining the changes, and that it did
14 not change its methodology for allocating no-load costs in 2014, it is clear that the
15 Company had to make program modifications that nobody was aware of. Nor did
16 this Commission approve any changes.

17 The program modifications addressed the situation that occurred in hours in
18 which native load was less than the sum of the minimum capacity of its online units,
19 or 975 MW in the case that all of the Mitchell, Big Sandy and the Rockport units
20 were online at the same time. For example, when native load was 500 MW and the
21 unit minimums were 975 MW, Kentucky Power had to change how it allocated fuel
22 costs associated with the 475 MW of "unneeded" minimum capacity. In order to
23 properly allocate their fuel costs, they settled on a new method that partially split the

1 cost of the fuel associated with the 475 MW between native load and off-system
2 sales on a proportional basis.

3 However, the flaw that really sticks out is that while there can be no doubt
4 that part of the units' minimum costs were incurred in serving off-system sales, the
5 Company still refuses to allocate any no-load costs to the off system sales. Even the
6 no-load costs associated with the 475 MW of "unneeded" minimum capacity in my
7 example.

8 It is unreasonable to assign 100% of no-load costs to Kentucky retail
9 ratepayers when their native load exceeds the minimum generation level of 975 MW.
10 But it is especially unreasonable to do so when native load is less than the 975 MW
11 minimum, as it was during 31% of the hours in January through April 2014.

12
13 **III. UTILIZATION OF THE EKPC FUEL COST**
14 **ALLOCATION METHODOLOGY**
15

16 **Q. Please discuss your use of the EKPC cost allocation methodology.**

17 A. The revised fuel cost allocation method that I recommend is the same method as
18 EKPC's stacked cost approach, which ensures that the highest cost resources,
19 including both generating unit fuel costs and purchase power costs, are allocated to
20 off-system sales for FAC purposes. EKPC and Kentucky Power are both members
21 of PJM. To begin with, we obtained all of the necessary hourly data through
22 discovery requests. We initially encountered problems dealing with inconsistencies
23 in the data that prevented us from being able to line up data that were associated with
24 the same hours. The Company helped to improve this problem after we submitted

1 additional data requests. The information needed in our calculation was actual hourly
2 unit generation and fuel cost, hourly purchase energy and purchase power cost, off
3 system sales energy, and native load. For each resource, generating unit or purchase,
4 that served load in an hour we ranked the cost of the units and purchases from lowest
5 to highest and allocated the lowest cost units first to native load. Once the native
6 load requirement was met, we allocated the remainder of the fuel and purchase
7 power costs to off-system sales.

8
9 **Q. When you refer to native load, does that include the wholesale requirements**
10 **load that the Company serves?**

11 A. No, the fuel cost results that the Company provided included the allocation of fuel
12 costs to retail native load customers and did not include fuel costs or loads associated
13 with the wholesale requirements customers (Vanceburg and Olive Hill).

14
15 **Q. Please compare unit average cost results of Kentucky Power's fuel cost**
16 **allocation procedure to the same results that you produced using the EKPC cost**
17 **allocation methodology.**

18 A. The following table provides a comparison of fuel costs allocated to both native load
19 and off-system sales on a \$/MWH basis. Under the Kentucky Power allocation
20 procedure, native load customers are allocated higher average fuel costs than off-
21 system sales. For example, in April 2014, under Kentucky Power's method, native
22 load customers are allocated average costs of the Big Sandy plant (\$38.27/MWh)

1 that are 54% higher than are allocated to off-system sales (\$24.75/MWh). Over the
 2 four month period of January through April 2014, under Kentucky Power's method,
 3 native load customers are allocated average costs of the Big Sandy plant
 4 (\$35.25/MWh) that are 37% higher than are allocated to off-system sales
 5 (\$25.81/MWh).

ALLOCATION \$/MWh BY METHOD										
KENTUCKY POWER COMPANY FILING										
Month		<u>Off-System Sales (OSS)</u>			<u>Native Load (NL)</u>			<u>Total</u>		
		Big Sandy	Mitchell	Rockport	Big Sandy	Mitchell	Rockport	Big Sandy	Mitchell	Rockport
Jan-14	\$/MWh	25.59	23.80	22.03	35.29	31.93	25.47	31.18	30.23	24.08
Feb-14	\$/MWh	26.79	24.91	23.46	32.54	31.74	28.76	29.54	30.88	26.31
Mar-14	\$/MWh	26.22	24.08	22.21	36.25	29.49	22.21	31.38	27.56	22.21
Apr-14	\$/MWh	24.75	18.10	22.77	38.27	32.60	29.75	30.22	25.89	25.72
Jan-Apr	\$/MWh	25.81	21.77	22.59	35.25	31.35	25.66	30.49	28.48	24.32
HOURLY RESTACK (EKPC METHOD) SUMMARIZED MONTHLY										
Month		<u>Off-System Sales (OSS)</u>			<u>Native Load (NL)</u>			<u>Total</u>		
		Big Sandy	Mitchell	Rockport	Big Sandy	Mitchell	Rockport	Big Sandy	Mitchell	Rockport
Jan-14	\$/MWh	30.71	31.88	34.33	30.13	28.31	23.92	30.44	29.55	23.92
Feb-14	\$/MWh	30.85	32.98	51.10	30.53	28.84	25.32	30.74	29.47	25.35
Mar-14	\$/MWh	32.27	29.31	-	32.68	27.87	24.20	32.30	28.27	24.20
Apr-14	\$/MWh	31.78	23.85	25.48	31.42	22.48	25.28	31.76	22.55	25.38
Jan-Apr	\$/MWh	31.38	30.59	25.53	30.42	26.53	24.50	31.13	27.39	24.61

6

7 One final example to point out how improper the Company's allocation is,
 8 in April 2014, under Kentucky Power's method, native load customers are allocated
 9 average costs of the Mitchell plant (\$32.60/MWh) that are 80% higher than are
 10 allocated to off-system sales (\$18.10/MWh).

1 **Q. Please compare the range in the cost difference comparing costs allocated to**
2 **native load and off-system sales between the Kentucky Power method and the**
3 **EKPC method.**

4 A. Based on the EKPC hourly restacking approach, higher average costs are allocated to
5 off system sales, though the difference in the costs allocated on a \$/MWH basis is
6 not nearly as large as the difference between the costs allocated to native load and
7 off-system sales under Kentucky Power's method. Over the period of January
8 through April 2014, the range between the average price allocated to off system sales
9 and native load are shown in the table below.

ALLOCATION \$/MWh BY METHOD				
Jan - Apr 2014				
		Big Sandy	Mitchell	Rockport
KPCO	OSS	25.81	21.77	22.59
	NL	35.25	31.35	25.66
	Range	9.44	9.58	3.07
EKPC	OSS	31.38	30.59	25.53
	NL	30.42	26.53	24.50
	Range	0.97	4.06	1.04

10

11 This indicates that while the EKPC method allocates costs to native load that
12 are lower than to off-system sales, the spread of the costs allocated to each is much
13 closer under the EKPC method. For example, there is a \$9.44/MWH spread in
14 average allocated costs under the Kentucky Power method for Big Sandy, while
15 there is a spread of just \$0.97/MWH under the EKPC method. Thus, not only does

1 the EKPC method more properly allocate costs between native load and off-system
2 sales, it also results in the average costs allocated to each being much closer to the
3 unit's actual average costs than under Kentucky Power's method.

4
5 **Q. Please compare the allocation of total cost results of Kentucky Power's fuel cost**
6 **allocation procedure to the same results that you produced using the EKPC cost**
7 **allocation methodology.**

8 A. The following table compares the allocation of total fuel and purchase power costs
9 under both methods, and compares the percentage of costs that are allocated to off-
10 system sales and to native load.

ALLOCATION OF FUEL COSTS AND PURCHASE POWER BY METHOD

KENTUCKY POWER COMPANY FILING

<i>Month</i>		<i>OSS</i>	<i>NL</i>	<i>Total</i>	<i>OSS%</i>	<i>NL%</i>
Jan-14	\$	\$17,742,429	\$25,621,098	\$43,363,527	41%	59%
Feb-14	\$	\$14,301,190	\$20,359,584	\$34,660,774	41%	59%
Mar-14	\$	\$12,197,123	\$17,970,490	\$30,167,612	40%	60%
Apr-14	\$	\$14,808,580	\$16,377,688	\$31,186,267	47%	53%
Jan-Apr	\$	\$59,049,321	\$80,328,860	\$139,378,180	42%	58%

HOURLY RESTACK (EKPC METHOD) SUMMARIZED MONTHLY

Jan-14	\$	\$20,707,184	\$21,920,710	\$42,627,894	49%	51%
Feb-14	\$	\$16,505,341	\$18,251,010	\$34,756,351	47%	53%
Mar-14	\$	\$14,973,761	\$16,331,433	\$31,305,194	48%	52%
Apr-14	\$	\$19,445,417	\$11,177,599	\$30,623,016	63%	37%
Jan-Apr	\$	\$71,631,703	\$67,680,753	\$139,312,455	51%	49%

1 Q. Based on the EKPC fuel cost allocation method what is the amount of fuel costs
2 that Kentucky Power has over-allocated to native load customers?

3 A. The following table compares the monthly total fuel and purchase power amounts
4 allocated to native load customers under both approaches, and the sum of each over
5 the four-month period.

	<u>KENTUCKY POWER</u> <u>COMPANY FILING</u>	<u>HOURLY RESTACK</u> <u>(EKPC METHOD)</u>
<i>Month</i>		
Jan-14	\$25,621,098	\$21,920,710
Feb-14	\$20,359,584	\$18,251,010
Mar-14	\$17,970,490	\$16,331,433
Apr-14	\$16,377,688	\$11,177,599
Jan-Apr	\$80,328,860	\$67,680,753
	Savings using EKPC Method	\$12,648,107
	% reduction	16%

6

7 The table indicates that Kentucky Power has over-allocated approximately
8 \$12.6 million to native load customers, which amounts to an allocation of 16% more
9 fuel and purchase power costs to native load customers compared to what would
10 have been allocated had Kentucky Power used the EKPC allocation approach.
11 KIUC/AG recommends that in addition to this amount, interest should be computed
12 and both should be refunded to customers. Mr. Kollen computes the additional
13 interest charge and discusses the method for refunding these costs to retail
14 customers.

1 **Q. Please summarize your recommendation.**

2 A. The method I have described, economically “stacking” fuel and purchase power
3 costs every hour and assigning the highest cost resources to off-system sales is the
4 same method that EKPC uses, and it appropriately protects customers from
5 disproportionate or unreasonably high FAC charges. I have recalculated the fuel
6 costs that should have been allocated to native load customers during the January
7 through April period, and I believe the Commission should order Kentucky Power to
8 refund \$12.6 million in fuel costs that were improperly allocated to native load
9 customers. In addition, interest should also be added to this amount and refunded to
10 customers, and Mr. Kollen discusses KIUC/AG’s recommendation with regards to
11 computing and refunding those costs to customers. Furthermore, I recommend that
12 Kentucky Power be required to adopt the same fuel cost allocation approach as
13 EKPC on a going forward basis.

14

15 **Q. Does this complete your testimony?**

16 A. Yes.

AFFIDAVIT

STATE OF GEORGIA)

COUNTY OF FULTON)

PHILIP HAYET, being duly sworn, deposes and states: that the attached are his sworn Testimony and Exhibits and that the statements contained are true and correct to the best of his knowledge, information and belief.


Philip Hayet

Sworn to and subscribed before me on this
9th day of October 2014.

Notary Public


Leah J Wellborn



COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In The Matter Of:

The Application of the Fuel Adjustment Clause of)	
Kentucky Power Company From November 1, 2013)	Case No. 2014-00225
Through April 30, 2014)	

<p>EXHIBITS</p> <p>OF</p> <p>PHILIP HAYET</p>
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ON BEHALF OF THE
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC. AND
ATTORNEY GENERAL OF THE COMMONWEALTH OF KENTUCKY

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

OCTOBER 2014

QUALIFICATIONS OF PHILIP HAYET

EDUCATION/CERTIFICATION

M.S., Electrical Engineering, Georgia Institute of Technology, 1980
B.S., Electrical Engineering, Purdue University, 1979
Cooperative Education Certificate, Purdue University, 1979

EXPERIENCE

Mr. Hayet has provided consulting services to Public Utility Commissions, State Energy Offices, Consumer Advocate Offices, Electric Utilities, Global Power Developers, and Industrial Companies for over thirty years. Mr. Hayet's expertise covers a number of areas including utility system planning and operations, market price forecasting, Integrated Resource Planning, renewable resource evaluation, transmission planning, demand-side analysis, and economic analysis. In 1995, Mr. Hayet began his own utility consulting firm, Hayet Power Systems Consulting ("HPSC"), and has worked for customers in the United States, and internationally in Australia, Japan, Singapore, Malaysia, the United Kingdom, and Vietnam. In addition to continuing to work for HPSC, in 2000, Mr. Hayet also joined the consulting firm of J. Kennedy & Associates, Inc. to provide support for projects requiring utility resource planning analysis and software modeling expertise.

Prior to 1995, Mr. Hayet worked for fifteen years at Energy Management Associates, now Ventyx, where he provided consulting services and client service support for the widely used utility system planning software models, PROMOD IV and STRATEGIST. Clients included various electric utilities, governmental agencies, and private industry. Mr. Hayet helped to design some of the features that exist within the PROMOD IV and STRATEGIST systems, such as the competitive market modeling features in STRATEGIST.

Mr. Hayet has conducted numerous consulting studies in the areas of Renewable Resource Evaluation, Renewable Portfolio Standards Evaluation, Green Pricing Tariff Development, Electric Market Price Forecasting, Generating Unit Cost/Benefit Analysis, Integrated Resource Planning, Demand-Side Management, Load Forecasting, Rate Case Analysis and Regulatory Support. A list of recent projects is included below.

SPECIFIC EXPERIENCE

Projects Since 2000 - J. Kennedy and Associates, Inc. Atlanta, GA – Director of Consulting

- Filed Direct Testimony August 2014 at the Wyoming Public Service Commission on behalf of the Wyoming Industrial Energy Consumers concerning PacifiCorp's 2014 ECAM application (Docket 20000-447-EA-14).

QUALIFICATIONS OF PHILIP HAYET

- Testified at FERC in September 2014 regarding the Louisiana Public Service Commission's complaint regarding Entergy's allocation of Union Pacific Settlement Agreement benefits (Docket ER-13-432).
- Filed Direct Testimony July 2014 at the Wyoming Public Service Commission on behalf of the Wyoming Industrial Energy Consumers concerning PacifiCorp's 2014 General Rate Case with regard to Net Power Costs (Docket 20000-446-ER-14).
- Filed Direct Testimony (October 2013) at the Kentucky Public Service Commission regarding Big River's base rate case request (Case No. 2013-00199) on behalf of the Kentucky Industrial Utility Customers, Inc.
- Filed Direct Testimony (July 2013) at the Louisiana Public Service Commission regarding Entergy's request for certification of a 8.5 MW PPA for renewable energy capacity (Agrilectric rice hull) in accordance with the LPSC's Renewable Energy Pilot (Docket U-32785), on behalf of the Louisiana Public Service Commission Staff.
- Filed Direct Testimony (April 2013) at the Kentucky Public Service Commission regarding Kentucky Power Company's Mitchell Certificate of Public Convenience and Necessity filing (Case No. 2012-00578) on behalf of the Kentucky Industrial Utility Customers, Inc.
- Filed Cross Answering Testimony (March 2013) at FERC regarding the Louisiana Public Service Commission's harm calculation stemming from Entergy's violation of its System Agreement (Docket No. EL09-61-002), on behalf of the Louisiana Public Service Commission.
- Filed Direct Testimony (December 2012) in Entergy's retail proceeding at the LPSC regarding termination of Cross-PPAs (Docket No. U-29764).
- Filed Direct Testimony (December 2012) regarding Entergy's request for certification of a 28 MW PPA for renewable energy capacity (RAIN CII waste heat) in accordance with the LPSC's Renewable Energy Pilot (Docket U-32557), on behalf of the Louisiana Public Service Commission Staff.
- Filed Direct Testimony (December 2012) at FERC regarding the Louisiana Public Service Commission's harm calculation stemming from Entergy's violation of its System Agreement (Docket No. EL09-61-002), on behalf of the Louisiana Public Service Commission.
- Filed Direct Testimony (September 2012) regarding Dixie Electric Member Cooperative's Ten year Power Supply Agreement U-32275.
- Filed Direct Testimony (March 2012) regarding Entergy's change of control filing to move to the Midwest ISO in LPSC Docket 32148.

QUALIFICATIONS OF PHILIP HAYET

- Filed Direct Testimony (September 2011) in support of a settlement agreement at the Louisiana Public Service Commission regarding the reasonableness of Cleco's CCPN to upgrade its Madison 3 coal unit to accommodate biomass fuel in accordance with the LPSC's Renewable Energy Pilot in Docket U-31792.
- Filed Direct (January 2011) and Cross-Answering (February 2011) Testimony at FERC regarding the reasonableness of Entergy's 2009 production costs that were used to develop bandwidth payments in Docket ER09-1350.
- Testified at FERC regarding an LPSC complaint that Entergy violated provisions of its System Agreement related to individual operating company sales in FERC Docket EL09-61.
- Testified at FERC regarding the reasonableness of Entergy's 2008 production costs that were used to develop bandwidth payments in Docket ER08-1224.
- Filed testimony at the Public Utilities Commission of the State of Colorado, in October 2009 concerning Black Hills/Colorado's CPCN application to construct two LMS 100 natural gas combustion turbine units. Docket No. 09A-415E
- Testified in front of the Minnesota Public Service Commission, September 2009 concerning Minnesota Power's Request for Approval to Purchase Square Butte's 500 kV DC transmission line, and to restructure a coal based power purchase agreement. MPUC Docket No. E015/PA-09-526
- Testified in front of FERC, July 2009, concerning the Louisiana Public Service Commission's complaint regarding Entergy's 2007 rough production cost equalization compliance filing in the System Agreement Case in FERC Docket No. ER08-1056.
- Worked with the Louisiana Public Service Commission in a collaborative effort to implement a Green Pricing Tariff for Entergy Gulf States Louisiana, Entergy Louisiana, CLECO, and SWEPCO. Coordination is required between the utility, power developers, other customers, and Commission Staff. (Docket No. R-28271)
- Assisted the Louisiana Public Service Commission Staff with a rulemaking to design Integrated Resource Planning ("IRP") rules. (Docket No. R-30021)
- Assisted the Louisiana Public Service Commission Staff with a rulemaking for the opportunity to implement a Renewable Portfolio Standard in Louisiana. (Docket No. R-28271 Sub-Docket B)
- Filed Testimony at FERC in Jan 2009, concerning the 2007 System Agreement Rough Production Cost Equalization production cost equalization compliance filing in the System Agreement Case in FERC Docket No. ER08-1056.
- Testified in front of the Wisconsin Public Service Commission in 2008 regarding WPL's certification proceeding concerning the Nelson Dewey CFB coal-fired generating unit. (6680-CE-170).

QUALIFICATIONS OF PHILIP HAYET

- Testified at FERC in July 2008, concerning the Louisiana Public Service Commission's complaint regarding Entergy's 2006 rough production cost equalization compliance filing in the System Agreement Case in FERC Docket No. ER07-956.
- Testified in front of the Wisconsin Public Service Commission in 2008 regarding WEPCO's request to implement environmental upgrades at its Oak Creek Power Plant in Docket 6630-CE-299.
- Assisting the Louisiana Public Service Commission Staff with the review and evaluation of Cleco Power's 2008 Short Term RFP and its 2010 Long-Term RFP.
- Provided regulatory support on behalf of the Louisiana Public Service Commission Staff concerning jurisdictional separation of Entergy Gulf States in Docket No. U-21453.
- Provided regulatory support on behalf of the Louisiana Public Service Commission Staff concerning the potential benefit of Transmission upgrades in Docket No. U-25116.
- Provided regulatory support on behalf of the Louisiana Public Service Commission concerning a FERC complaint regarding power purchase contracts in FERC Docket No. ER03-753-000.
- Provided regulatory support on behalf of the Louisiana Public Service Commission Staff in a retail proceeding evaluating the benefits of possibly retiring some of Entergy's gas-fired units. Docket No. U-27136 (Subdocket A).
- In 2002 – 2003, provided regulatory support on behalf of the Louisiana Public Service Commission's FERC complaint regarding cost allocation issues between the Entergy Operating Companies in the FERC Docket No. EL01-88-000.
- In 2002 – 2003, provided regulatory support on behalf of the Louisiana Public Service Commission Staff in a retail proceeding concerning Entergy's billing practices. Docket No. U-25888
- In 2000 – 2001, provided regulatory support on behalf of the Louisiana Public Service Commission's intervention in Entergy's proposed System Agreement modifications in the FERC Docket No. ER00-2854-000.

Projects Since 2000 - Hayet Power Systems Consulting, Atlanta, GA – President

- Filed Direct Testimony September 2014 at the Utah Public Service Commission on behalf of the Utah Office of Consumer Services concerning PacifiCorp's 2014 EBA application (Docket 14-035-31).
- Filed Direct Testimony May 2014 at the Public Service Commission of Utah on behalf of the Office of Consumer Services concerning PacifiCorp's 2014 General Rate Case addressing Net Power Cost issues (Docket 13-035-184).

QUALIFICATIONS OF PHILIP HAYET

- Filed Direct Testimony August 2013 at the Georgia Public Service Commission concerning Georgia Power's Eighth Semi-Annual Vogtle Construction Monitoring Report (Docket 29849-U).
- Filed Direct Testimony May 2013 at the Georgia Public Service Commission concerning Georgia Power's 2013 IRP and its request to decertify over 2,000 MW of coal-fired capacity (Docket No. 36498).
- Filed Direct Testimony December 2012 at the Georgia Public Service Commission concerning Georgia Power's Seventh Semi-Annual Vogtle Construction Monitoring Report (Docket 29849-U).
- Filed Direct Testimony July 2012 at the Kentucky Public Service Commission regarding Big Rivers Certification to perform environmental upgrades in compliance with MATS and CSAPR EPA regulations. (Case No. 2012-00063).
- Submitted Direct Testimony May 2012 at the Georgia Public Service Commission concerning Georgia Power's Sixth Semi-Annual Vogtle Construction Monitoring Report (Docket 29849).
- Submitted Direct Testimony May 2012 at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing (FCR-23 - Docket 35277).
- Assisted in the evaluation of Rocky Mountain Power's request for certification of environmental upgrades at the Naughton 3 unit in Wyoming on behalf of the Wyoming Industrial Energy Consumers (Docket No. 20000-EA-400-11).
- Submitted Direct Testimony November 2011 at the Georgia Public Service Commission concerning Georgia Power's evaluation of environmental upgrades pertaining to MATS EPA regulations, to decertify two aging coal units, to acquire PPA resources, and to have approved its IRP Update, on behalf of the Georgia Public Service Commission Staff (Docket 34218).
- Submitted Direct Testimony November 2011 at the Georgia Public Service Commission concerning Georgia Power's request to certify the reacquisition of wholesale block capacity, on behalf of the Georgia Public Service Commission Staff (Docket 26550).
- Submitted an Initial and Rebuttal Expert Report (April and June 2011, respectively) on behalf of the Department of Justice in US District Court, Civil Action No. 2:10-cv-13101-BAF-RSW.
- Filed Direct Testimony June 2011 at the Georgia Public Service Commission concerning Georgia Power's Fourth Semi-Annual Vogtle Construction Monitoring Report Period Ending December 31, 2011 (Docket 29849-U).
- Filed Direct testimony April 2011 at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing (FCR-22) (Docket 33302).

QUALIFICATIONS OF PHILIP HAYET

- Filed Direct testimony December 2010 at the Georgia Public Service Commission concerning Georgia Power's Third Semi-Annual Vogtle Construction Monitoring Report Period Ended June 30, 2010 (Docket 29849-U).
- Filed Direct testimony June 2010 at the Georgia Public Service Commission concerning Georgia Power's Second Semi-Annual Vogtle Construction Monitoring Report Period Ended December 31, 2009 (Docket 29849-U).
- Filed Direct testimony January 2010 at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing (FCR-21) (Docket 28945).
- Filed Direct testimony October 2009 at the Georgia Public Service Commission concerning Georgia Power's First Semi-Annual Vogtle Construction Monitoring Report Period Ended June 30, 2009 (Docket 29849-U).
- Filed Direct and Sur-rebuttal testimony in September and October 2009, respectively at the Utah Public Service Commission concerning PacifiCorp's 2009 Rate Case with regard to net power costs (Docket 09-035-23).
- Assisted the Utah Office of Consumer Services to evaluate PacifiCorp's 2008 IRP (Docket 09-2035-01).
- Assisting the Georgia Public Service Commission Staff to investigate the acquisition of additional coal and combustion turbine capacity currently wholesale capacity (Docket 26550).
- Testified on Georgia Public Service Commission Staff concerning Georgia Power's Certification request for the Vogtle 3 and 4 Nuclear units (Docket 27800).
- Testified on behalf of the Utah Committee of Consumer Services concerning PacifiCorp's 2008 request to acquire the Chehalis Combined Cycle Power Plant based on a waiver of the RFP solicitation process (Docket 08-035-35).
- Submitted testimony on behalf of the Utah Committee of Consumer Services concerning PacifiCorp's 2007 Rate Case with regard to net power costs (Docket 07-035-93).
- Testified in April 2008 in front of the Georgia Public Service Commission regarding Georgia Power's November 2006 Fuel Cost Recovery filing (Docket 26794-U).
- Assisted the Georgia Public Service Commission Staff to evaluate Georgia Power's 2007 IRP filings (Docket 24505-U).
- Conducted an investigation of the Southern Company interchange accounting and fuel accounting practices on behalf of the Georgia Public Service Commission (Docket 21162-U).
- Testified in January 2007 in front of the Georgia Public Service Commission regarding Georgia Power's November 2006 Fuel Cost Recovery filing (Docket 23540-U).

QUALIFICATIONS OF PHILIP HAYET

- Assisted the Utah Committee of Consumer Services to evaluate PacifiCorp's 2007 IRP.
- Provided regulatory support to the Utah Committee of Consumer Services concerning PacifiCorp's 2006 Rate Case with regard to net power costs (Docket 06-35-01).
- Testified in May 2006 in front of the Georgia Public Service Commission regarding Georgia Power and Savannah Electric's March 2006 Fuel Cost Recovery filing (Docket 22403-U).
- Assisted the Utah Committee of Consumer Services by evaluating PacifiCorp's 2005 IRP and assisted in writing comments that were filed with the Commission.
- Assisted the Utah Committee of Consumer Services by participating in a collaborative process to develop an avoided cost tariff for large QFs.

Other Projects Conducted Since 1996

- Provided assistance in 2004 to the Utah Committee of Consumer Services to analyze a series of power purchase agreements and special contracts between PacifiCorp and several of its industrial customers.
- Assisted the Georgia Public Service Commission Staff to evaluate Georgia Power and Savannah Electric's 2004 IRP filings. Also, testified in front of the Georgia Public Service Commission in that proceeding.
- Provided regulatory support to the Utah Committee of Consumer Services regarding PacifiCorp's 2003 Utah General Rate Case Docket # 03-2035-02.
- Worked on behalf of the Oregon Public Utility Commission to Audit PacifiCorp's Net Power Costs per a Settlement Agreement accepted by the Public Utility Commission of Oregon in its Order No. 01-787. Audit report in Docket No. UE-116 filed July 2003.
- Worked on behalf of the Utah Committee of Consumer Services to provide guidance and assist in the analysis of PacifiCorp's 2002 Integrated Resource Plan.
- Worked on behalf of the Utah Committee of Consumer Services to help analyze PacifiCorp's restructuring proposals.
- Testified in front of the Utah Public Service Commission in regards to PacifiCorp's Utah General Rate Case Docket # 010-035-010
- Submitted an expert report in August 2002 in the United States District Court for the Middle District of North Carolina in the Civil Action No. 1:00 CV 1262, United States v. Duke Energy Corporation. The case concerned compliance with the 1977 Clean Air Act and the report concerned generation resource planning and production cost modeling issues.

QUALIFICATIONS OF PHILIP HAYET

- Provided general rate case assistance in other hearings in Oregon, Washington and Wyoming
- Modeled the Singapore Power Electricity System and analyzed the benefits of dispatching a new oil-fired unit within the system.
- Modeled the Australian National Energy Market to develop market based energy price forecasts on behalf of an Independent Power Producer in Australia
- Analyzed the benefit of purchasing existing gas-fired steam turbine units within the Australian market
- Developed market price forecasts for South Australia as part of the evaluation of a new gas fired combined cycle unit
- Modeled the Vietnam Electricity System as part of a project to develop Least Cost Expansion plans for Vietnam
- Assisted in the evaluation of a large gas-fired combined cycle plant in Vietnam
- Assisted in the development of Market Price Forecasts in several regions of the US. These forecasts were used as the basis for stranded cost estimates, which were filed in testimony in a number of jurisdictions across the country.
- Helped to analyze the rate structure and develop an electricity price forecast for the Metropolitan Atlanta Rapid Transit Authority (MARTA) in Atlanta, Georgia
- Testified regarding the reasonableness of PacifiCorp's determination of Net Power Cost as part of a rate case proceeding in Utah
- Provided rate case support opposing PacifiCorp's rate increases in both Oregon and Washington State. Performed alternative power cost modeling using software simulations
- Critiqued the IRP filings of 5 utilities in South Carolina on behalf of the South Carolina State Energy Office
- Conducted research regarding ISO Tariffs and Operations for the PJM Power Pool, the California ISO, and the Midwest ISO on behalf of a Japanese Research.
- Performed research on numerous electric utility issues for 3 Japanese research organizations. This was primarily related to deregulation issues in the US in anticipation of deregulation being introduced in Japan.

1991 to **EDS Utilities Division, Atlanta, GA**
1996: **Lead Consultant, PROSCREEN (Now STRATEGIST) Department**

- Managed a client services software team that supported approximately 75 users of the STRATEGIST electric utility strategic planning software.

QUALIFICATIONS OF PHILIP HAYET

- Participated in the development of STRATEGIST's competitive market modeling features and the Network Economy Interchange Module
- Provided client management direction and support, and developed new consulting business opportunities.
- Performed system planning consulting studies including integrated resource planning, DSM analysis, marketing profitability studies, optimal reserve margin analyses, etc.
- Based on experience with PROMOD IV, converted numerous PROMOD IV databases to STRATEGIST, and performed benchmark analyses of the two models.

1988 to 1991: **Energy Management Associates (EMA), Atlanta, GA**
Manager, Production Analysis Department

- Served as Project Manager of a database modeling effort to create an integrated utility operations and generation planning database. Database items were automatically fed into PROMOD IV.
- Supervised and directed a staff of five software developers working with a 4GL database programming language.
- Interfaced with clients to determine system software specifications, and provide ongoing client training and support

1980 to 1988: **Energy Management Associates (EMA), Atlanta, GA**
Senior Consultant, PROMOD IV Department

- Provided client service support to EMA's base of over 70 electric utility customers using the PROMOD IV probabilistic production cost simulation software.
- Provided consulting services in a number of areas including generation resource planning, regulatory support, and benchmarking.

PUBLICATIONS

Authored "Singapore's Developing Power Market", which appeared in the July/August 1999 edition of Power Value Magazine

Co-authored "The New Energy Services Industry – Part 1", which appeared in the January/February 1999 edition of Power Value Magazine.

QUALIFICATIONS OF PHILIP HAYET

Co-authored and Presented “Evaluation of a Large Number of Demand-Side Measures in the IRP Process: Florida Power Corporation’s Experience”, Presented at the 3rd International Energy and DSM Conference, Vancouver British Columbia, November 1994

Co-authored “Impact of DSM Program on Delmarva’s Integrated Resource Plan”, Published in the 4th International Energy and DSM Conference Proceedings, held in Berlin, Germany, 1995

TESTIMONY AND EXPERT WITNESS APPEARANCES

Filed Direct Testimony September 2014 at the Utah Public Service Commission on behalf of the Utah Office Of Consumer Services concerning PacifiCorp’s 2014 EBA application (Docket 14-035-31).

Filed Direct Testimony August 2014 at the Wyoming Public Service Commission on behalf of the Wyoming Industrial Energy Consumers concerning PacifiCorp’s 2014 ECAM application (Docket 20000-447-EA-14).

Filed Direct Testimony August 2014 at FERC regarding the Louisiana Public Service Commission’s complaint regarding Entergy’s allocation of Union Pacific Settlement Agreement benefits (Docket ER-13-432).

Filed Direct Testimony July 2014 at the Wyoming Public Service Commission on behalf of the Wyoming Industrial Energy Consumers concerning PacifiCorp’s 2014 General Rate Case with regard to Net Power Costs (Docket 20000-446-ER-14).

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Filed Direct Testimony (December 2012) in Entergy's retail proceeding at the LPSC regarding termination of Cross-PPAs (Docket No. U-29764).

Filed Direct Testimony (December 2012) regarding Entergy's request for certification of a 28 MW PPA for renewable energy capacity (RAIN waste heat) in accordance with the LPSC's Renewable Energy Pilot (Docket U-32557).

Filed Direct Testimony (December 2012) at FERC regarding the Louisiana Public Service Commission's harm calculation stemming from Entergy's violation of its System Agreement (Docket No. EL09-61-002), on behalf of the Louisiana Public Service Commission.

Filed Direct Testimony (September 2012) regarding Dixie Electric Member Cooperative's Ten year Power Supply Agreement U-32275.

Filed Direct Testimony July 2012 at the Kentucky Public Service Commission regarding Big Rivers Certification to perform environmental upgrades in compliance with MATS and CSAPR EPA regulations. (Case No. 2012-00063).

Filed Direct testimony May 2012 at the Georgia Public Service Commission concerning Georgia Power's Sixth Semi-Annual Vogtle Construction Monitoring Report (Docket 29849-U).

Filed Direct Testimony (May 2012) at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing (FCR-23 - Docket 35277).

Filed Direct Testimony (March 2012) regarding Entergy's change of control filing to move to the Midwest ISO in LPSC Docket 32148.

Submitted Direct testimony November 2011 at the Georgia Public Service Commission concerning Georgia Power's request to decertify two aging coal units, to acquire PPA resources, and to have approved its IRP Update, on behalf of the Georgia Public Service Commission Staff (Docket 34218).

QUALIFICATIONS OF PHILIP HAYET

Submitted Direct testimony November 2011 at the Georgia Public Service Commission concerning Georgia Power's request to certify the reacquisition of wholesale block capacity, on behalf of the Georgia Public Service Commission Staff (Docket 26550).

Filed Direct Testimony (September 2011) in support of a settlement agreement at the Louisiana Public Service Commission regarding the reasonableness of Cleco's CCPN to upgrade its Madison 3 coal unit to accommodate biomass fuel in accordance with the LPSC's Renewable Energy Pilot in Docket U-31792.

Submitted an Initial and Rebuttal Expert Report (April and June 2011, respectively), on behalf of the Department of Justice in US District Court, Civil Action No. 2:10-cv-13101-BAF-RSW.

Filed Direct testimony June 2011 at the Georgia Public Service Commission concerning Georgia Power's Fourth Semi-Annual Vogtle Construction Monitoring Report Period Ending December 31, 2011 (Docket 29849-U).

Filed Direct testimony April 2011 at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing (FCR-22) (Docket 33302).

Filed direct testimony (January 2011) and Cross Answering Testimony (February 2011) at FERC regarding the reasonableness of Entergy's 2009 production costs that were used to develop bandwidth payments in Docket ER09-1350.

Filed direct testimony December 2010 at the Georgia Public Service Commission concerning Georgia Power's Third Semi-Annual Vogtle Construction Monitoring Report Period Ended June 30, 2010 (Docket 29849-U)

Filed direct testimony June 2010 at the Georgia Public Service Commission concerning Georgia Power's Second Semi-Annual Vogtle Construction Monitoring Report Period Ended December 31, 2009 (Docket 29849-U)

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Filed direct testimony January 2010 at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing in Docket No. 28945.

Filed testimony at FERC December 2009 regarding the reasonableness of Entergy's 2008 production costs that were used to develop bandwidth payments in Docket ER08-1224.

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Filed Direct and Surrebuttal testimony in September and October 2009, respectively at the Utah Public Service Commission concerning PacifiCorp's 2009 Rate Case with regard to net power costs (Docket 09-035-23)

QUALIFICATIONS OF PHILIP HAYET

Filed testimony at the Public Utilities Commission of the State of Colorado, in October 2009 concerning Black Hills/Colorado's CPCN application to construct two LMS 100 natural gas combustion turbine units. Docket No. 09A-415E

Testified in front of the Minnesota Public Service Commission, September 2009 concerning Minnesota Power's Request for Approval to Purchase Square Butte's 500 kV DC transmission line, and to restructure a coal based power purchase agreement. MPUC Docket No. E015/PA-09-526

Filed testimony on behalf of the LPSC Staff in July 2009, concerning SWEPCO and CLECO's application to acquire the Oxbow Mine to supply the Dolet Hills Power Station in LPSC Docket No.U-30975.

Testified at FERC in July 2009, concerning the Louisiana Public Service Commission's complaint regarding Entergy's 2007 rough production cost equalization compliance filing in the System Agreement Case in FERC Docket No. ER08-1056.

Filed Testimony December 2008 at the Georgia Public Service Commission concerning Georgia Power's Certification request for the Vogtle 3 and 4 Nuclear units (Docket 27800)

Filed Testimony November 2008 at the West Virginia Public Service Commission concerning their fuel cost recovery filing (Docket 08-15-11-E-61)

Testified in front of the Wisconsin Public Service Commission in September 2008 regarding WPL's certification proceeding concerning the Nelson Dewey CFB coal-fired generating unit. (6680-CE-170).

Testified at FERC in July 2008, concerning the Louisiana Public Service Commission's complaint regarding Entergy's 2006 rough production cost equalization compliance filing in the System Agreement Case in FERC Docket No. ER07-956.

Testified in front of the Wisconsin Public Service Commission in 2008 regarding WEPCO's request to implement environmental upgrades at its Oak Creek Power Plant in Docket 6630-CE-299.

Filed direct testimony April 2008 at the Georgia Public Service Commission concerning Georgia Power's Fuel Cost Recovery Filing in Docket No. 26794 (FCR-20).

Testified in October 2007 in front of the Louisiana Public Service Commission regarding ClecoPower's 2008 Short Term RFP in Docket No.U-30334.

Testified in June 2007 in front of the Georgia Public Service Commission regarding Georgia Power's 2007 Integrated Resource Planning Study.

Testified on behalf of the Georgia Public Service Commission Staff.in Docket No. 24505-U.

Filed testimony in Apr 2007 regarding the reasonableness of PacifiCorp's determination of Utah

QUALIFICATIONS OF PHILIP HAYET

jurisdictional Net Power Costs in PacifiCorp's General Rate Case Docket 07-035-93.

Testified in January 2007 in front of the Georgia Public Service Commission concerning Georgia Power's November 2006 fuel Cost Recovery Filing in Docket No. 23540-U.

Testified in November 2006 in front of the Louisiana Public Service Commission concerning transmission issues associated with the audit of Entergy Louisiana's Fuel Adjustment Clause Filings (Docket U-25116).

Filed Testimony in August 2006 in front of the Louisiana Public Service Commission concerning jurisdictional separation of EntergyGulf States in Docket No. U-21453

Testified in May 2006 in front of the Georgia Public Service Commission regarding Georgia Power and Savannah Electric's March 2006 Fuel Cost Recovery filing (Docket 22403-U).

Testified in Apr 2006 in front of the Utah Public Service Commission regarding PacifiCorp Certification request to expand the Blundell Geothermal Power Station (Docket -05-035-54). Related to Mid-American Energy Holding's Acquisition of PacifiCorp.

Filed Testimony in July 2005 regarding PacifiCorp's Avoided Cost proceeding (03-035-14).

Filed Testimony in December 2005 regarding the reasonableness of PacifiCorp's determination of Utah jurisdictional Net Power Costs in PacifiCorp's General Rate Case (Docket 04-035-42).

Testified in March 2005 in front of the Utah Public Service Commission regarding whether the Stipulation that had previously been agreed to concerning PacifiCorp's Schedule 38 avoided cost tariff was still valid for the remaining unsubscribed capacity available under the Stipulation's cap.

Testified in November 2004 in front of the Utah Public Service Commission regarding an industrial customer's request for both a special economic development tariff and a large QF tariff. Testimony was provided on behalf of the Utah Committee of Consumer Services in Docket No. 03-035-19 (Special Contract) and No. 03-035-38 (QF proceeding).

Testified in August 2004 in front of FERC on behalf of the Louisiana Public Service Commission concerning a complaint that had been filed against Entergy concerning a series of affiliate power purchase agreements FERC Docket ER03-583-000.

Testified in June 2004 in front of the Georgia Public Service Commission regarding Georgia Power and Savannah Electric's 2004 Integrated Resource Planning Studies. Testimony was provided on behalf of the Georgia Public Service Commission Staff. Georgia Docket Nos. 17687 and 17688.

Testified in May 2004 in front of the Utah Public Service Commission concerning the development of a large QF avoided cost methodology. Testimony was provided on behalf of the Utah Committee of Consumer Services in Docket 03-035-14.

QUALIFICATIONS OF PHILIP HAYET

Testified in July 2003 in front of FERC in support of the Louisiana Public Service Commission's complaint regarding cost allocation issues amongst the Entergy Operating Companies in the FERC Docket Number EL01-88-000.

Submitted an expert report in August 2002 in the United States District Court for the Middle District of North Carolina in the Civil Action No. 1:00 CV 1262, United States v. Duke Energy Corporation.

Testified in July 2002 on behalf of the Utah committee for consumer services regarding a special contract for an industrial consumer in support of a settlement agreement in a PacifiCorp Utah proceeding in Docket Number 02-035-02.

Provided testimony in the Fall of 2001 in front of FERC on behalf of the Louisiana Public Service Commission's intervention in Entergy's proposed System Agreement modifications in the FERC Docket No. ER00-2854-000.

Testified in July 2001 regarding the reasonableness of PacifiCorp's determination of Utah jurisdictional Net Power Costs in PacifiCorp's General Rate Case Docket 01-035-01

Testified in September 1998 regarding the reasonableness of PacifiCorp's determination of Utah jurisdictional Net Power Costs as part of a Settlement Proceeding in Pacificorp's rate case Docket Number 97-035-01.