

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for rate increase by Florida Power Company
Docket No. 160021-EI

In re: Petition for approval of 2016-2018 storm hardening plan, by Florida Power & Light Company.
Docket No. 160061-EI

In re: 2016 depreciation and dismantlement study by Florida Power & Light Company.
Docket No. 160062-EI

In re: Petition for limited proceeding to modify and continue incentive mechanism, by Florida Power & Light Company.
Docket No. 160088-EI

Filed: June 17, 2016

DIRECT TESTIMONY

OF

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ON BEHALF OF THE CITIZENS OF

THE STATE OF FLORIDA

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is David E. Dismukes. My business address is 5800 One Perkins Place Drive,
4 Suite 5-F, Baton Rouge, Louisiana 70808.

5

6 **Q. WOULD YOU PLEASE STATE YOUR OCCUPATION AND CURRENT
7 PLACE OF EMPLOYMENT?**

8 A. I am a Consulting Economist with the Acadian Consulting Group (“ACG”), a research
9 and consulting firm that specializes in the analysis of regulatory, economic, financial,
10 accounting, statistical, and public policy issues associated with regulated and energy
11 industries. ACG is a Louisiana-registered partnership, formed in 1995, and is located
12 in Baton Rouge, Louisiana.

13

14 **Q. DO YOU HOLD ANY ACADEMIC POSITIONS?**

15 A. Yes. I am a full Professor, Executive Director, and Director of Policy Analysis at the
16 Center for Energy Studies, Louisiana State University (“LSU”). I am also a full
17 Professor in the Department of Environmental Sciences and the Director of the Coastal
18 Marine Institute in the School of the Coast and Environment at LSU. I also serve as an
19 Adjunct Professor in the E. J. Ourso College of Business Administration (Department
20 of Economics), and I am a member of the graduate research faculty at LSU. Attached
21 is Exhibit DED-1, which provides my academic vitae, and also includes a list all of my

1 publications, presentations, pre-filed expert witness testimony, expert reports, expert
2 legislative testimony, and affidavits.

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

5 A. I have been retained by the Florida Office of Public Counsel (“OPC”), on behalf of the
6 Citizens of the State of Florida (“Citizens”), to provide an expert opinion to the Florida
7 Public Service Commission (the “Commission” or “FPSC”) on the application filed by
8 Florida Power & Light Company (“FPL” or the “Company”) to recalibrate and
9 continue its asset optimization activities which I will also refer to as its “modified
10 incentive program.” This incentive program is “modified” in the sense that it differs
11 from the Commission’s long-standing off-system sales incentive policies first approved
12 in Docket No. 830001-EU-B and later modified in Docket No. 991779-EI.¹ The
13 Commission’s long-standing incentive policies current apply to all other Florida
14 investor-owned utilities (“IOUs”) with the exception of FPL.

15
16 **Q. IS THE COMPANY PROPOSING TO MAKE ANY CHANGES TO ITS**
17 **MODIFIED INCENTIVE PROGRAM?**

18 A Yes. The Company is proposing to “recalibrate” many of the terms and conditions of
19 its modified incentive program. In summary, these changes include:

- 20 1) Reducing the annual sharing threshold from \$46 million to \$36 million.
21 2) Instead of charging ratepayers for variable power plant O&M costs for wholesale
22 economy energy sales greater than 514,000 MWh annually, FPL would net wholesale
23 economy energy purchases against wholesale economy energy sales and charge (or
24 credit) ratepayers for the corresponding variable power plant O&M costs through the
25 Fuel Clause.

¹ Order No. PSC-00-1744-PAA-EI, , issued September 26, 2000, in Docket No. 991779-EI, at p 14.

1 3) The rate at which FPL would charge (or credit) variable power plant O&M costs to
2 the ratepayers through the Fuel Clause would decrease from \$1.51/MWh to
3 \$0.97/MWh.

4 4) Extend the Incentive Program as modified until December 31, 2020.

5

6 **Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?**

7 A. The remainder of my testimony is organized into the following sections:

- 8 • Summary of recommendations
- 9 • Incentive program historic overview
- 10 • Modified incentive program performance
- 11 • Overcapacity incentives
- 12 • Competitive market implications
- 13 • Jurisdictional policy issues
- 14 • Incentives for off-system purchases
- 15 • Conclusions and recommendations

16 **II. SUMMARY OF RECOMMENDATIONS**

17 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

18 A. I recommend that the Commission reject the Company's request to extend and
19 recalibrate its modified incentive program for two primary reasons. First and foremost,
20 FPL has simply not met its burden of proof nor shown that extension and proposed
21 recalibration of its modified incentive program is in the public interest. The Company
22 has provided a dearth of information on the modified incentive program and whether it
23 has led to verifiable and positive changes in the Company's actions, and how, if at all,
24 those changes have resulted in net public benefits. In addition, the Company has
25 provided no information, nor attempted to quantify, how the proposed changes to its
26 modified incentive program will lead to future ratepayer benefits over and beyond what

1 would otherwise occur under the Commission's long-standing off-system sales
2 incentive policies. Therefore, the Commission must reject the proposal given the lack
3 of compelling information supporting a public interest finding. This rejection will
4 ultimately result in the Company's modified incentive program expiring at the same
5 time as its rate case settlement agreement.

6 Second, the current proceeding has not afforded parties enough time to review
7 the broad policy implications of this proposal, particularly as it relates to the state's
8 other electric utilities. If the Commission is hesitant to discontinue the program, it
9 should hold FPL's request in abeyance until the matter can be explored in greater detail
10 in a separate proceeding where all of these incentive issues can be thoroughly and fully
11 vetted for not only the Company, but also for all Florida utilities. In past proceedings
12 involving these types of incentive programs, the Commission recognized that its
13 incentive policy decisions would have ramifications extending well beyond simple
14 ratemaking, including those impacting existing and emerging markets and resource
15 efficiency. FPL's current proposals will have the same important market and efficiency
16 implications and should be examined within the context of a comparable proceeding.

17
18 **Q. SUMMARIZE THE MAJOR CONCERNS YOU HAVE WITH THE**
19 **COMPANY'S MODIFIED INCENTIVE PROGRAM PROPOSAL.**

20 A. I have a number of concerns about the Company's proposal that I will discuss in greater
21 detail in my testimony that include:

- 22 • The Company has provided no substantive evidence on the extent to which its physical
23 assets have been meaningfully and significantly optimized as a result of the modified
24 incentive program.

- 1 • No compelling information has been provided by the Company on the extent to which
2 ratepayers will benefit from a continuation and recalibration of its modified incentive
3 program.
- 4 • The Company has provided no compelling evidence examining the extent to which its
5 modified incentive program represents a considerable improvement over the
6 Commission's long-standing incentive programs.
- 7 • The Company's modified incentive program can lead to inappropriate incentives for
8 the over-development of capacity resources and, as a result, over-capitalization or
9 inefficient capacity-related expenses.
- 10 • The Company's modified incentive program has anti-competitive market implications
11 that include the potential to, but are likely not limited to:
 - 12 ○ The use of regulated assets and vertical market power to create an unfair
13 competitive advantage in competitive wholesale energy market transactions.
 - 14 ○ The creation of an unequal playing field between FPL and the state's other
15 IOUs.
 - 16 ○ The creation of an unequal playing field between FPL and other competitive
17 energy marketers.
- 18 • It is not clear, from a policy perspective, that the FPSC has the regulatory authority to
19 incent utilities to become active competitive energy marketers, particularly in
20 competitive natural gas markets. The Company's modified incentive program has less
21 to do with asset optimization than it does with creating new and expanded market
22 opportunities and incentive financial returns for the Company and its shareholders
23 outside the traditional utility business model of generation, transmission, and
24 distribution as defined by Florida law. For instance, there are no explicit legislative
25 policies or statutes that encourage the Commission to offer financial incentives to
26 electric utilities in return for utilities successfully entering into transactions that
27 generate profits off natural gas commodity sales; neither inside, nor outside, the State
28 of Florida.
- 29 • Giving utilities an incentive return for purchasing electricity that is lower-cost than a
30 utility's own self-generation is simply antithetical to the philosophical underpinnings
31 of utility regulation. Part of a utility's obligation to serve is to provide least-cost service
32 and failure to do so should represent grounds for imprudence, not the provision of
33 incentive financial returns.

34 **III. INCENTIVE PROGRAM OVERVIEW**

35 **Q. PLEASE DISCUSS THE ORIGINS OF THE COMMISSION'S OFF-SYSTEM**
36 **SALES INCENTIVES POLICIES.**

1 A. The Commission's original off-system sales incentive policies date back several
2 decades to the time of the energy crisis of the early 1980s. During this time period,
3 energy costs were high, and there were emerging questions about generator availability,
4 generator efficiency, and the various primary fuels used to generate electricity. This
5 was the period in which Florida began adopting policies encouraging both demand-
6 and supply-side efficiencies, as well as fuel diversity. In 1984, the Commission
7 established an incentive program to encourage electric IOUs to participate more
8 actively in what was known as the Florida Energy Broker Network ("broker network").
9 Under the broker system, utility generators would "trade" excess generation on a cost
10 basis, where the "gains" on sale would be determined as the relative differences of the
11 cost of generation being displaced by the broker sales.

12
13 **Q. WHY DID THE COMMISSION NEED TO ADOPT INCENTIVES TO**
14 **ENCOURAGE UTILITIES TO PARTICIPATE IN THIS PROGRAM?**

15 A. At the time, incentives were thought to be needed for a variety of reasons. First, off-
16 system sales, as a general matter, arose very infrequently. Wholesale markets, as we
17 know them today, did not exist. To the extent that a wholesale "market" could be said
18 to exist, this market was limited to longer-term, multi-year transactions between
19 utilities, not short term-type commodity transactions which occur on a regular basis in
20 today's wholesale electricity market. Thus, creating an incentive to encourage utilities
21 to participate in what was becoming a platform for short-term sales transactions seemed
22 important. Second, utilities at that time did not dedicate considerable dispatch and
23 operational resources to facilitate these kinds of short-term transactions, so an incentive

1 was determined to be important to encourage utilities to make the appropriate
2 investments and incur certain costs which were needed to participate in the emerging
3 broker system. Lastly, and as noted initially, the early 1980s reflected a period of
4 energy crisis, and an incentive was deemed appropriate to facilitate greater supply-side
5 efficiencies that would benefit both utilities and ratepayers.²

6
7 **Q. WERE THERE ANY OTHER REASONS FOR ADOPTING THESE NEW**
8 **PROCEDURES FOR OFF-SYSTEM SALES?**

9 A Yes. Prior to the Commission's rules, off-system sales revenues were credited to base
10 rates and were not part of the fuel adjustment clause proceedings. During that time
11 period, the Commission and the utilities found it difficult to estimate the exact dollar
12 amounts that should be credited to ratepayers. Thus, the Commission decided to move
13 these transactions out of base rates and into the fuel clause for recovery with the advent
14 of its new policies and incentives.

15
16 **Q. HOW WAS THE ORIGINAL INCENTIVE POLICY STRUCTURED?**

17 A. The Commission decided to allow utilities to share in the gains on sales made into the
18 broker network. The incentives were structured such that utilities and their
19 shareholders would receive 20 percent of any gains made on these relatively limited,
20 off-system "opportunity sales," whereas ratepayers would receive, as credits through
21 their fuel charge, the remaining 80 percent of those gains.³

² In re: Fuel Adjustment Recovery Clauses of Electric Utilities – Treatment of Gain on Economy Sales, Order No. 12923, issued January 24, 1984, in Docket No. 830001-EU-B.

³ In re: Fuel Adjustment Recovery Clauses of Electric Utilities – Treatment of Gain on Economy Sales, Order No. 12923, issued January 24, 1984, in Docket No. 830001-EU-B.

1 Q. DID THE COMMISSION APPEAR TO EXPEND CONSIDERABLE
2 RESOURCES IN EXAMINING AND DEVELOPING THIS INCENTIVE
3 POLICY?

4 A Yes. The Commission addressed this compelling issue in the fuel docket, and received
5 testimony from the affected parties about the most appropriate means to incent utilities
6 to make wholesale sales through the broker network.

7

8 Q. HAS THE COMMISSION EVER REVISITED THIS OFF-SYSTEM SALES
9 INCENTIVE POLICY?

10 A. Yes. In 1999, the Commission decided to revisit its off-system sales incentive policies
11 given the dramatic changes that were arising in the industry during this time period.
12 The Energy Policy Act of 1992 included provisions that began the process of opening
13 wholesale markets to competition. In the mid-1990s, the FERC promulgated rules
14 (Orders 888 and 889) defining the framework in which wholesale competition would
15 be conducted. This was the same time period in which independent power producers
16 (“IPPs”), or “merchant power providers”, started to construct for-profit generation
17 facilities, including several in Florida. For most utilities, transactions in wholesale
18 markets became a more important part of their overall operations. In fact, many Florida
19 utilities during this time period independently shifted their off-system sales activities
20 away from the cost-based broker system and towards the market-priced competitive
21 wholesale market where off-system sales gains could be higher. These changes
22 convinced the Commission that it needed to revisit its incentive policies.

23

1 **Q. DID THE COMMISSION MODIFY ITS INCENTIVE POLICIES DURING**
2 **THIS TIME PERIOD?**

3 A. Yes. The Commission made several changes to its incentive policies during this time
4 period. The first change was to clarify that any off-system sales incentives would apply
5 to all non-separated,⁴ non-emergency wholesale transactions and not just those on the
6 broker system.⁵ The second change was that, while the Commission maintained the 80
7 percent/20 percent sharing ratio between ratepayers and shareholders, respectively, the
8 Commission set a threshold for sharing for each jurisdictional IOU on a three-year
9 average. The Commission adopted this policy to ensure that utilities were only
10 rewarded when their off-system sales efforts were greater than average.⁶ Thus, 100
11 percent of any gains on off-system sales that were made below this threshold, would
12 revert to ratepayers.

13
14 **Q. DID THE COMMISSION EXPEND CONSIDERABLE RESOURCES DURING**
15 **THIS REVISITED INVESTIGATION?**

16 A Yes. In fact, the Commission went through two separate proceedings to examine
17 whether their off-system sales incentive policies should be modified. The first
18 examination of this issue was done within the utilities' 1999 annual fuel proceeding

⁴ Non-separated wholesale energy sales are either non-firm or less than one year in duration. The assets used to make such sales are not separated from the utility's retail rate base.

⁵ The Commission clarified this policy since it found that it was being applied inconsistently across utilities. FPL, FPC (Duke Energy Florida), and TECO, for instance, applied the incentive to broker system sales only whereas Gulf Power applied the incentive to all off-system energy sales.

⁶ In Re: Review of the Appropriate Application of Incentives To Wholesale Power Sales by Investor-Owned Electric Utilities, Order No. PSC-00-1744-PAA-EI, issued September 26, 2000 in Docket No. 991779-EI, at pp 10-11.

1 (Docket No. 990001-EI). The Commission took testimony and conducted a hearing on
2 this matter, and, at the conclusion of the proceeding, found that a greater level of
3 analysis, in front of the entire Commission,⁷ was needed.⁸ The subsequent, stand-alone
4 proceeding (Docket 991779-EI) addressed the off-system sales incentive issue alone,
5 ran a full seven months, included discovery, pre-filed testimony, a hearing, and briefing
6 schedule. Thus, the Commission, understanding the importance of the changes
7 ongoing in the industry, and the relationship of these changes to their off-system sales
8 incentive policies, expended as much as two years examining this issue within two
9 different proceedings.

10
11 **Q. HOW DID FPL'S CURRENT MODIFIED INCENTIVE PROGRAM ARISE?**

12 A. The current modified incentive program was included as one paragraph in what was a
13 larger, global settlement agreement reached among several parties in the Company's
14 last rate case (Docket No. 120015-EI).⁹ OPC was not a party to the settlement and
15 contested its terms in a subsequent settlement hearing.¹⁰ While there was a hearing
16 limited to the terms of the settlement agreement (including some very narrowly-scoped
17 testimony on the modified incentive program), there was no comprehensive
18 investigation comparable to the original incentive proceedings held in the 1980s, nor
19 the subsequent proceedings held in the late 1990s.

⁷ The fuel proceeding in which the off-system sales incentive issue was originally revisited was reviewed by a three-Commissioner panel rather than the full Commission.

⁸ In Re: Fuel and Purchased Power Cost Recovery Clause and Generation Performance Incentive Factor, Order No. PSC-99-2512-FOF-EI, issued December 22, 1999, in Docket No. 990001-EI, at pp 4-5.

⁹ In re: Petition for Increase in Rates by Florida Power & Light Company, Order No. PSC-13-0023-S-EI, issued January 14, 2013, in Docket No. 120015-EI, at pp. 13-15.

¹⁰ In re: Petition for Increase in Rates by Florida Power & Light Company, Docket No. 120015-EI, Hearing Transcript, Volume 35, at p. 5177.

1 **Q. HOW WAS THE MODIFIED INCENTIVE PROGRAM STRUCTURED IN**
2 **THIS 2012 SETTLEMENT AGREEMENT?**

3 A. The modified incentive program significantly changed and expanded the types of
4 transactions upon which FPL could receive financial incentives. The new “modified”
5 incentive program was defined for a four-year period, and includes at least five
6 different types of transactions, originating from several utility assets, not just power
7 generation. These transactions, and their supporting assets, include:

- 8 1) Gas storage utilization: Release contracted natural gas storage or sell stored natural
9 gas.
10 2) Delivered city-gate gas sales using existing transport: Sales of natural gas to Florida
11 customers combined with FPL’s existing gas transportation capacity.
12 3) Production (upstream) area sales: Sales of natural gas in the production areas combined
13 with FPL’s existing gas transportation capacity.
14 4) Release natural gas pipeline capacity and electric transmission capacity: Sales of idle
15 natural gas transportation and/or electric transmission capacity.
16 5) Asset Management Agreement: Outsourcing of optimization functions to a third party
17 through assignment of transportation and/or storage rights in exchange for a premium
18 paid to FPL.¹¹

19
20 **Q. WERE THE “GAINS” LIMITED TO JUST THE LEVERAGING OF THESE**
21 **ASSETS ALONE?**

22 A. No. The modified incentive program also allows the Company to share in all the
23 “savings” it makes on off-system purchases. In other words, if FPL procures energy
24 from the market at a cost lower than its own, it can share in the benefits it has created
25 by making these purchases. This represents a significant departure from the

¹¹ In re: Petition for Increase in Rates by Florida Power & Light Company, Order No. PSC-13-0023-S-EI, in Docket No. 120015-EI, issued January 14, 2013, Attachment A, at pp.13-14.

1 Commission's original and updated incentive policies, and represents a divergence
2 from what is allowed in utility regulation across the country.¹²

3
4 **Q. WERE THE SHARING PERCENTAGES OR THRESHOLDS CHANGED IN**
5 **THIS MODIFIED INCENTIVE PROGRAM?**

6 A. Yes, both the thresholds and the sharing percentages were modified from the
7 Commission's prior incentive program. The sharing threshold was set at \$46 million.¹³
8 All of the gains on sales for transactions below this threshold are credited to ratepayers.
9 This \$46 million threshold was based upon two components that includes: (1) a \$36
10 million "customer savings threshold," purportedly based on FPL's 2013 projections for
11 wholesale economy energy sales gains and wholesale economy energy purchases
12 savings, and (2) an incremental \$10 million threshold amount that represents the
13 additional gains FPL anticipated from its other assets (hereafter referred to as a "stretch
14 goal").¹⁴

15
16 **Q. WERE THE RATEPAYER BENEFITS CREATED BY FPL'S MODIFIED**
17 **INCENTIVE PROGRAM LARGER THAN THOSE EXPERIENCED DURING**
18 **THE 2009-2011 TIME PERIOD UNDER THE COMMISSION'S STATUS QUO**
19 **INCENTIVE POLICIES?**

¹² The Company was unable to identify any state that offered similar incentives. See FPL Response to OPC's First Set of Interrogatories (Asset Optimization), Number 7 in Docket Nos. 160021-EI and 160088-EI.

¹³ In this context, "gains" shall refer to the sum of the following: 1) the difference between incremental revenue and incremental cost of wholesale economy energy sales and eligible asset optimization transactions; and 2) the difference between the transaction price for FPL's wholesale economy energy purchases and its incremental costs if FPL had met that retail load with its own resources.

¹⁴ Direct Testimony of FPL witness Sam Forrest in Docket No. 120015-EI, filed October 12, 2012, at p. 5-6.

1 A. No. In fact, the reported benefits associated with the modified incentive program were
2 considerably lower than those reported in the prior three years. For instance, FPL
3 reported wholesale energy sales gains of \$20.0 million, wholesale energy purchase
4 savings of \$182.7 million, for a combined total of \$202.8 million during the 2009-2011
5 time period.¹⁵ The average annual combined gains/savings level for the time period
6 2009-2011 was reported as \$67.6 million, a level that is nearly twice as much as the
7 Company's actual combined gains/savings performance under the modified incentive
8 program (2013-2015). Thus, it is difficult for the Company to argue that the modified
9 incentive program resulted in any meaningful improvement in the financial
10 performance of its off-system sales/purchase activities. In fact, FPL's ratepayers were
11 better off under the 2009-2011 incentive regime¹⁶ since, during that time period, they
12 received over \$202.8 million in off-system sales gains/savings, whereas under the
13 modified incentive program, ratepayers have received only \$102.2 million.

14
15 **Q. HOW WERE THE SHARING PERCENTAGES CHANGED FROM THE**
16 **COMMISSION'S PRIOR INCENTIVE PROGRAM?**

17 A. As noted earlier, all of the gains that are below the \$46 million threshold are credited
18 directly to ratepayers. All of the gains above \$46 million are shared between FPL and
19 ratepayers as follows:

- 20 • FPL retains 60 percent and ratepayers receive 40 percent of gains between \$46 million
21 and \$100 million;

¹⁵ FPL Schedules A6 and A9 filed in Docket Nos. 100001-EI (January 2010), 110001-EI (January 2011), and 120001-EI (January 2012).

¹⁶ The Commission's current off-system sales incentive that exist for the other three IOUs as set forth by Order No. PSC-00-1744-PAA-EI, issued September 26, 2000, in Docket No. 991779-EI.

- 1 • FPL retains 50 percent and ratepayers receive 50 percent of the gains above \$100
2 million.
- 3 • FPL credits the ratepayers' portion of all gains as a reduction to fuel costs recovered
4 through the Fuel and Purchased Power Cost Recovery Clause ("Fuel Clause").

5

6 **Q. DOES THE MODIFIED INCENTIVE PROGRAM INCLUDE ANY OTHER**
7 **PROVISIONS?**

8 A. Yes. The modified incentive program also allows the Company to recover, through the
9 fuel clause, any incremental operations and maintenance ("O&M") costs incurred in
10 facilitating off-system sales or purchases. These O&M costs include the incremental
11 personnel, software and associated hardware costs incurred by the Company but that
12 were not included in its 2013 test year. The modified incentive program also allows
13 FPL to recover all variable power plant O&M costs (non-fuel O&M expenses and costs
14 for capital replacement parts that vary as a function of a power plant's output) that are
15 incurred by the Company to generate additional output in order to make wholesale
16 economy energy sales. At the time, the Company estimated that any variable power
17 plant O&M costs for generation above 514,000 megawatt-hours ("MWh") would be
18 eligible for cost recovery under these provisions.¹⁷

19

20 **Q. COLLECTIVELY, ARE THESE CHANGES SIGNIFICANT?**

21 A. Yes. These modifications to the Commission's original incentive policies are
22 significant and far-reaching and could have considerable near-term and longer-term
23 ratepayer impacts. If the Commission is hesitant to reject the Company's proposal in

¹⁷ Direct Testimony of FPL witness Sam Forrest in Docket No. 120015-EI, filed October 12, 2012, at p. 21.

1 the current rate case, it should at least consider the appropriateness of this modified
2 incentive program within the context of a longer, more thoughtful proceeding much
3 like it has done in the prior two instances in which it has addressed wholesale
4 incentives. FPL's modified incentive program includes a very wide range of assets,
5 many of which extend well beyond power generation, transmission, and distribution
6 functions, including those associated with natural gas commodity and capacity assets.
7 Further, the sales originating from these assets, including the non-power related assets,
8 can be made anywhere, not just in Florida. It is not clear the extent to which the
9 Commission can or should be incenting for-profit sales in other states, and in other
10 competitive markets (like commodity natural gas sales) outside its jurisdictional
11 footprint. Lastly, the Company's modified incentive program allows its shareholders
12 to receive additional financial returns for doing something that most vertically
13 integrated utilities are required to do as part of their obligation to serve (i.e., utilize the
14 lowest cost energy resources whether they are owned by the utility or obtained from
15 the marketplace). Collectively, the Company's modified incentive program (as well as
16 its currently proposed changes to this incentive program) raises a wide range of
17 regulatory, policy, economic, and financial issues that should be more closely
18 examined.

19
20 **Q. EXPLAIN HOW THE COMPANY PROPOSES TO UPDATE, OR**
21 **RECALIBRATE THE MODIFIED INCENTIVE PROGRAM.**

22 A. In this docket, the Company is proposing to recalibrate four of the terms and conditions
23 of its modified incentive program including:

- 1 1. Reducing the program's annual sharing threshold from \$46 million to \$36 million.¹⁸
- 2 2. Removing any minimum level of wholesale energy sales in order to avoid the O&M
- 3 cost crediting program included in the prior version of its modified incentive program.¹⁹
- 4 3. Reducing the charge (or credit) variable power plant O&M costs to the ratepayers
- 5 through the Fuel Clause from \$1.51/MWh to \$0.97/MWh. This rate reflects lower
- 6 O&M costs for the 2017 Projected Test Year spread out over a higher level of
- 7 generation.²⁰
- 8 4. Extending the program (with the recommended changes) until December 31, 2020.²¹

9

10 **Q. DO YOU THINK THE CURRENT PROCEEDING HAS AFFORDED PARTIES**
11 **AN APPROPRIATE AMOUNT OF TIME TO EXAMINE THESE ISSUES?**

12 A No. The Company filed this application on April 15, 2016, and parties have had around
13 nine weeks to conduct discovery and evaluate its proposed renewal. The Commission
14 should also note that this program, when it was originally offered on the eve of the
15 hearing in the prior rate case, (and in similar fashion to the filing in this instance) after
16 the initial case was filed, was only evaluated over a three-month period, with limited
17 discovery, as well. Cumulatively, there has been little formal data and information
18 collected or provided on the workings, performance, and policy implications of this
19 incentive program. The Company's application in the current docket is limited to 11
20 pages, and its pre-filed testimony on the matter is also somewhat sparse coming in at
21 19 pages, including exhibits. The Company's application and testimony alone provide
22 neither the Commission nor other parties with even a minimally sufficient evidentiary
23 record with which to ascertain the program's performance nor understand the wide

¹⁹ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-EI, at p. 13.

²⁰ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-EI, at p. 14.

²¹ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-EI, at p. 15.

1 range of policy issues imbued in the current program and its extension. While the
2 Company has provided some historic sales margin information, it has not provided a
3 cost-benefit analysis to indicate that continuation of the program, on a forward-going
4 basis, will be in the public interest. In this proceeding, simply stating that the past is a
5 good forecast for the future is not sufficient.

6
7 **Q. WHY ARE YOU RECOMMENDING THAT THE COMPANY'S PROPOSAL**
8 **BE SPUN-OFF INTO A SEPARATE PROCEEDING?**

9 A. First, the information, or lack of information provided in this proceeding should lead
10 the Commission to a decision of rejection for this modified incentive program.
11 However, as I stated earlier, having a separate spin-off proceeding is consistent with
12 the way the Commission has previously evaluated issues of similar significant,
13 industry-affecting magnitude because the Commission understood the ratepayer and
14 market implications of its decisions, and expended considerable resources, over
15 relatively meaningful time periods, in such investigations. Further, the Commission
16 took the time to examine these incentive policy issues in-depth and in stand-alone
17 proceedings that involved all stakeholders since it understood the importance of
18 uniformity and consistency, across all of its regulated utilities, in establishing and
19 maintaining these incentive policies. The Commission also recognized, in each
20 instance, that its incentive policy decisions would have ramifications extending well
21 beyond simple ratemaking, including those impacting emerging markets and resource
22 efficiency. FPL's current proposals will have the same important market and efficiency

1 implications and should be examined within the context of a comparable proceeding if
2 the Commission decides to not reject the proposal out of hand in the current rate case.

3
4 **Q. ARE THERE ANY OTHER REASONS WHY THE COMMISSION SHOULD**
5 **EXAMINE THESE ISSUES IN A SEPARATE PROCEEDING?**

6 A Yes. As explained above, the Company's modified incentive program was approved
7 as part of a larger rate case settlement in December 2012 that is set to expire. From a
8 policy perspective, there is nothing in the original settlement agreement suggesting that
9 the FPL modified incentive program, on its own, is in the public interest. The
10 Commission approved the prior settlement, and all its terms and conditions, on a
11 collective, not individual basis, even though there was a separate issue on the incentive
12 mechanism being in the public interest.²² Settlements, by their very nature, include
13 individual provisions that lead to individual party benefits that may not necessarily be
14 favorable to other parties or to parties as a whole (i.e. the public interest). Thus, there
15 is nothing inherent in the last settlement agreement that should suggest or confer a
16 public benefits finding on the modified incentive program on a stand-alone basis. For
17 that reason, the Commission should let the modified incentive program expire, deny it
18 outright, or examine this issue further in a separate, generic proceeding.

19
20 **IV. MODIFIED INCENTIVE PROGRAM PERFORMANCE**

21 **Q. DOES THE COMMISSION CURRENTLY ALLOW UTILITIES TO EARN**
22 **INCENTIVE RETURNS FROM ITS OFF-SYSTEM GENERATION SALES?**

²² Order No. PSC 12-0529-PCO-EI, issued October 3, 2012, in Docket No. 120015-EI, at p. 11.

1 A Yes. The Commission's current policies allow utilities (with the exception of FPL
2 which utilizes its modified incentive program) to receive incentive returns on any
3 "gains on sales" made from economy sales of energy. These economy sales are
4 typically one-time, opportunity sales that arise in the market when hourly, or other
5 short-term wholesale prices rise above a utility's marginal cost, where the marginal
6 cost, in this instance, is defined as the cost for the next increment of electricity
7 generated by a utility from its available capacity. The financial returns, which are
8 shared with ratepayers, are limited to those that are in excess of any utility's prior three-
9 year average. The Commission adopted this three-year threshold in 2000 in order to
10 assure that utilities were actually receiving benefits from extraordinary, not average,
11 efforts. Thus, even if the Commission were to schedule an independent proceeding to
12 investigate FPL's modified incentive program, FPL (in the same fashion as Florida's
13 other IOUs) will continue to receive financial incentives from its off-system generation
14 transactions utilizing the original incentive policies.

15
16 **Q. HAS FPL PROVIDED ANY EVIDENCE OF ITS PERFORMANCE UNDER**
17 **THE NEW INCENTIVE?**

18 A. Yes. The Company did provide some limited information regarding its performance
19 on its modified incentive program in its pre-filed testimony. The information shows
20 that the overwhelming amount of the incremental improvement in off-system
21 transactions arose with regards to its Company-owned natural gas transportation
22 capacity and commodity.²³ In total, the Company recorded total gains of some \$32.9

²³ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-EI. EXH SAF-1, at pp. 1-4.

1 million in these natural gas commodity and capacity sales. Ratepayers received \$25.2
2 million of this benefit while the remainder accrued to the Company and its
3 shareholders.²⁴

4
5 **Q. DOES THE EVIDENCE PROVIDED BY THE COMPANY SUGGEST ITS**
6 **MODIFIED INCENTIVE PROGRAM HAS BEEN AN UNEQUIVOCAL**
7 **SUCCESS?**

8 A No. While the Company has been able to more advantageously leverage its natural gas
9 assets, its combined power generation, transmission and purchase performance is no
10 better than it was prior to the approval of this program. The leveraging of the
11 Company's natural gas assets also raises a number of troubling issues. First, it would
12 appear, from the evidence provided by the Company, that it has never attempted to
13 leverage its natural gas assets in the past. The Company appears to have not actively
14 attempted to lower ratepayers costs through these off-system natural gas sales prior to
15 2012, despite the fact that it believed there was at least some ambiguous claim it could
16 have made on these natural gas sales gains prior to such time.²⁵ Further, leveraging
17 natural gas assets is not a core electric utility function which is the generation,
18 transmission, and/or distribution and sale of electricity.

19

²⁴ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-EI. EXH SAF-1, at pp. 1-4.

²⁵ FPL Response to OPC's First Set of Interrogatories (Asset Optimization), Numbers 1-3, Docket Nos. 160021-EI and 160088-EI.

1 **Q. DOES THE COMPANY'S MODIFIED INCENTIVE PROGRAM**
2 **THRESHOLD INCLUDE ANY BASELINE LEVEL OF NATURAL GAS**
3 **ASSET-SUPPORTED SALES?**

4 A Yes. The current modified incentive program, created by the 2012 Settlement, has a
5 threshold level, in which gains are allocated between ratepayers and shareholders, at
6 \$46 million. The \$46 million threshold was based upon FPL's projected 2013 gains on
7 wholesale economy energy sales and savings from wholesale economy energy
8 purchases of approximately \$36 million (customer savings threshold), plus a stretch
9 goal of \$10 million annually attributable to its so-called optimization activities.²⁶

10
11 **Q. HAS THE COMPANY PROVIDED ANY PROJECTIONS ON THE POSSIBLE**
12 **GAINS IT ANTICIPATES FROM AN EXTENSION OF ITS MODIFIED**
13 **INCENTIVE PROGRAM?**

14 A. No. The Company has not provided any explicit forecasts of the anticipated annual
15 average gains it anticipates from a continuation of its relatively generous incentive
16 program. Presumably, these gains will be lower for ratepayers because part of the
17 Company's proposal is to reduce the customer savings threshold by \$10 million to \$36
18 million. The rationale FPL uses to justify this modification is the expiration of the Unit
19 Power Sales ("UPS") contract for 928 MW of capacity from gas and coal-fired units
20 that it had with Southern Company for wholesale energy.²⁷

21

²⁶ Direct Testimony of FPL witness Sam Forrest, Docket No. 120015-El, at pp. 5-6.

²⁷ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-El, at p.12.

1 **Q. WOULD YOU VIEW THE COMPANY'S PERFORMANCE UNDER ITS**
2 **MODIFIED INCENTIVE PROGRAM AS A SUCCESS?**

3 A. No. The modified incentive program does not appear to have been a success since the
4 overall gains on off-system sales and purchases did not expand during this time period,
5 and there does not appear to be any meaningful change in the utilization of the
6 program's eligible assets. The source of the margins on the Company's natural gas
7 assets appears questionable. Lower commodity prices and lower commodity pricing
8 volatility have likely reduced margin opportunities from a pricing perspective on its
9 natural gas assets, leaving open the question regarding whether or not accumulated
10 capacity inefficiencies are the source of these gains over the past several years. Overall,
11 the fact that the Company is proposing to lower its financial threshold targets to a total
12 of \$36 million by eliminating the \$10 million ratepayer stretch goal, suggests that the
13 program did not meet the Company's margin expectations, and that their opportunity
14 to capitalize on margins will be lower, not higher on a forward-going basis.

15
16 **Q. IS FPL DEVELOPING ANY GENERATION CAPACITY THAT WILL**
17 **OFFSET THIS UPS CONTRACT?**

18 A. Yes. Over the next five years, FPL will install an incremental 2,951 MW of firm
19 capacity and associated energy to serve its retail load and make wholesale economy
20 energy sales.²⁸ The largest capacity additions include the following:

- 21 1) 1,237 MW natural gas-fired combined cycle unit at Port Everglades with a
22 commercial in-service date of April 2016²⁹;

²⁸ 2016 FPL Ten Year Site Plan, Table ES-1, at p. 10.

²⁹ 2016 FPL Ten Year Site Plan, Table ES-1, at p. 10.

- 1 2) Incremental 400 MW natural gas-fired combustion turbine units at Lauderdale
2 with a commercial in-service date of December 2016³⁰; and
3 3) 1,633 MW natural gas-fired combined cycle unit at Okeechobee with a
4 commercial in-service date of June 2019³¹.

5 These collective capacity additions should put FPL in the position of replacing the lost
6 UPS contract capacity plus an additional 100 MW from which it can make additional
7 economy energy sales. Thus, the UPS contract expiration does not serve as a
8 meaningful rationale for eliminating the \$10 million stretch goal within the Company's
9 modified incentive program.

10
11 **Q. PLEASE EXPLAIN THE COSTS AND RISKS THAT ARE INCURRED BY**
12 **RATEPAYERS FOR THESE TYPES OF OFF-SYSTEM TRANSACTIONS.**

13 A. Ratepayers are the party paying for and securing the assets that support these off-system
14 sales transactions. Power plants, power transmission investments, storage facilities,
15 commodity purchases, and natural gas transmission capacity are capital investments
16 paid for by the customers and recovered in their rates. If FPL is successful in marketing
17 the unused capacity of these under-utilized assets, it attains a benefit. If, however, FPL
18 is unable to take advantage of these market opportunities, ratepayers will be the party
19 that is required to continue to cover the capital costs associated with these assets. FPL
20 shares in the upside benefits of the use of these assets, but does not share in the
21 downside risk of their use. Even if the Company were expending resources and capital
22 in marketing the output of these assets, the securitization of those assets' capital costs

³⁰ 2016 FPL Ten Year Site Plan, Table ES-1, at p. 10.

³¹ 2016 FPL Ten Year Site Plan, Table ES-1, at p. 10.

1 likely dwarfs any incremental cost incurred by the Company in facilitating an off-
2 system sales transaction.

3
4 **Q. ARE THE SHARING PERCENTAGES ASSOCIATED WITH THE**
5 **COMPANY'S MODIFIED INCENTIVE PROGRAM MISALIGNED?**

6 A. Yes. The sharing percentages associated with the Company's modified incentive
7 program are misaligned. Ratepayers are getting a far smaller share of the "upside"
8 potential they should be afforded given the risk they incur in securitizing (or financially
9 backing) these assets. The Company's modified incentive program reduces the
10 ratepayers' sharing percentages from 80 percent (for ratepayers under the
11 Commission's long-standing policies) down to 40 percent (under the modified
12 incentive program).

13
14 **Q. ARE THE SHARING PERCENTAGES INCORRECTLY INVERTED?**

15 A. Yes. The direction of the sharing percentages is incorrectly inverted. The Company
16 and its shareholders get a lower sharing percentage for higher levels of off-system sales
17 gain. For instance, the Company and its shareholders get 60 percent of all savings in
18 asset sales margins (and purchase savings) that are between \$46 million to \$100
19 million. Those percentages drop, not increase, if annual sales margins (and purchase
20 savings) increase above \$100 million. Put another way, the Company is provided with
21 a higher return on relatively lower risk outcomes than ratepayers. Ratepayers only get
22 additional sharing percentages if relatively lower probability and higher risk outcomes
23 arise (i.e., exceptionally abnormal gains on sales).

1 **Q. DO YOU AGREE WITH THE COMPANY'S CHARACTERIZATION OF THIS**
2 **MODIFIED INCENTIVE PROGRAM AS AN ASSET MANAGEMENT PLAN?**

3 A No. The Company's modified incentive program lacks many characteristics that
4 comprise a well-managed, well-executed asset management program. These
5 characteristics included establishing a set of upfront, well-defined goals, testing the
6 competitive market for cost-effective third party management services, and developing
7 a program that results in measurable improvements in capacity utilization and costs,
8 among, other things.³²

9

10 **Q. DO YOU HAVE ANY OTHER POLICY CONCERNS ABOUT THE**
11 **COMPANY'S CHANGES TO THE MODIFIED INCENTIVE PROGRAM AND**
12 **HOW THAT RELATES TO THE COMMISSION'S OVERALL INCENTIVE**
13 **POLICIES?**

14 A Yes. The Commission has several incentive policies in place, many of which date back
15 decades to a time well before the introduction of competitive wholesale markets. Some
16 of these policies appear to be overlapping and could lead to unintended outcomes. It
17 would be worthwhile for the Commission to evaluate these in an independent
18 proceeding to understand: (a) these programs' past and continued effectiveness; (b) the
19 implications these programs have for retail operations and competitive wholesale
20 markets; and (c) whether or not one, broader composite incentive should be established

³² See, as one example, a discussion provided by Ken Costello. *Outsourcing of Gas Procurement and Related Functions: A Report to the Colorado Public Utilities Commission*. National Regulatory Research Institute. June 2008.

1 to increase transparency, to reduce regulatory costs, and to increase regulatory
2 effectiveness.

3
4 **Q. WHAT DO YOU MEAN BY ONE COMPOSITE INCENTIVE?**

5 A. The broad goal for an electric utility should be one that encourages it to maximize its
6 capacity utilization and its thermal efficiencies. Capacity utilizations are usually
7 measured by capacity utilization rates. Thermal efficiencies are typically measured by
8 unit and/or system-average heat rates, defined as the thermal inputs utilized to generate
9 one kilowatt-hour (“kWh) of electricity. In fact, the Commission already has an
10 incentive that is tied to both measures in the Generation Performance Incentive Factor
11 (“GPIF”). The Commission originally adopted this measure in order to tie incentives
12 to known and measureable performance that is within a utility’s operational control.³³
13 Measures such as market gains on sales are means to greater efficiency and while this
14 is an important statistic for ratemaking purposes, it is not, in and of itself, an efficiency
15 measure. The Commission may find that the use of one single, transparent, yet
16 effective efficiency measure upon which to base an incentive return is more meaningful
17 and effective than a compilation of other factors that have several complicated market
18 and ratemaking implications. I recommend the Commission include such an analysis
19 in my recommended spin-off general proceeding, if the Commission does not outright
20 deny FPL request to continue its modified incentive program.

21

³³ In re: Investigation of Fuel Cost Recovery Clause Application to Investor-owned Electric Utilities, Order No. 9558, issued September 19, 1980, in Docket No. 800400-CI.

1 V. **OVER CAPACITY INCENTIVES**

2 Q. **PLEASE EXPLAIN WHAT YOU MEAN BY AN OVERCAPACITY**
3 **INCENTIVE RESULTING FROM THE COMPANY'S CHANGES TO THE**
4 **MODIFIED INCENTIVE PROGRAM.**

5 A. FPL currently makes a number of investments in power generation and transmission
6 facilities in order to serve its load. The Company also makes a number of longer-term
7 natural gas commodity, transportation, and storage investments. These natural gas
8 capacity investments can be contractual in nature, such as the longer-term natural gas
9 transportation agreements it has with the Florida Gas Transmission, Gulfstream, SESH,
10 Transco, and Gulf South pipelines. Overcapacity development, a form of
11 overcapitalization, can be said to arise when the Company secures an amount of
12 capacity for any of these resources that is over and beyond what is needed to reliably
13 serve its retail load.

14
15 Q. **HOW DOES THE COMPANY'S MODIFIED INCENTIVE PROGRAM LEAD**
16 **TO OVERCAPACITY INCENTIVES?**

17 A. The Company's modified incentive program effectively expands the scope of its market
18 from just serving its jurisdictional retail load, to one that allows it to use ratepayer-
19 supported resources to compete in a broader set of energy markets. The expansion of
20 this market scope likely creates incentives, particularly at the margin, for the Company
21 to secure greater levels of wholesale power and natural gas capacity than it would
22 without the modified incentive program. This additional capacity provides the
23 Company with the additional resources it needs to expand its ability to earn incentive

1 returns. The greater the capacity, the greater the ability FPL has to leverage that
2 capacity to make a variety of power and natural gas off-system sales.

3
4 **Q. WOULD THE COMMISSION BE ABLE TO IMMEDIATELY RECOGNIZE**
5 **THIS OVERCAPACITY DEVELOPMENT?**

6 A. No, not necessarily. Utility resource requirements decisions often include a certain
7 degree of subjectivity since they are tied to a utility's assessment of the capacity
8 required to serve its load in a reliable fashion. Couple this subjectivity with the
9 asymmetrical information that often exists between regulators and regulated
10 companies, and the difficulty in identifying excess capacity becomes more apparent.
11 Further, potential capacity decisions leading to overcapitalization will likely be made
12 at the margin: the purchase of an additional 4.25 percent of capacity on one transaction;
13 coupled with an additional 3.5 percent capacity on another transaction; coupled with
14 an additional 6.2 percent capacity on a third transaction can ultimately lead to a
15 cumulatively large amount of additional capacity and investment.

16
17 **Q. CAN YOU PROVIDE AN EXAMPLE OF HOW THIS MARGINAL**
18 **OVERCAPITALIZATION CAN ARISE?**

19 A. Yes. Consider an example where the Company is evaluating a multi-year natural gas
20 transportation agreement for firm capacity. At the same time, the Company is also
21 considering an offer for a level of comparable transportation capacity that is five
22 percent above its requirements, but that additional capacity, at the margin, is being
23 offered at a slightly lower unit price. The Company's modified incentive program will

1 likely incent the purchase of this additional capacity since (a) the cost of securing this
2 capacity will be recovered in rates and (b) the additional lower unit cost capacity can
3 be leveraged to make off-system sales for a profit that will inure to the Company's
4 shareholders.

5
6 **Q. WOULD THE PURCHASE OF THIS LOWER UNIT-COST**
7 **TRANSPORTATION CAPACITY BE A GOOD THING FOR RATEPAYERS?**

8 A. No. Granted, on its face, the natural gas transmission example just discussed looks like
9 a good deal for both the utility and for ratepayers. In this example, the utility gets an
10 expanded base of marketable capacity upon which it can earn incentive returns. The
11 utility also bears no risk for securing this capacity since the cost for this additional
12 capacity will be recovered in rates. Ratepayers in this example could, at least in theory,
13 also see benefits in this hypothetical transaction through both the lower unit cost
14 transportation capacity and any additional incentive returns that would arise if the
15 additional capacity is successfully marketed. However, the downside is that ratepayers
16 will have to incur all of the financial risk associated with securing this capacity through
17 rates. If this additional capacity is not sold in the market, then ratepayers will pay the
18 costs for this underutilized capacity and will receive no benefits from the unused
19 resource.

20
21 **Q. ARE THERE ANY OTHER REGULATORY CHALLENGES THAT COULD**
22 **ARISE FROM THIS OVERCAPACITY DEVELOPMENT?**

1 A. Yes. Historically, regulators have used cost and investment disallowances as a means
2 of disciplining utility expenditure and investment decisions. A utility that over-
3 purchases capacity, other things being equal, could be subject to an investment
4 disallowance if that capacity is found to be inconsistent with the “used and useful”
5 standard for evaluating investment prudence. FPL’s modified incentive program,
6 however, could make a claim that capacity investments, even if they are idle, are used
7 and useful if they were purchased to (a) lower overall capacity unit costs and
8 (b) support an option to make a sale into competitive wholesale energy markets.

9
10 **Q. EARLIER YOU NOTED THAT RESOURCE PLANNING INCLUDES SOME**
11 **DEGREE OF SUBJECTIVITY. DO YOU HAVE ANY EXAMPLES RELATIVE**
12 **TO FPL?**

13 A. Yes. FPL conducts its long-term resource planning based upon three criteria³⁴ that
14 includes: (1) a 0.1 day per year Loss of Load Probability (“LOLP”); (2) a 20 percent
15 reserve margin; and (3) a 10 percent generation-only reserve margin. The 20 percent
16 reserve margin arose from a 1999 Commission order approving a stipulation between
17 the State’s IOUs agreeing to this particular reserve margin.³⁵ Other jurisdictional
18 utilities are required to meet a 15 percent reserve margin as defined by Rule 25-
19 6.035(1), Florida Administrative Code (“FAC”). FPL’s third criteria, however, is part
20 of its own internal resource planning criteria adopted in 2014 and not part of the

³⁴ In re: Petition for determination of need for Okeechobee Clean Energy Center Unit 1, by Florida Power & Light Company, Order No. PSC-16-0032-FOF-EI, issued January 19, 2016, in Docket No. 150196-EI. p 4.

³⁵ In re: Generic Investigation into the Aggregate Electric Utility Reserve Margins Planned for Peninsular Florida, Order No. PSC-99-2507-S-EU, issued December 22, 1999, in Docket No. 981890-EU.

1 Commission's rules. The Company noted that it adopted this additional requirement
2 in order to assure that it could serve all retail load during historical extreme weather
3 events and future peak load days.³⁶
4

5 **Q. WHAT PROMPTED FPL INTO ADOPTING THIS ADDITIONAL**
6 **RELIABILITY CRITERIA?**

7 A. The prompt appears to have arisen as a result of FPL reporting an all-time peak of
8 24,872 MW on January 11, 2010. Prior to that event, FPL forecasted a winter 2010
9 peak of 18,676 MW or some 6,000 MWs lower than what was reported that winter. At
10 the time, FPL had an 8.4 percent internal generation reserve margin, much lower than
11 its current 10 percent standard, and yet was still able to serve its firm peak demand with
12 an additional 1,144 MW of load management still available if needed. In fact, even if
13 the Company's largest unit had tripped off-line during this extreme weather event,³⁷
14 FPL could have still served all firm peak demand by implementing additional load
15 management resources.³⁸ FPL, however, still opted to increase its generation-only
16 reserve margin to 10 percent despite the fact that an 8.4 percent margin³⁹ proved
17 adequate to meet that extreme event. Today, the generation capacity difference
18 between these two reserve margin levels is almost 390 MWs.

³⁶ Amended Rebuttal Testimony of Dr. Steven R. Sim, Exhibit SRS-11, "The Need for a 3rd Reliability Criterion for FPL: A Generation-Only Reserve Margin (GRM) Criterion", filed November 25, 2015, in Docket No. 150196-EI, In Re: Petition for determination of need for Okeechobee Clean Energy Center Unit 1, by Florida Power & Light Company. pp 14-17.

³⁷ Turkey Point Unit No. 4

³⁸, Amended Rebuttal Testimony of Dr. Steven R. Sim, Exhibit SRS-11, "The Need for a 3rd Reliability Criterion for FPL: A Generation-Only Reserve Margin (GRM) Criterion" in Docket No. 150196-EI, at pp 16-17.

³⁹ Amended Rebuttal Testimony of Dr. Steven R. Sim, Exhibit SRS-11, "The Need for a 3rd Reliability Criterion for FPL: A Generation-Only Reserve Margin (GRM) Criterion" in Docket No. 150196-EI, filed November 25, 2015, at pp 24-25

1 **Q. DID FPL SEEK OR RECEIVE EXPLICIT COMMISSION APPROVAL FOR**
2 **THE 10 PERCENT GENERATION-ONLY RESERVE MARGIN PLANNING**
3 **CRITERIA?**

4 A. No. FPL neither sought nor received explicit Commission approval for the 10 percent
5 generation-only reserve margin planning criteria because, as the Company explained
6 at the time, Tampa Electric had similarly adopted a unilateral change in its own
7 generation-only reserve margin ten years earlier.⁴⁰ However, the point here is not to
8 take issue with the Company's methods for changing its internal reliability criteria, as
9 much as it is to highlight that FPL's decision that: (1) it needed a 10 percent generation-
10 only reserve margin was subjective and (2) it had been made unilaterally without prior
11 Commission approval. This opens the door for the Company to make similar changes
12 in the future if it feels such changes could simultaneously improve overall reliability
13 and facilitate its opportunities for additional off-system generation sales.

14
15 **Q. IS THE OVERCAPACITY ISSUE RESTRICTED TO JUST POWER**
16 **GENERATION AND TRANSMISSION CAPACITY ONLY?**

17 A. No. The Company secures natural gas transportation and storage capacity based upon
18 its perceived needs for natural gas supplies from producing basins to its natural gas
19 generation resources in Florida. Natural gas storage and transportation capacity
20 determinations are often a function of numerous variables that include the economics
21 of supply sources and regional constraints, as well as customer load requirements.

⁴⁰ Amended Rebuttal Testimony of Dr. Steven R. Sim, Exhibit SRS-11, "The Need for a 3rd Reliability Criterion for FPL: A Generation-Only Reserve Margin (GRM) Criterion" in Docket No. 150196-EI, filed November 25, 2015, at pp 22.

1 Natural gas-fired utility power generation typically needs relatively secure supplies of
2 natural gas and natural gas capacity. Reliability levels chosen by utility power
3 generators are based upon the risk management decisions made by utilities. As I noted
4 earlier, those decisions will likely be influenced by the Company's modified incentive
5 program if it is continued and approved. This modified incentive program creates profit
6 opportunities that will likely, at the margin, send signals to the utility to secure
7 additional capacity, or to continue to maintain current capacity levels even though those
8 capacity requirements may be unnecessary.

9
10 **VI. COMPETITIVE MARKET IMPLICATIONS**

11 **Q. PLEASE EXPLAIN HOW THE COMPANY'S MODIFIED INCENTIVE**
12 **PROGRAM CAN NEGATIVELY IMPACT WHOLESALE COMPETITION.**

13 A. The Company's modified incentive program allows it to compete in a number of
14 competitive power and gas markets with energy capacity assets that are securitized (or
15 financially-supported) by its retail customer base. A large number of other wholesale
16 energy market participants are not afforded a similar benefit when they compete in
17 these wholesale markets. If market prices are high, relative to the costs of FPL's energy
18 capacity investments, the Company can sell any unused capacity to the market and earn
19 an additional profit that is over and beyond the just and reasonable rate of return
20 included in its base rates. If market prices are low, however, FPL will not be required
21 to reduce its normal level of profits (recovered through rates) like other market
22 participants. The return of, and on, the assets utilized for these market transactions will
23 be recovered during these market downturns from the Company's retail customer base.

1 Thus, the Company's modified incentive program not only gives it a free option on the
2 unused portion of its regulated assets, but also supports those assets with a pricing floor
3 that is not available to any other market participant.

4
5 **Q. PLEASE EXPLAIN HOW EXTRA ORDINARY RETURNS ARE GENERATED**
6 **WITHIN THE COMPANY'S MODIFIED INCENTIVE PROGRAM.**

7 A. Through normal ratemaking, FPL is allowed an opportunity to earn a just and
8 reasonable rate of return on its prudently-incurred capital investments. Those capital
9 investments are recovered through base rates, or a comparable rate that allows for a
10 return on and of any longer-lived capital investments. The Commission has had a long-
11 standing policy of allowing utilities to recover the cost, including a just and reasonable
12 rate of return, of capital projects through the fuel clause if fuel savings from such
13 projects are greater than the capital expenditures.⁴¹ FPL gets the opportunity to earn
14 this reasonable rate of return on this capacity independent of any anticipated off-system
15 sales. For instance, the forecasted billing determinants developed by FPL to establish
16 its proposed base rates do not include any credits for a forecasted level of off-system
17 sales. In fact, as I noted earlier in my testimony, at one point in the early 1980s these
18 sales were included in base rates, but were then removed, given the uncertainty and
19 potential gamesmanship associated with determining an appropriate forecast in any

⁴¹ In re: Fuel and Purchased Power Cost Recovery Clause and Generating Performance Incentive Factor, Order No. PSC-95-1089-FOF-EI, issued September 5, 1995, in Docket No. 950001-EI, at p 19; In re: Fuel and Purchased Power Cost Recovery Clause and Generating Performance Incentive Factor, Order No. PSC-96-1172-FOF-EI, issued September 19, 1996, Docket No. 960001-EI, at pp 16-17; In re: Fuel and Purchased Power Cost Recovery Clause and Generating Performance Incentive Factor, Order No. PSC-96-0353-FOF-EI, issued March 13, 1996, Docket No. 960001-EI, at pp 14-15; In re: Petition to Recover Capital Costs of Big Bend Fuel Cost Reduction Project through the Fuel Cost Recovery Clause, by Tampa Electric Company, Order No. PSC-14-0309-PAA-EI, issued June 12, 2014, Docket No. 140032-EI, at p 7.

1 given year. Thus, the incentive payments that FPL incurs for off-system sales gains in
2 excess of its threshold, represent a level of profits that are over and beyond the levels
3 recovered in base rates and can be considered “additional” to the just and reasonable
4 level included in base rates.

5
6 **Q. CAN THE COMPANY’S MODIFIED INCENTIVE PROGRAM IMPACT**
7 **MARKET OUTCOMES?**

8 A. Yes. The Company’s modified incentive program actively encourages (incent) FPL
9 to participate in a wide range of competitive energy markets. The Company itself
10 indicates that without these incentives, it would not have the appropriate incentives,
11 and presumably motivation, to engage in these activities.⁴² In fact, the Company cites,
12 as an example of the impact it has had on markets, the additional gains it has attained
13 through the leveraging of its natural gas assets.⁴³ In other words, but for the modified
14 incentive program, FPL would not participate in competitive wholesale natural gas
15 markets. The modified incentive program, however, allows FPL to participate in
16 wholesale commodity markets in ways that differ from other market participants since
17 the Company can price the output of its capacity at levels independent of any return on
18 and of the invested capital supporting these sales.⁴⁴ This is not a pricing luxury afforded
19 to other market participants over the longer run since all of the costs supporting their

⁴² FPL’s response to OPC’s Twelfth Set of Interrogatories, Number 299, Docket Nos. 160021-EI and 160088-EI.

⁴³ Direct Testimony of FPL witness Sam Forrest, Docket No. 160088-EI, at p. 11.

⁴⁴ FPL’s response to OPC’s First Set of Interrogatories (Asset Optimization), Number 8, Docket Nos. 160021-EI and 160088-EI

1 market participation will need to be supported by market prices, otherwise they will go
2 out of business and exit the industry.

3
4 **Q. DOES FPL HAVE THE OPPORTUNITY FOR A HIGHER LEVEL OF**
5 **INCENTIVE RETURNS FROM ITS OFF-SYSTEM SALES THAN OTHER**
6 **FLORIDA UTILITIES?**

7 A. Yes. FPL has two different opportunities for higher financial incentives relative to
8 other Florida IOUs. First, FPL is afforded a higher sharing percentage than the other
9 Florida IOUs for gains that exceed its fixed threshold. Second, FPL has an opportunity
10 to earn incentive returns on a broader set of off-system transactions than the other
11 Florida IOUs including those associated with a number of competitive wholesale
12 natural gas transactions.

13
14 **Q. HAVE ANY OTHER FLORIDA UTILITIES REQUESTED AN OFF-SYSTEM**
15 **SALES INCENTIVE PROGRAM COMPARABLE TO THE ONE FPL IS**
16 **REQUESTING TO EXTEND?**

17 A. Yes. In 2013, Tampa Electric filed a petition which sought an incentive program
18 similar to the Company's 2012 modified incentive program in terms of the eligible
19 transaction types and the allocation of gains between ratepayers and shareholders.⁴⁵
20 The primary difference between Tampa Electric's proposal and the Company's
21 modified incentive program was that the threshold values were scaled to Tampa
22 Electric's relative size compared with the Company. After months of discussion among

⁴⁵Petition for Expedited Approval of Asset Optimization Incentive Mechanism, by Tampa Electric Company, filed January 23, 2013, in Docket No. 130024-E1.

1 Tampa Electric, intervening parties, and Commission staff, the Commission granted
2 Tampa Electric's request to hold its petition in abeyance.⁴⁶ It appears likely that this
3 petition will be refiled or resurrected in the very near future given the renewed FPL
4 effort.

5
6 **Q. DO THE COMPETITIVE MARKET IMPLICATIONS OF THE COMPANY'S**
7 **MODIFIED INCENTIVE PROPOSAL WARRANT FURTHER**
8 **INVESTIGATION IN A GENERIC PROCEEDING?**

9 A. Yes. Wholesale energy markets have changed dramatically since 1999, which was the
10 last time the Commission reviewed its incentive policies regarding off-system sales. In
11 addition, as noted above, other Florida IOUs appear to be interested in modifying their
12 incentive opportunities in ways similar to FPL's program. The time appears to be ripe
13 for a separate generic proceeding to consider the role of incentives in promoting utility
14 supply-side efficiencies, and to ensure that the Commission's policies on these matters:
15 (1) are consistent across all utilities, (2) lead to an appropriate balance of risks and
16 rewards between utilities and ratepayers, and (3) minimize or eliminate opportunities
17 for inappropriate wholesale market distortions.

18
19 **VII. JURISDICTIONAL POLICY ISSUES**

20 **Q. DO YOU HAVE ANY JURISDICTIONAL POLICY CONCERNS ABOUT THE**
21 **COMPANY'S MODIFIED INCENTIVE PROGRAM?**

⁴⁶In re: Tampa Electric Company's Petition for Expedited Approval of Asset Optimization Incentive Mechanism,
Order No. PSC-13-0295-PCO-EI, issued June 25, 2013, in Docket No. 130024-EI.

1 A Yes. I am concerned, from a policy perspective, that the Company's modified incentive
2 program includes the opportunity to earn extra profits on a wide range of natural gas
3 transactions that go beyond optimizing its core electrical generation, transmission, and
4 production assets. The modified incentive program, for instance, also actively
5 encourages the Company to: (1) utilize contracted storage space to sell stored natural
6 gas when not needed by the utility; (2) deliver and sell natural gas wholesale upstream
7 and mid-stream using the Company's gas transportation capacity that is not needed; (3)
8 sell released unneeded natural gas and electric transmission capacity; and (4) outsource
9 asset optimization through transfer and/or assignment of rights in exchange for a
10 premium to be paid to the Company. Most of these transactions are associated with
11 natural gas markets that are highly competitive in nature, and are not geographically
12 limited to the State of Florida.

13

14 **Q. WHAT ARE YOUR JURISDICTIONAL POLICY CONCERNS?**

15 A. The Company's modified incentive program allows it to earn additional profits beyond
16 its allowed rate of return through the utilization of assets that are secured by regulated
17 ratepayers. FPL's additional profits under this program do not arise through sales or
18 efficiencies in providing regulated electric generation, transmission, and distribution
19 service to its Florida ratepayers but are earned through actions it takes in competitive
20 natural gas markets inside and outside the state. As I noted earlier in my testimony,
21 ratepayers' securitization of these assets reduces FPL's risks, and affords the Company
22 a competitive advantage not afforded to other competitive market participants. If the
23 market prices fall, ratepayers will continue to support the costs associated with these

1 assets even if they are idle: such an outcome does not arise in competitive natural gas
2 markets for competitive energy marketers who do not have a regulated base of
3 customers. This appears to be neither the type of financial incentive nor market activity
4 that falls within the traditionally legislatively authorized ambit of electric utilities
5 providing generation, transmission, or distribution of electricity in Florida.

6
7 **Q. FROM A POLICY PERSPECTIVE, HOW DO FLORIDA STATUTES DEFINE**
8 **AN ELECTRIC UTILITY?**

9 A. Section 366.02(2), Florida Statutes, defines electric utility as an entity that “. . . owns,
10 maintains, or operates an electric generation, transmission, or distribution system
11 within the state.” While natural gas assets are important in facilitating FPL’s electric
12 generation, based on my years of work in regulation in Florida, I am not aware of any
13 explicit statutory language that allows the Commission to adopt policies that encourage
14 electric utilities to leverage their natural gas assets for profits, much less profits that are
15 over and beyond what is fair and reasonable and already included in base rates. By
16 definition, incentive returns are those that are over and above (investment) costs since
17 the (investment) costs utilized for ratemaking purposes include a fair and reasonable
18 utility return. Section 366.041(1), Florida Statutes, notes that in setting fair, just and
19 reasonable rates, the Commission “is authorized to give consideration, among other
20 things, to . . . the cost of providing such service and the value of such service to the
21 public[.]” Yet again, the allowance for incentive returns on a competitive natural gas
22 activity, that is also likely outside the state of Florida, does not appear, from a policy

1 perspective, to be inclusive of either the “cost” or “value” of electric service as defined
2 by state statutes.

3
4 **Q. HAS THE FLORIDA SUPREME COURT RECENTLY OPINED ON A**
5 **SIMILAR MATTER?**

6 A. Yes. This past May, the Florida Supreme Court issued a decision regarding the
7 Commission’s approval of FPL’s purchase of upstream natural gas reserves in the
8 Woodford Shale region of Oklahoma.⁴⁷ The Court’s decision noted that FPL’s natural
9 gas reserves purchases required its end-users (ratepayers) to “. . . guarantee the capital
10 investment and operations of a speculative oil and [natural] gas venture without the
11 Florida Legislature’s authority.”⁴⁸ I am concerned that, from a policy perspective, the
12 same defect exists with regards to FPL’s modified incentive program: it forces
13 ratepayers to financially support a set of natural gas assets for competitive market sales
14 that, even if “small” in volume or dollar-value, that: (1) have nothing directly to do
15 with the generation, transmission or distribution of electricity to FPL’s ratepayers, (2)
16 are speculative and opportunistic, and (3) include a financial return that goes beyond
17 what has been determined as being just and reasonable by the Commission in a base
18 rate case. The modified incentive program provides direct, active, and Commission-
19 sanctioned financial incentives (profits) that encourages FPL to use its regulated assets
20 in a way that can affect market outcomes both inside and outside the state, regardless
21 of how small these transactions may be in the overall competitive natural gas market.

22

⁴⁷ *Citizens of the State of Florida v. Graham*, 41 Fla. L. Weekly S231 (Fla. May 19, 2016).

⁴⁸ *Citizens of the State of Florida v. Graham*, 41 Fla. L. Weekly S231 (Fla. May 19, 2016) at 2.

1 **VIII. INCENTIVES FOR OFF-SYSTEM PURCHASES**

2 **Q. PLEASE EXPLAIN THE OFF-SYSTEM PURCHASES COMPONENT OF THE**
3 **COMPANY'S MODIFIED INCENTIVE PROGRAM.**

4 A. The Company's modified incentive program allows it to receive a financial incentive
5 on any savings it makes on market purchases of more cost-effective electricity. In other
6 words, under the Company's modified incentive program, it can receive a financial
7 reward if it can purchase lower-cost electricity on the market rather than utilize
8 electricity generated from its own power plants. Mechanically, the "savings"
9 associated with these types of transactions are estimated as the difference between the
10 cost of the purchased power (and transmission service, if applicable) and the (marginal)
11 fuel costs that FPL would have incurred if it had produced the power with its own
12 generation.⁴⁹

13
14 **Q. HOW DOES THIS INCENTIVE PROVISION RUN COUNTER TO**
15 **STANDARD REGULATORY PRINCIPLES AND PRACTICE?**

16 A. Rate regulation in markets dominated by natural monopolies is a proxy for competition
17 in those markets.⁵⁰ Firms in competitive markets tend to produce at their lowest cost
18 in order to improve market share and secure their profits. If a competitive firm has a
19 choice between internalizing a particular function or outsourcing that function to
20 another firm, theory and practice suggests that competitive firms will choose the least

⁴⁹ FPL response to OPC's First Set of Interrogatories (Asset Optimization), Interrogatory No. 8, Docket Nos. 160021-EI and 160088-EI.

⁵⁰ Phillips, Jr., Charles F. *The Regulation of Public Utilities*. Arlington, VA: Public Utilities Reports, Inc. 1993. p 50. Bonbright, James C., Danielson, Albert L., and Kamerschen, David R. *Principles of Public Utility Rates* Arlington, VA: Public Utilities Reports, Inc. 1988. p 30. Kahn, Alfred E. *The Economics of Regulation: Principles and Institutions*. Cambridge, MA: The MIT Press, 1988, p. 20

1 cost option. The firm needs no additional incentive to choose a lower cost provider of
2 a service outside the normal rate of return it earns in the market. The same should be
3 true for a utility if regulation is emulating competition. Utilities should need no
4 additional incentive to provide least-cost service outside of their allowed rate of return.
5 To do otherwise suggests either: (a) the utility is not afforded a reasonable allowed rate
6 of return or (b) regulation is not emulating competition and free markets.

7
8 **Q. ARE UTILITIES OBLIGATED IN ANY WAY TO UTILIZE HIGHER COST**
9 **ELECTRICITY FROM THEIR OWN GENERATORS?**

10 A No. I have always understood, from my professional and academic research
11 experience, that utilities are required to provide efficient service to ratepayers upon the
12 terms established by a Commission: this is true generally in the State of Florida.⁵¹ The
13 Commission, on the other hand, is authorized to consider the efficiency of facilities and
14 services in setting utility rates and terms provided it does not deny a utility its
15 opportunity for a fair return.⁵² Efficiency is typically attained when a firm minimizes
16 the cost of providing a service given a fixed level of output. Efficiency makes no
17 differentiation between whether costs are minimized through the use of an internal
18 input or one external to the firm. In fact, the Commission, in its 2010 Annual Ten Year
19 Site Plan review noted that electric utilities "... must continue to explore all available
20 measures to ensure the most efficient means of producing and delivering reliable and
21 affordable power to their customers"⁵³ (emphasis added). In addition, each of the

⁵¹ Section 366.03, Florida Statutes.

⁵² Section 366.041, Florida Statutes.

⁵³ FPSC Review of 2010 Ten Year Site Plans for Florida's Electric Utilities, at p 2.

1 state's electric utilities have interpreted this efficiency requirement as requiring cost-
2 effectiveness.⁵⁴

3
4 **Q. HAS THE COMMISSION RECOGNIZED THAT UTILITIES HAVE AN**
5 **OBLIGATION TO PURCHASE LEAST COST RESOURCES FROM THE**
6 **MARKET WHEN THEY ARE AVAILABLE?**

7 A. Yes. In 2002, the Commission explicitly noted in an FPL need determination order
8 that utilities have “. . . the statutory obligation to serve retail consumers, the utility is
9 responsible for deciding which generation resources it should build or buy in order to
10 ensure reliable and cost-effective power for its consumers.”⁵⁵ Likewise, in an earlier
11 1998 need determination hearing, the Commission in evaluating a generation
12 development request by the City of New Smyrna Beach and Duke Energy New Smyrna
13 Beach Power Company Ltd., L.L.P. noted:

14 Our underlying policy in deciding need determination petitions is to protect
15 electric utility ratepayers from unnecessary expenditures and ensure a safe
16 reliable grid. In approving the proposed plant, we are effectuating our
17 longstanding policy. Duke New Smyrna, as proposed, would be a wholesale
18 provider of electricity. Retail utilities, with the obligation to serve, may
19 purchase from Duke New Smyrna, if it is economic to do so. The Project
20 provides a choice to retail utilities in meeting the needs of their customers. If a
21 retail utility purchases from Duke New Smyrna, those retail customers would
22 realize economic benefits due to the existence of the Duke New Smyrna project
23 (emphasis added).⁵⁶

⁵⁴ In re: Proposed Revisions to Rule 25-22.082, F.A.C., Selection of Generating Capacity, Comments of Investor-owned Electric Utilities, filed June 28, 2002, in Docket No. 020398-EQ, at p 12.

⁵⁵ In re: Petition to Determine Need for an Electrical Power Plant in Martin County by Florida Power & Light Company; and In re: Petition to Determine Need for an Electrical Power Plant in Manatee County by Florida Power & Light Company, Order No. PSC-02-1743-FOF-EI, issued December 10, 2002, in Dockets Nos. 020262-EI and 020263-EI, at p 13.

⁵⁶ In re: Joint petition for Determination of Need for an Electrical Power Plant in Volusia County by the Utilities Commission, City of New Smyrna Beach, Florida, and Duke Energy New Smyrna Beach Power Company Ltd., L.L.P., Order No. PSC-99-0535-FOF-EM, issued March 22, 1999, in Docket No. 981042-EM, at p 39 (emphasis added). This need determination order was reversed by the Florida Supreme Court on other grounds by *Tampa*

1 **Q. HAVE ANY FLORIDA UTILITIES RECOGNIZED THAT SECURING LEAST**
2 **COST RESOURCES FROM THE MARKET IS PART OF THEIR OBLIGATION TO**
3 **SERVE?**

4 A. Yes. Duke Energy Florida's parent, Duke Energy Corporation, noted in its 2014 10-K
5 that its regulated utilities' generation portfolio is

6 ...a balanced mix of energy resources having different operating characteristics
7 and fuel sources designed to provide energy at the lowest possible cost to meet
8 its obligation to serve retail customers. All options, including owned generation
9 resources and purchased power opportunities, are continually evaluated on a
10 real-time basis to select and dispatch the lowest-cost resources available to meet
11 system load requirements.⁵⁷

12
13 **Q. HAS THE COMMISSION CONSIDERED OFF-SYSTEM PURCHASES IN ITS**
14 **PAST OFF-SYSTEM INCENTIVE PROCEEDINGS?**

15 A. No. The current regulatory treatment for wholesale economy energy transactions is
16 limited to allowing financial returns on any gains from wholesale economy energy
17 sales, not purchases. The Commission, throughout its lengthy deliberations in the three
18 incentive dockets discussed earlier, never considered whether the savings from a
19 wholesale economy purchase should be eligible for shareholder financial rewards.⁵⁸
20 The Commission's orders from these dockets are quite clear: wholesale economy
21 energy sales were the only transaction type considered for a shareholder incentive
22 treatment.

Elec. Co. v. Garcia, 767 So. 2d 428 (Fla. 2000), but the policy of the Commission to "protect electric utility ratepayers from unnecessary expenditures and ensure a safe reliable grid" was not affected by the Court's decision.

⁵⁷ Duke Energy Corporation 2014 Form 10K, at p. 11

⁵⁸ Docket Nos. 830001-EU-B, 990001-EI, and 991779-EI.

1 Q. DOES THE ALLOWANCE FOR FINANCIAL INCENTIVES FROM OFF-
2 SYSTEM PURCHASES REPRESENT A RADICAL DEPARTURE FROM
3 CURRENT COMMISSION POLICY?

4 A. Yes. There are a number of underlying policies supporting several of the
5 Commission's current rules that are contradicted by the Company's off-system
6 purchases incentive. This particular incentive runs counter to the *quid pro quo* policy
7 underlying the Commission's fuel and purchased power cost recovery programs. The
8 off-system purchases incentives also contradict the market-test obligation that each
9 utility has prior to: (a) developing its own energy resources⁵⁹ or (b) purchasing a service
10 or acquiring a resource from an affiliate company.⁶⁰

11
12 Q. DOES THE OFF-SYSTEM PURCHASE INCENTIVE RUN COUNTER TO
13 THE COMMISSION'S FUEL AND PURCHASED POWER CLAUSE
14 POLICIES?

15 A. Yes. The off-system purchases incentive appears to run counter to the *quid pro quo*
16 associated with the development of the Commission's fuel and purchased power cost
17 recovery policies. When the Commission adopted its fuel and purchased power cost
18 recovery mechanisms, it did so in order to insulate utilities from the risk of large,
19 volatile, and often uncontrollable commodity prices.⁶¹ In return, utilities are expected
20 to secure the optimum least-cost, reliable resources on behalf of their ratepayers,

⁵⁹ Rule 25-22.082, F.A.C., Selection of Generating Capacity.

⁶⁰ Rule 25-6.1351, F.A.C. Cost Allocation and Affiliate Transactions.

⁶¹ In re: General Investigation of Fuel Adjustment Clauses of Electric Companies, Order No. 6357, issued November 26, 1974, in Docket No. 74680-CI. In re: General Investigation of Fuel Adjustment Clauses of Electric Companies, Order No. 7653, issued February 22, 1977, in Docket No. 74680-CI (CR).

1 regardless of whether those resources are self-generated, or come from the market.
2 Allowing FPL to attain an incentive on its off-system purchases upsets the balance
3 between the ratepayers' assumption of commodity pricing risk, and the utilities'
4 obligation to ensure they purchase or utilize the most cost-effective resources available.
5 Under the Company's modified incentive program, it is not only insulated from
6 commodity pricing risk, but it now gets an incentive for engaging in activities that it
7 should be doing or already doing as part of its obligation to serve, as well as its *quid*
8 *pro quo* for having a fuel adjustment and purchased power recovery mechanism.

9
10 **Q. HOW DO THE OFF-SYSTEM PURCHASE INCENTIVES RUN COUNTER TO**
11 **THE POLICY PRINCIPLES INCLUDED IN THE COMMISSION'S**
12 **COMPETITIVE BIDDING RULE?**

13 A. The Commission expects each public utility, as part of its obligation to serve, to test
14 the market prior to proposing any new generation resources through a Request for
15 Proposals ("RFP") process.⁶² The underlying principle in these rules is that utilities
16 need to ascertain whether or not there is a lower-cost alternative in the market before
17 adding capacity. The state's IOUs, collectively, noted that the purpose of this provision
18 is "to encourage the selection of least cost generation."⁶³ Utilities are required to
19 choose least-cost options; utilities do not need incentives to comply with this
20 obligation. The least-cost selection option is simply part of their obligation to serve.
21 There should be little difference, in principle, between how a utility makes a short run

⁶² Rule 25-22.082(4), F.A.C.

⁶³ In re: Proposed Revisions to Rule 25-22.082, F.A.C., Selection of Generating Capacity, Comments of Investor-owned Utilities, filed June 28, 2002, in Docket No. 020398-EQ, at p 46.

1 generation decision (i.e., incremental dispatch vs. purchase) and a longer run generation
2 decision (i.e., a capacity addition): both should be made on a least-cost basis, even if
3 that least-cost option is from the market and not a utility-owned resource.

4
5 **Q. HOW ARE THE COMPANY'S OFF-SYSTEM PURCHASE INCENTIVES**
6 **INCONSISTENT WITH THE POLICY PRINCIPLES OUTLINED IN THE**
7 **COMMISSION'S AFFILIATE TRANSACTIONS RULES?**

8 A. The underlying principle of the Commission's affiliate transaction rule⁶⁴ is that a utility,
9 in entering into a transaction with an affiliate, must show that the costs of this
10 transaction are equal to or less than what is available in the market.⁶⁵ Utilities are not
11 given a financial incentive in order to ascertain whether or not the market affords a
12 lower price service, but are expected, as part of their obligation to serve, to show that
13 any affiliate transaction has been tested, or is comparable to the market. The
14 Company's off-system purchase incentives are inconsistent with the principles in the
15 Commission's affiliate rule since these incentives suggest that there is no requirement
16 to test the market for a lower cost resource if there is at least one Company-owned
17 resource that could provide this service, regardless of cost.

18
19 **IX. CONCLUSIONS AND RECOMMENDATIONS**

20 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

21 A. I recommend that the Commission reject the Company's request to extend and
22 recalibrate its modified incentive program for two primary reasons. First and foremost,

⁶⁴ Rule 25-6.1351, F.A.C. Cost Allocation and Affiliate Transactions

⁶⁵ Rule 25-6.1351(3)(c), F.A.C.

1 FPL has simply not met its burden of proof nor shown that extension and proposed
2 recalibration of its modified incentive program is in the public interest. The Company
3 has provided a dearth of information on the modified incentive program and whether it
4 has led to verifiable and positive changes in the Company's actions, and how, if at all,
5 those changes have resulted in net public benefits. In addition, the Company has
6 provided no information, nor attempted to quantify, how the proposed changes to its
7 modified incentive program will lead to future ratepayer benefits over and beyond what
8 would otherwise occur under the Commission's long-standing off-system sales
9 incentive policies. Therefore, the Commission must reject the proposal given the lack
10 of compelling information supporting a public interest finding. This rejection will
11 ultimately result in the Company's modified incentive program expiring at the same
12 time as its rate case settlement agreement.

13 Second, the current proceeding has not afforded parties enough time to review
14 the broad policy implications of this proposal particularly as it relates to the state's
15 other electric utilities. If the Commission is hesitant to discontinue the program, it
16 should hold FPL's request in abeyance until the matter can be explored in greater detail
17 in a separate proceeding where all of these incentive issues can be thoroughly and fully
18 vetted for not only the Company, but also for all Florida utilities. In past proceedings
19 involving these types of incentive programs, the Commission recognized that its
20 incentive policy decisions would have ramifications extending well beyond simple
21 ratemaking, including those impacting existing and emerging markets and resource
22 efficiency. FPL's current proposals will have the same important market and efficiency
23 implications and should be examined within the context of a comparable proceeding.

1 **Q. WHAT INCENTIVES WILL FPL HAVE TO ENGAGE IN OFF-SYSTEM**
2 **SALES IF THE COMMISSION ALLOWS THIS MODIFIED INCENTIVE**
3 **PROGRAM TO EXPIRE?**

4 A. The Commission should keep in mind that the Company has a regulatory obligation to
5 provide safe, reliable, and economic (least cost) service to its ratepayers. Maximizing
6 the efficiency of its assets, and reducing costs, therefore, is a core part of a utility's
7 obligation to serve. This regulatory obligation should serve as an appropriate incentive
8 for the Company to seek out opportunities to reduce ratepayer costs through off-system
9 sales credits. That notwithstanding, the Commission has a long-standing incentive
10 policy allowing utilities to retain 20 percent of the gains from their off-system
11 generation sales provided the gains on those sales are above a three-year average
12 threshold. This incentive program is in place today for three other investor-owned
13 utilities ("IOUs") in Florida and will apply to FPL once the current modified incentive
14 program is allowed to expire. Thus, FPL will not be harmed, and, in fact, the Company
15 will continue to have the opportunity to retain a significant level of financial incentives
16 even if the current modified incentive program is allowed to expire.

17
18 **Q. WHY ARE YOU RECOMMENDING THAT THE COMPANY'S PROPOSAL**
19 **BE SPUN-OFF INTO A SEPARATE PROCEEDING?**

20 A. I am only making this recommendation if the Commission opts to not reject the
21 Company's proposal to extend and change its modified incentive program in the current
22 rate case. I am making this recommendation because that is how the Commission has
23 evaluated similar issues in the past. The Commission's off-system sales incentive

1 policies date back to the early 1980s, as well as the late 1990s. In each instance, the
2 Commission, understanding the ratepayer and market implications of its decisions,
3 expended considerable resources, over relatively meaningful time periods, in stand-
4 alone proceedings. The Commission examined these incentive policy issues in stand-
5 alone proceedings since it understood the importance of uniformity and consistency,
6 across all of its regulated utilities, in establishing and maintaining these incentive
7 policies. The Commission also recognized, in each instance, that its incentive policy
8 decisions would have ramifications extending well beyond simple ratemaking,
9 including those impacting emerging markets and resource efficiency. FPL's current
10 proposals will have the same important market and efficiency implications and should
11 be examined within the context of a comparable proceeding.

12
13 **Q. ARE THERE ANY OTHER REASONS WHY THE COMMISSION SHOULD**
14 **EXAMINE THESE ISSUES IN A SEPARATE PROCEEDING?**

15 A. Yes. The Company's modified incentive program was approved as part of a larger rate
16 case settlement in December 2012. From a policy perspective, there is nothing in the
17 original settlement agreement suggesting that the FPL modified incentive program, on
18 its own, is in the public interest. The Commission approved the prior settlement, and
19 all its terms and conditions, on a collective, not individual basis. Settlements, by their
20 very nature, include individual provisions that lead to individual party benefits that may
21 not be necessarily favorable to other parties or to parties as a whole (i.e., the public
22 interest). Thus, there is nothing inherent in the last settlement agreement that should
23 suggest or confer a public benefits finding on the modified incentive program on a

1 stand-alone basis. For that reason, the Commission needs to examine this issue further
2 in a separate proceeding.

3
4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY FILED ON JUNE 17,**
5 **2016?**

6 A. Yes. However, I would request the right to supplement this testimony as additional
7 information and discovery responses become available during the course of this
8 proceeding. If I do supplement my testimony, it will occur at the same time that
9 intervenor direct testimony is due in the Company's pending base rate case on July 7,
10 2016.

11

CERTIFICATE OF SERVICE

I **HEREBY CERTIFY** that a copy of the foregoing Direct Testimony of David E. Dismukes has been furnished by electronic mail on this 17th day of June, 2016, to the following:

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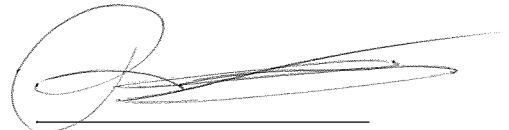
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EDUCATION

Ph.D., Economics, Florida State University, 1995.
M.S., Economics, Florida State University, 1992.
M.S., International Affairs, Florida State University, 1988.
B.A., History, University of West Florida, 1987.
A.A., Liberal Arts, Pensacola State College, 1985.

Master's Thesis: *Nuclear Power Project Disallowances: A Discrete Choice Model of Regulatory Decisions*

Ph.D. Dissertation: *An Empirical Examination of Environmental Externalities and the Least-Cost Selection of Electric Generation Facilities*

ACADEMIC APPOINTMENTS

Louisiana State University, Baton Rouge, Louisiana

Center for Energy Studies

2014-Current	Executive Director
2007-Current	Director, Division of Policy Analysis
2006-Current	Professor
2003-2014	Associate Executive Director
2001-2006	Associate Professor
1999-2001	Research Fellow and Adjunct Assistant Professor
1995-2000	Assistant Professor

College of the Coast and the Environment (Department of Environmental Studies)

2014-Current	Professor (Joint Appointment with CES)
2010-Current	Director, Coastal Marine Institute
2010-2014	Adjunct Professor

E.J. Ourso College of Business Administration (Department of Economics)

2006-Current	Adjunct Professor
2001-2006	Adjunct Associate Professor
1999-2000	Adjunct Assistant Professor

Florida State University, Tallahassee, Florida

College of Social Sciences, Department of Economics

1995 Instructor

PROFESSIONAL EXPERIENCE

Acadian Consulting Group, Baton Rouge, Louisiana

2001-Current Consulting Economist/Principal
1995-1999 Consulting Economist/Principal

Econ One Research, Inc., Houston, Texas

1999-2001 Senior Economist

Florida Public Service Commission, Tallahassee, Florida

Division of Communications, Policy Analysis Section

1995 Planning & Research Economist

Division of Auditing & Financial Analysis, Forecasting Section

1993 Planning & Research Economist
1992-1993 Economist

Project for an Energy Efficient Florida &
Florida Solar Energy Industries Association, Tallahassee, Florida

1994 Energy Economist

Ben Johnson Associates, Inc., Tallahassee, Florida

1991-1992 Research Associate
1989-1991 Senior Research Analyst
1988-1989 Research Analyst

GOVERNMENT APPOINTMENTS

2007-Current Louisiana Representative, Interstate Oil and Gas Compact
Commission; Energy Resources, Research & Technology
Committee.
2007-Current Louisiana Representative, University Advisory Board
Representative; Energy Council (Center for Energy,
Environmental and Legislative Research).
2005 Member, Task Force on Energy Sector Workforce and Economic
Development (HCR 322).
2003-2005 Member, Energy and Basic Industries Task Force, Louisiana
Economic Development Council
2001-2003 Member, Louisiana Comprehensive Energy Policy Commission.

PUBLICATIONS: BOOKS AND MONOGRAPHS

1. *Power System Operations and Planning in a Competitive Market.* (2002). With Fred I. Denny. New York: CRC Press.
2. *Distributed Energy Resources: A Practical Guide for Service.* (2000). With Ritchie Priddy. London: Financial Times Energy.

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6. "Estimating the Impact of Royalty Relief on Oil and Gas Production on Marginal State Leases in the US." (2006). With Jeffrey M. Burke and Dmitry V. Mesyanzhinov. *Energy Policy* 34(12): 1389-1398.
7. "Using Competitive Bidding As A Means of Securing the Best of Competitive and Regulated Worlds." (2004). With Tom Ballinger and Elizabeth A. Downer. *NRRI Journal of Applied Regulation.* 2 (November): 69-85. (Received 2005 Best Paper Award by NRRI)
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9. "Reflections on the U.S. Electric Power Production Industry: Precedent Decisions Vs. Market Pressures." (2003). With Robert F. Cope III and John W. Yeargain. *Journal of Legal, Ethical, and Regulatory Issues.* Volume 6, Number 1.
10. "A is for Access: A Definitional Tour Through Today's Energy Vocabulary." (2001) *Public Resources Law Digest.* 38: 2.
11. "A Comment on the Integration of Price Cap and Yardstick Competition Schemes in Electrical Distribution Regulation." (2001). With Steven A. Ostrover. *IEEE Transactions on Power Systems.* 16 (4): 940 -942.
12. "Modeling Regional Power Markets and Market Power." (2001). With Robert F. Cope. *Managerial and Decision Economics.* 22:411-429.
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14. "Cogeneration and Electric Power Industry Restructuring" (1999). With Andrew N. Kleit. *Resource and Energy Economics*. 21:153-166.
15. "Capacity and Economies of Scale in Electric Power Transmission" (1999). With Robert F. Cope and Dmitry Mesyanzhinov. *Utilities Policy* 7: 155-162.
16. "Oil Spills, Workplace Safety, and Firm Size: Evidence from the U.S. Gulf of Mexico OCS." (1997). With O. O. Iledare, A. G. Pulsipher, and Dmitry Mesyanzhinov. *Energy Journal* 4: 73-90.
17. "A Comment on Cost Savings from Nuclear Regulatory Reform" (1997). *Southern Economic Journal*. 63:1108-1112.
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5. "Applications for Distributed Energy Resources in Oil and Gas Production: Methods for Reducing Flare Gas Emissions and Increasing Generation Availability" (2000). With Ritchie D. Priddy. *Proceedings of the International Energy Foundation – ENERGEX 2000*. July.
6. "Power System Operations, Control, and Environmental Protection in a Restructured Electric Power Industry" (1998). With Fred I. Denny. *IEEE Proceedings: Large Engineering Systems Conference on Power Engineering*. June: 294-298.
7. "New Paradigms for Power Engineering Education." (1997). With Fred I. Denny. *Proceedings of the International Association of Science and Technology for Development*. October: 499-504.
8. "Safety Regulations, Firm Size, and the Risk of Accidents in E&P Operations on the Gulf of Mexico Outer Continental Shelf" (1996). With Allan Pulsipher, Omowumi Iledare, and Bob Baumann. *Proceedings of the American Society of Petroleum Engineers: Third International Conference on Health, Safety, and the Environment in Oil and Gas Exploration and Production*, June.

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1. "A Collaborative Investigation of Baseline and Scenario Information for Environmental Impact Statements" (2005). *Proceedings of the 23rd Annual Information Technology Meetings*. U.S. Department of the Interior, Minerals Management Service, Gulf Coast Region, New Orleans, LA. January 12, 2005.
2. "Trends and Issues in the Natural Gas Industry and the Development of LNG: Implications for Louisiana. (2004) *Proceedings of the 51st Mineral Law Institute*, Louisiana State University, Baton Rouge, LA. April 2, 2004.
3. "Competitive Bidding in the Electric Power Industry." (2003). *Proceedings of the Association of Energy Engineers*. December 2003.
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5. "A New Consistent Approach to Modeling Regional Economic Impacts of Offshore Oil and Gas Activities." (2002). With Vicki Zatarain. *Proceedings of the 2002 National IMPLAN Users Conference*: 241-258.
6. "Analysis of the Economic Impact Associated with Oil and Gas Activities on State Leases." (2002). With Dmitry Mesyanzhinov, Robert H. Baumann, and Allan G. Pulsipher. *Proceedings of the 2002 National IMPLAN Users Conference*: 149-155.
7. "Do Deepwater Activities Create Different Impacts to Communities Surrounding the Gulf OCS?" (2001). *Proceedings of the International Association for Energy Economics: 2001: An Energy Odyssey?* April.
8. "Modeling the Economic Impact of Offshore Activities on Onshore Communities." (2000). With Williams O. Olatubi. *Proceedings of the 20th Annual Information Transfer Meeting*. U.S. Department of Interior, Minerals Management Service: New Orleans, Louisiana.
9. "Empirical Challenges in Estimating the Economic Impacts of Offshore Oil and Gas Activities in the Gulf of Mexico" (2000). With Williams O. Olatubi. *Proceedings of the International Association for Energy Economics: Transforming Energy Markets*. August.
10. "Asymmetric Choice and Customer Benefits: Lessons from the Natural Gas Industry." (1999). With Rachelle F. Cope and Dmitry Mesyanzhinov. *Proceedings of the International Association for Energy Economics: The Only Constant is Change* August: 444-452.
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2. "The Road Ahead: The Outlook for Louisiana Energy." (2006). In *Commemorating Louisiana Energy: 100 Years of Louisiana Natural Gas Development*. Houston, TX: Harts Energy Publications, 68-72.
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1. Review of *Renewable Resources for Electric Power: Prospects and Challenges*. Raphael Edinger and Sanjay Kaul. (Westport, Connecticut: Quorum Books, 2000), pp 154. ISBN 1-56720-233-0. *Natural Resources Forum*. (2000).
2. Review of *Electricity Transmission Pricing and Technology*, edited by Michael Einhorn and Riaz Siddiqi. (Boston: Kluwer Academic Publishers, 1996) pp. 282. ISBN 0-7923-9643-X. *Energy Journal* 18 (1997): 146-148.

3. Review of *Electric Cooperatives on the Threshold of a New Era* by Public Utilities Reports. (Vienna, Virginia: Public Utilities Reports, 1996) pp. 232. ISBN 0-910325-63-4. *Energy Journal* 17 (1996): 161-62.

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1. "The Challenges of the Regulatory Review of Diversification Mergers." (2016). *Electricity Journal*. 29 (2016): 9-14.
2. "Unconventional Natural Gas and the U.S. Manufacturing Renaissance" (2013). *BIC Magazine*. Vol. 30: No. 2, p. 76 (March).
3. "Louisiana's Tuscaloosa Marine Shale Development: Emerging Resource and Economic Potentials" (2012). *Spectrum*. January-April: 18-20.
4. "The Impact of Legacy Lawsuits on Louisiana's Conventional Drilling Activity" (2012). *LOGA Industry Report*. Spring 2012: 27-34.
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6. "Model Framework Can Aid Decision on Redevelopment." (2008). With Mark J. Kaiser and Yunke Yu. *Oil and Gas Journal*. Vol. 106.26: 49-53 (July 14) (part 2 of 3).
7. "Field Redevelopment Economics and Storm Impact Assessment." (2008). With Mark J. Kaiser and Yunke Yu. *Oil and Gas Journal*. Vol. 106.25: 42-50 (July 7) (part 1 of 3).
8. "The IRS' Latest Proposal on Tax Normalization: A Pyrrhic Victory for Ratepayers," (2006). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 55(1): 217-236
9. "Executive Compensation in the Electric Power Industry: Is It Excessive?" (2006). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 54(4): 913-940.
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11. "Regulating Mercury Emissions from Electric Utilities: Good Environmental Stewardship or Bad Public Policy?" (2005). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 54 (2): 401-424
12. "Using Industrial-Only Retail Choice as a Means of Moving Competition Forward in the Electric Power Industry." (2005). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 54(1): 211-223
13. "The Nuclear Power Plant Endgame: Decommissioning and Permanent Waste Storage. (2005). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 53 (4): 981-997
14. "Can LNG Preserve the Gas-Power Convergence?" (2005). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 53 (3):783-796.
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16. "The Evolving Markets for Polluting Emissions: From Sulfur Dioxide to Carbon Dioxide." (2004). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 53(2): 479-494.
17. "The Challenges Associated with a Nuclear Power Revival: Its Past." (2004). With K.E.

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18. "Deregulation of Generating Assets and The Disposition of Excess Deferred Federal Income Taxes: A 'Catch-22' for Ratepayers." (2004). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 52: 873-891.
 19. "Will Competitive Bidding Make a Comeback?" (2004). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 52: 659-674
 20. "An Electric Utility's Exposure to Future Environmental Costs: Does It Matter? You Bet!" (2003). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 52: 457-469.
 21. "White Paper or White Flag: Do FERC's Concessions Represent A Withdrawal from Wholesale Power Market Reform?" (2003). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 52: 197-207.
 22. "Clear Skies" or Storm Clouds Ahead? The Continuing Debate over Air Pollution and Climate Change" (2003). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 51: 823-848.
 23. "Economic Displacement Opportunities in Southeastern Power Markets." (2003). With Dmitry V. Mesyanzhinov. *USAEE Dialogue*. 11: 20-24.
 24. "What's Happened to the Merchant Energy Industry? Issues, Challenges, and Outlook" (2003). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 51: 635-652.
 25. "Is There a Role for the TVA in Post-Restructured Electric Markets?" (2002). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 51: 433-454.
 26. "The Role of Alaska North Slope Gas in the Southcentral Alaska Regional Energy Balance." (2002). With William Nebesky and Dmitry Mesyanzhinov. *Natural Gas Journal*. 19: 10-15.
 27. "Standardizing Wholesale Markets For Energy." (2002). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 51: 207-225.
 28. "Do Economic Activities Create Different Economic Impacts to Communities Surrounding the Gulf OCS?" (2002). With Williams O. Olatubi. *IAEE Newsletter*. Second Quarter: 16-20.
 29. "Will Electric Restructuring Ever Get Back on Track? Texas is not California." (2002). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 50: 943-960.
 30. "An Assessment of the Role and Importance of Power Marketers." (2002). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 50: 713-731.
 31. "The EPA v. The TVA, et. al. Over New Source Review." (2001) With K.E. Hughes, II. *Oil, Gas and Energy Quarterly*. 50:531-543.
 32. "Energy Policy by Crisis: Proposed Federal Changes for the Electric Power Industry." (2001). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 50:235-249.
 33. "A is for Access: A Definitional Tour Through Today's Energy Vocabulary." (2001). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 49:947-973.
 34. "California Dreaming: Are Competitive Markets Achievable?" (2001). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 49: 743-759.

35. "Distributed Energy Must Be Watched As Opportunity for Gas Companies." (2001). With Martin Collette, and Ritchie D. Priddy. *Natural Gas Journal*. January: 9-16.
36. "Clean Air, Kyoto, and the Boy Who Cried Wolf." (2000). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. December: 529-540.
37. "Energy Conservation Programs and Electric Restructuring: Is There a Conflict?" (2000). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. September: 211-224.
38. "The Post-Restructuring Consolidation of Nuclear-Power Generation in the Electric Power Industry." (2000) With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 49: 751-765.
39. "Issues and Opportunities for Small Scale Electricity Production in the Oil Patch." (2000). With Ritchie D. Priddy. *American Oil and Gas Reporter*. 49: 78-82.
40. "Distributed Energy Resources: The Next Paradigm Shift in the Electric Power Industry." (2000). With K.E. Hughes II. *Oil, Gas and Energy Quarterly*. 48:593-602.
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45. "Electric Utility Mergers and Acquisitions: A Regulator's Guide." (1996). With Kimberly H. Dismukes. *Public Utilities Fortnightly*. January 1.

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1. "Are oil prices bouncing back?" (2016). *Baton Rouge Business Report*, May 10 edition. (reprint of Industry Report article).
2. "Are we there yet? Have energy prices started to rebound?" (2016). *10/12 Industry Report*. Baton Rouge Business Report. Q:2.
3. "Reading the Signs for the Energy Complex" (2015). *10/12 Industry Report*. Baton Rouge Business Report. Q:1.
4. "Louisiana's Export Opportunities." (2015). *10/12 Industry Report*. Baton Rouge Business Report. September, 15.
5. "Don't Kill Hydraulic Fracturing: It's the Golden Goose." (2015). *Mobile Press Register*. May 22. Also carried by Alabama Media Group and the following newspapers: *Birmingham News*, *Huntsville Times*, and *Birmingham Magazine*.
6. "The Least Effective Way to Invest in Green Energy." (2014). *Wall Street Journal*. Journal Reports: Energy. New York: Dow Jones & Company, October 2.
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6. *Diversifying Energy Industry Risk in the GOM: Post-2004 Changes in Offshore Oil and Gas Insurance Markets.* (2011) With Christopher P. Peters. U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico Region, New Orleans, LA. OCS Study BOEM 2011-054. 95pp.
7. *OCS-Related Infrastructure Fact Book. Volume I: Post-Hurricane Impact Assessment.* (2011). U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico Region, New Orleans, LA. OCS Study BOEM 2011-043. 372 pp.
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15. *Examination of the Development of Liquefied Natural Gas on the Gulf of Mexico.* (2008). U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA OCS Study MMS 2008-017. 106 pp.
16. *Gulf of Mexico OCS Oil and Gas Scenario Examination: Onshore Waste Disposal.* (2007). With Michelle Barnett, Derek Vitrano, and Kristen Strellec. OCS Report, MMS 2007-051. New Orleans, LA: U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico Region.
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19. *The Importance of Energy Production and Infrastructure in Plaquemines Parish.* (2006). Report Prepared on Behalf of Project Rebuild Plaquemines.
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 30. *Moving to the Front of the Lines: The Economic Impacts of Independent Power Plant Development in Louisiana.* (2001). With Dmitry Mesyanzhinov and Williams O. Olatubi. Baton Rouge, LA: Louisiana State University, Center for Energy Studies.
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GRANT RESEARCH

1. *Co-Principal Investigator.* "Expanding Ecosystem Service Provisioning from Coastal Restoration to Minimize Environmental and Energy Constraints" (2015). With John Day and Chris D'Elia. Gulf Research Program. Total Project: \$147,937. Status: In Progress.
2. *Principal Investigator.* "Coastal Marine Institute Administrative Grant" (2104). U.S. Department of the Interior. Total Project \$45,000. Status: In Progress.
3. *Principal Investigator.* "Analysis of the Potential for Combined Heat and Power (CHP) in Louisiana." (2013). Louisiana Department of Natural Resources. Total Project: \$90,000. Status: Completed.
4. *Co-Principal Investigator.* "CNH: A Tale of Two Louisianas: Coupled Natural-Human Dynamics in a Vulnerable Coastal System" (2013) With Nina Lam, Margaret Reams, Kam-Biu Liu, Victor Rivera, and Kelley Pace. National Science Foundation. Total Project: \$1.5 million. Status: In Progress (Sept 2012-Feb 2017).
5. *Principal Investigator.* "Examination of Unconventional Natural Gas and Industrial Economic Development" (2012). America's Natural Gas Alliance. Total Project: \$48,210. Status: Completed.
6. *Principal Investigator.* "Investigation of the Potential Economic Impacts Associated with

- Shell's Proposed Gas-To-Liquids Project" (2012). Shell Oil Company, North America. Total Project: \$76,708. Status: Completed.
7. *Principal Investigator.* "Analysis of the Federal Wind Energy Production Tax Credit." American Energy Alliance. Total Project: \$20,000. Status: Completed.
 8. *Principal Investigator.* "Energy Sector Impacts Associated with the Deepwater Horizon Oil Spill." Louisiana Department of Economic Development. Total Project: approximately \$50,000. Status: Completed.
 9. *Principal Investigator.* "Economic Contributions and Benefits Support by the Port of Venice." Port of Venice Coalition. Total Project: \$20,000. Status: Completed.
 10. *Principal Investigator.* "Energy Policy Development in Louisiana." Louisiana Department of Natural Resources. Total Project: \$150,000. Status: Completed.
 11. *Principal Investigator.* "Preparing Louisiana for the Possible Federal Regulation of Greenhouse Gas Regulation." With Michael D. McDaniel. Louisiana Department of Economic Development. Total Project: \$98,543. Status: Completed.
 12. *Principal Investigator.* "OCS Studies Review: Louisiana and Texas Oil and Gas Activity and Production Forecast; Pipeline Position Paper; and Geographical Units for Observing and Modeling Socioeconomic Impact of Offshore Activity." (2008). With Mark J. Kaiser and Allan G. Pulsipher. U.S. Department of the Interior, Minerals Management Service. Total Project: \$377,917 (3 years). Status: Completed.
 13. *Principal Investigator.* "State and Local Level Fiscal Effects of the Offshore Petroleum Industry." (2007). With Loren C. Scott. U.S. Department of the Interior, Minerals Management Service. Total Project: \$241,216 (2.5 years). Status: Completed.
 14. *Principal Investigator.* "Understanding Current and Projected Gulf OCS Labor and Ports Needs." (2007). With Allan. G. Pulsipher, Kristi A. R. Darby. U.S. Department of the Interior, Minerals Management Service. Total Project: \$169,906. (one year). Status: Completed.
 15. *Principal Investigator.* "Structural Shifts and Concentration of Regional Economic Activity Supporting GOM Offshore Oil and Gas Activities." (2007). With Allan. G. Pulsipher, Michelle Barnett. U.S. Department of the Interior, Minerals Management Service. Total Project: \$78,374 (one year). Status: Awarded, In Progress.
 16. *Principal Investigator.* "Plaquemine Parish's Role in Supporting Critical Energy Infrastructure and Production." (2006). With Seth Cureington. Plaquemines Parish Government, Office of the Parish President and Plaquemines Association of Business and Industry. Total Project: \$18,267. Status: Completed.
 17. *Principal Investigator.* "Diversifying Energy Industry Risk in the Gulf of Mexico." (2006). With Kristi A. R. Darby. U.S. Department of the Interior, Minerals Management Service. Total Project: \$65,302 (two years). Status: Awarded, In Progress.
 18. *Principal Investigator.* "Post-Hurricane Assessment of OCS-Related Infrastructure and Communities in the Gulf of Mexico Region." (2006). U.S. Department of the Interior, Minerals Management Service. Total Project Funding: \$244,837. Status: In Progress.
 19. *Principal Investigator.* "Ultra-Deepwater Road Mapping Process." (2005). With Kristi A. R. Darby, Subcontract with the Texas A&M University, Department of Petroleum Engineering. Funded by the Gas Technology Institute. Total Project Funding: \$15,000.

Status: Completed.

20. *Principal Investigator.* "An Examination of the Opportunities for Drilling Incentives on State Leases." (2004). With Robert H. Baumann and Kristi A. R. Darby. Louisiana Office of Mineral Resources. Total Project Funding: \$75,000. Status: Completed.
21. *Principal Investigator.* "An Examination on the Development of Liquefied Natural Gas Facilities on the Gulf of Mexico." (2004). With Dmitry V. Mesyanzhinov and Mark J. Kaiser. U.S. Department of the Interior, Minerals Management Service. Total Project Funding \$101,054. Status: Completed.
22. *Principal Investigator.* "Examination of the Economic Impacts Associated with Large Customer, Industrial Retail Choice." (2004). With Dmitry V. Mesyanzhinov. Louisiana Mid-Continent Oil and Gas Association. Total Project Funding: \$37,000. Status: Completed.
23. *Principal Investigator.* "Economic Opportunities from LNG Development in Louisiana." (2003). With Dmitry V. Mesyanzhinov. Metrovision/New Orleans Chamber of Commerce and the Louisiana Department of Economic Development. Total Project Funding: \$25,000. Status: Completed.
24. *Principal Investigator.* "Marginal Oil and Gas Properties on State Leases in Louisiana: An Empirical Examination and Policy Mechanisms for Stimulating Additional Production." (2002). With Robert H. Baumann and Dmitry V. Mesyanzhinov. Louisiana Office of Mineral Resources. Total Project Funding: \$72,000. Status: Completed.
25. *Principal Investigator.* "A Collaborative Investigation of Baseline and Scenario Information for Environmental Impact Statements." (2002). With Dmitry V. Mesyanzhinov and Williams O. Olatubi. U.S. Department of Interior, Minerals Management Service. Total Project Funding: \$557,744. Status: Awarded, In Progress.
26. *Co-Principal Investigator.* "An Analysis of the Economic Impacts of Drilling and Production Activities on State Leases." (2002). With Robert H. Baumann, Allan G. Pulsipher, and Dmitry V. Mesyanzhinov. Louisiana Office of Mineral Resources. Total Project Funding: \$8,000. Status: Completed.
27. *Principal Investigator.* "Cost Profiles and Cost Functions for Gulf of Mexico Oil and Gas Development Phases for Input Output Modeling." (1998). With Dmitry Mesyanzhinov and Allan G. Pulsipher. U.S. Department of Interior, Minerals Management Service. Total Project Funding: \$244,956. Status: Completed.
28. *Principal Investigator.* "An Economic Impact Analysis of OCS Activities on Coastal Louisiana." (1998). With Dmitry Mesyanzhinov and David Hughes. U.S. Department of Interior, Minerals Management Service. Total Project Funding: \$190,166. Status: Completed.
29. *Principal Investigator.* "Energy Conservation and Electric Restructuring in Louisiana." (1997). Louisiana Department of Natural Resources." Petroleum Violation Escrow Program Funds. Total Project Funding: \$43,169. Status: Completed.
30. *Principal Investigator.* "The Industrial Supply of Electricity: Commercial Generation, Self-Generation, and Industry Restructuring." (1996). With Andrew Kleit. Louisiana Energy Enhancement Program, LSU Office of Research and Development. Total Project Funding: \$19,948. Status: Completed.

31. *Co-Principal Investigator*. "Assessing the Environmental and Safety Risks of the Expanded Role of Independents in Oil and Gas E&P Operations on the U.S. Gulf of Mexico OCS." (1996). With Allan Pulsipher, Omowumi Iledare, Dmitry Mesyanzhinov, William Daniel, and Bob Baumann. U.S. Department of Interior, Minerals Management Service, Grant Number 95-0056. Total Project Funding: \$109,361. Status: Completed.

ACADEMIC CONFERENCE PAPERS/PRESENTATIONS

1. "The Impact of Infrastructure Cost Recovery Mechanisms on Pipeline Replacements and Leaks." (2015). With Gregory Upton. Southern Economic Association Meeting 2015. New Orleans, Louisiana. November 23.
2. "The Impact of Infrastructure Cost Recovery Mechanisms on Pipeline Replacements and Leaks" (2015). With Gregory Upton. 38th IAEE International Conference, Antalya, Turkey. May 26.
3. "Modifying Renewables Policies to Sustain Positive Economic and Environmental Change" (2015). IEEE Annual Green Technologies ("Greentech") Conference. April 17.
4. "The Gulf Coast Industrial Investment Renaissance and New CHP Development Opportunities." (2014). Industrial Energy and Technology Conference, New Orleans, Louisiana. May 20.
5. "Estimating Critical Energy Infrastructure Value at Risk from Coastal Erosion" (2014). With Siddhartha Narra. American's Estuaries: 7th Annual Summit on Coastal and Estuarine Habitat Restoration. Washington, D.C., November 3-6.
6. "Economies of Scale, Learning Curves, and Offshore Wind Development Costs" (2012). With Gregory Upton. Southern Economic Association Annual Conference, New Orleans, LA November 17.
7. "Analysis of Risk and Post-Hurricane Reaction." (2009). 25th Annual Information Transfer Meeting. U.S. Department of the Interior, Minerals Management Service. January 7.
8. "Legacy Litigation, Regulation, and Other Determinants of Interstate Drilling Activity Differentials." (2008). With Christopher Peters and Mark Kaiser. 28th Annual USAEE/IAEE North American Conference: Unveiling the Future of Future of Energy Frontiers. New Orleans, LA, December 3.
9. "Gulf Coast Energy Infrastructure Renaissance: Overview." (2008). 28th Annual USAEE/IAEE North American Conference: Unveiling the Future of Future of Energy Frontiers. New Orleans, LA, December 3.
10. "Understanding the Impacts of Katrina and Rita on Energy Industry Infrastructure." (2008). American Chemical Society National Meetings, New Orleans, Louisiana. April 7.
11. "Determining the Economic Value of Coastal Preservation and Restoration on Critical Energy Infrastructure." (2007). With Kristi A. R. Darby and Michelle Barnett. International Association for Energy Economics, Wellington, New Zealand, February 19.
12. "Regulatory Issues in Rate Design, Incentives, and Energy Efficiency." (2007). 34th Annual Public Utilities Research Center Conference, University of Florida. Gainesville, FL. February 16.

13. "An Examination of LNG Development on the Gulf of Mexico." (2007). With Kristi A.R. Darby. US Department of the Interior, Minerals Management Service. 24th Annual Information Technology Meeting. New Orleans, LA. January 9.
14. "OCS-Related Infrastructure on the GOM: Update and Summary of Impacts." (2007). US Department of the Interior, Minerals Management Service. 24th Annual Information Technology Meeting. New Orleans, LA. January 10.
15. "The Economic Value of Coastal Preservation and Restoration on Critical Energy Infrastructure." (2006). With Michelle Barnett. Third National Conference on Coastal and Estuarine Habitat Restoration. Restore America's Estuaries. New Orleans, Louisiana, December 11.
16. "The Impact of Implementing a 20 Percent Renewable Portfolio Standard in New Jersey." (2006). With Seth E. Cureington. Mid-Continent Regional Science Association 37th Annual Conference, Purdue University, Lafayette, Indiana, June 9.
17. "The Impacts of Hurricane Katrina and Rita on Energy infrastructure Along the Gulf Coast." (2006). Environment Canada: 2006 Arctic and Marine Oilspill Program. Vancouver, British Columbia, Canada.
18. "Hurricanes, Energy Markets, and Energy Infrastructure in the Gulf of Mexico: Experiences and Lessons Learned." (2006). With Kristi A.R. Darby and Seth E. Cureington. 29th Annual IAEE International Conference, Potsdam, Germany, June 9.
19. "An Examination of the Opportunities for Drilling Incentives on State Leases in Louisiana." (2005). With Kristi A.R. Darby. 28th Annual IAEE International Conference, Taipei, Taiwan (June).
20. "Fiscal Mechanisms for Stimulating Oil and Gas Production on Marginal Leases." (2004). With Jeffrey M. Burke. International Association of Energy Economics Annual Conference, Washington, D.C. (July).
21. "GIS and Applied Economic Analysis: The Case of Alaska Residential Natural Gas Demand." (2003). With Dmitry V. Mesyanzhinov. Presented at the Joint Meeting of the East Lakes and West Lakes Divisions of the Association of American Geographers in Kalamazoo, MI, October 16-18.
22. "Are There Any In-State Uses for Alaska Natural Gas?" (2002). With Dmitry V. Mesyanzhinov and William E. Nebesky. IAEE/USAAE 22nd Annual North American Conference: "Energy Markets in Turmoil: Making Sense of It All." Vancouver, British Columbia, Canada. October 7.
23. "The Economic Impact of State Oil and Gas Leases on Louisiana." (2002). With Dmitry V. Mesyanzhinov. 2002 National IMPLAN Users' Conference. New Orleans, Louisiana, September 4-6.
24. "Moving to the Front of the Lines: The Economic Impact of Independent Power Plant Development in Louisiana." (2002). With Dmitry V. Mesyanzhinov and Williams O. Olatubi. 2002 National IMPLAN Users' Conference. New Orleans, Louisiana, September 4-6.
25. "New Consistent Approach to Modeling Regional Economic Impacts of Offshore Oil and Gas Activities in the Gulf of Mexico." (2002). With Vicki Zatarain. 2002 National IMPLAN Users' Conference. New Orleans, Louisiana, September 4-6.

26. "Distributed Energy Resources, Energy Efficiency, and Electric Power Industry Restructuring." (1999). American Society of Environmental Science Fourth Annual Conference. Baton Rouge, Louisiana. December.
27. "Estimating Efficiency Opportunities for Coal Fired Electric Power Generation: A DEA Approach." (1999). With Williams O. Olatubi. Southern Economic Association Sixty-ninth Annual Conference. New Orleans, November.
28. "Applied Approaches to Modeling Regional Power Markets." (1999.) With Robert F. Cope. Southern Economic Association Sixty-ninth Annual Conference. New Orleans, November 1999.
29. "Parametric and Non-Parametric Approaches to Measuring Efficiency Potentials in Electric Power Generation." (1999). With Williams O. Olatubi. International Atlantic Economic Society Annual Conference, Montreal, October.
30. "Asymmetric Choice and Customer Benefits: Lessons from the Natural Gas Industry." (1999). With Rachelle F. Cope and Dmitry Mesyanzhinov. International Association of Energy Economics Annual Conference. Orlando, Florida. August.
31. "Modeling Regional Power Markets and Market Power." (1999). With Robert F. Cope. Western Economic Association Annual Conference. San Diego, California. July.
32. "Economic Impact of Offshore Oil and Gas Activities on Coastal Louisiana" (1999). With Dmitry Mesyanzhinov. Annual Meeting of the Association of American Geographers. Honolulu, Hawaii. March.
33. "Empirical Issues in Electric Power Transmission and Distribution Cost Modeling." (1998). With Robert F. Cope and Dmitry Mesyanzhinov. Southern Economic Association. Sixty-Eighth Annual Conference. Baltimore, Maryland. November.
34. "Modeling Electric Power Markets in a Restructured Environment." (1998). With Robert F. Cope and Dan Rinks. International Association for Energy Economics Annual Conference. Albuquerque, New Mexico. October.
35. "Benchmarking Electric Utility Distribution Performance." (1998) With Robert F. Cope and Dmitry Mesyanzhinov. Western Economic Association, Seventy-sixth Annual Conference. Lake Tahoe, Nevada. June.
36. "Power System Operations, Control, and Environmental Protection in a Restructured Electric Power Industry." (1998). With Fred I. Denny. IEEE Large Engineering Systems Conference on Power Engineering. Nova Scotia, Canada. June.
37. "Benchmarking Electric Utility Transmission Performance." (1997). With Robert F. Cope and Dmitry Mesyanzhinov. Southern Economic Association, Sixty-seventh Annual Conference. Atlanta, Georgia. November 21-24.
38. "A Non-Linear Programming Model to Estimate Stranded Generation Investments in a Deregulated Electric Utility Industry." (1997). With Robert F. Cope and Dan Rinks. Institute for Operations Research and Management Science Annual Conference. Dallas Texas. October 26-29.
39. "New Paradigms for Power Engineering Education." (1997). With Fred I. Denny. International Association of Science and Technology for Development, High Technology in the Power Industry Conference. Orlando, Florida. October 27-30

40. "Cogeneration and Electric Power Industry Restructuring." (1997). With Andrew N. Kleit. Western Economic Association, Seventy-fifth Annual Conference. Seattle, Washington. July 9-13.
41. "The Unintended Consequences of the Public Utilities Regulatory Policies Act of 1978." (1997). National Policy History Conference on the Unintended Consequences of Policy Decisions. Bowling Green State University. Bowling Green, Ohio. June 5-7.
42. "Assessing Environmental and Safety Risks of the Expanding Role of Independents in E&P Operations on the Gulf of Mexico OCS." (1996). With Allan Pulsipher, Omowumi Iledare, Dmitry Mesyanzhinov, and Bob Baumann. U.S. Department of Interior, Minerals Management Service, 16th Annual Information Transfer Meeting. New Orleans, Louisiana.
43. "Empirical Modeling of the Risk of a Petroleum Spill During E&P Operations: A Case Study of the Gulf of Mexico OCS." (1996). With Omowumi Iledare, Allan Pulsipher, and Dmitry Mesyanzhinov. Southern Economic Association, Sixty-Sixth Annual Conference. Washington, D.C.
44. "Input Price Fluctuations, Total Factor Productivity, and Price Cap Regulation in the Telecommunications Industry" (1996). With Farhad Niami. Southern Economic Association, Sixty-Sixth Annual Conference. Washington, D.C.
45. "Recovery of Stranded Investments: Comparing the Electric Utility Industry to Other Recently Deregulated Industries" (1996). With Farhad Niami and Dmitry Mesyanzhinov. Southern Economic Association, Sixty-Sixth Annual Conference. Washington, D.C.
46. "Spatial Perspectives on the Forthcoming Deregulation of the U.S. Electric Utility Industry." (1996) With Dmitry Mesyanzhinov. Southwest Association of American Geographers Annual Meeting. Norman, Oklahoma.
47. "Comparing the Safety and Environmental Performance of Offshore Oil and Gas Operators." (1995). With Allan Pulsipher, Omowumi Iledare, Dmitry Mesyanzhinov, William Daniel, and Bob Baumann. U.S. Department of Interior, Minerals Management Service, 15th Annual Information Transfer Meeting. New Orleans, Louisiana.
48. "Empirical Determinants of Nuclear Power Plant Disallowances." (1995). Southern Economic Association, Sixty-Fifth Annual Conference. New Orleans, Louisiana.
49. "A Cross-Sectional Model of IntraLATA MTS Demand." (1995). Southern Economic Association, Sixty-Fifth Annual Conference. New Orleans, Louisiana.

ACADEMIC SEMINARS AND PRESENTATIONS

1. "Air Emissions Regulation and Policy: The Recently Proposed Cross State Air Pollution Rule and the Implications for Louisiana Power Generation." Lecture before School of the Coast & Environment. November 5, 2011.
2. "Energy Regulation: Overview of Power and Gas Regulation." Lecture before School of the Coast & Environment, Course in Energy Policy and Law. October 5, 2009.
3. "Trends and Issues in Renewable Energy." Presentation before the School of the Coast & Environment, Louisiana State University. Spring Guest Lecture Series. May 4, 2007.
4. "CES Research Projects and Status." Presentation before the U.S. Department of the

- Interior, Minerals Management Service, Outer Continental Shelf Scientific Committee Meeting, New Orleans, LA May 22, 2007.
5. "Hurricane Impacts on Energy Production and Infrastructure." Presentation Before the 53rd Mineral Law Institute, Louisiana State University. April 7, 2006.
 6. "Trends and Issues in the Natural Gas Industry and the Development of LNG: Implications for Louisiana. (2004) 51st Mineral Law Institute, Louisiana State University, Baton Rouge, LA. April 2, 2004.
 7. "Electric Restructuring and Conservation." (2001). Presentation before the Department of Electrical Engineering, McNeese State University. Lake Charles, Louisiana. May 2, 2001.
 8. "Electric Restructuring and the Environment." (1998). Environment 98: Science, Law, and Public Policy. Tulane University. Tulane Environmental Law Clinic. March 7, New Orleans, Louisiana.
 9. "Electric Restructuring and Nuclear Power." (1997). Louisiana State University. Department of Nuclear Science. November 7, Baton Rouge, Louisiana.
 10. "The Empirical Determinants of Co-generated Electricity: Implications for Electric Power Industry Restructuring." (1997). With Andrew N. Kleit. Florida State University. Department of Economics: Applied Microeconomics Workshop Series. October 17, Tallahassee, Florida.

PROFESSIONAL AND CIVIC PRESENTATIONS

1. "Utility mergers: where's the beef?". (2016). National Association of State Utility Consumer Advocates Mid-Year Meetings. New Orleans, LA, June 6.
2. "Overview of the Clean Power Plan and its application to Louisiana." (2016). Shell Oil Company Internal Meeting. April 12.
3. "Energy and economic development on the Gulf Coast: trends and emerging challenges." (2016). Gas Processors Association Meeting. New Orleans, LA, April 11.
4. "Unconventional Oil and Gas Drilling Trends and Issues." (2016). French Delegation Visit, LSU Center for Energy Studies. March 16.
5. "Gulf Coast Industrial Growth: Passing clouds or storms on the horizon?" (2016). Gulf Coast Power Association Meetings. New Orleans, LA, February 18.
6. "The Transition to Crisis: What do the recent changes in energy markets mean for Louisiana?" (2016). Louisiana Independent Study Group. February 2.
7. "Regulatory and Ratepayer Issues in the Analysis of Utility Natural Gas Reserves Purchases" (2016). National Association of State Utility Consumer Advocates Gas Consumer Monthly Meeting. January 25.
8. "Emerging Issues in Fuel Procurement: Opportunities & Challenges in Natural Gas Reserves Investment." (2015). National Association of State Utility Consumer Advocates Annual Meeting. Austin, Texas. November 9.
9. "Trends and Issues in Net Metering and Solar Generation." (2015). Louisiana Rural Electric Cooperative Meeting. November 5.

10. "Electric Power: Industry Overview, Organization, and Federal/State Distinctions." (2015). EUCI. October 16.
11. "Natural Gas 101: The Basics of Natural Gas Production, Transportation, and Markets." (2015). Council of State Governments Special Meeting on Gas Markets. New Orleans, LA. October 14.
12. "Update and General Business Matters." (2015). CES Industry Associates Meeting. Baton Rouge, Louisiana. Fall 2015.
13. "The Impact of Infrastructure Cost Recovery Mechanisms on Pipeline Replacements and Leaks." (2015). 38th IAEE 2015 International Conference. Antalya, Turkey. May 26.
14. "Industry on the Move – What's Next?" (2015). Event Sponsored by Regional Bank and 1012 Industry Report. May 5.
15. "The State of the Energy Industry and Other Emerging Issues." (2015). Lex Mundi Energy & Natural Resources Practice Group Global Meeting. May 5.
16. "Energy, Louisiana, and LSU." (2015). LSU Science Café. Baton Rouge, Louisiana. April 28.
17. "Energy Market Changes and Impacts for Louisiana." (2015). Kinetica Partners Shippers Meeting, New Orleans, Louisiana. April 22.
18. "Incentives, Risk and the Changing Nature of Utility Regulation." (2015). NARUC Staff Subcommittee on Accounting and Finance Meetings, New Orleans, Louisiana. April 22.
19. "Modifying Renewables Policies to Sustain Positive and Economic Change." (2015). IEEE Annual Green Technologies ("Greentech Conference"). April 17.
20. "Louisiana's Changing Energy Environment." (2015). John P. Laborde Energy Law Center Advisory Board Spring Meeting, Baton Rouge, Louisiana. March 27.
21. "The Latest and the Long on Energy: Outlooks and Implications for Louisiana." (2015). Iberia Bank Advisory Board Meeting, Baton Rouge, Louisiana. February 23.
22. "A Survey of Recent Energy Market Changes and their Potential Implications for Louisiana." (2015). Vistage Group, New Orleans, Louisiana. February 4.
23. "Energy Prices and the Outlook for the Tuscaloosa Marine Shale." (2015). Baton Rouge Rotary Club, Baton Rouge, Louisiana. January 28.
24. "Trends in Energy & Energy-Related Economic Development." (2014). Miller and Thompson Presentation, Baton Rouge, Louisiana. December 30.
25. "Overview EPA's Proposed Rule Under Section 111(d) of the Clean Air Act: Impacts for Louisiana." (2014). Louisiana State Bar: Utility Section CLE Annual Meeting, Baton Rouge, Louisiana. November 7.
26. "Overview EPA's Proposed Clean Power Plan and Impacts for Louisiana." (2014). Clean Cities Coalition Meeting, Baton Rouge, Louisiana. November 5.
27. "Impacts on Louisiana from EPA's Proposed Clean Power Plan." (2014). Air & Waste Management Annual Environmental Conference (Louisiana Chapter), Baton Rouge, Louisiana. October 29, 2014.
28. "A Look at America's Growing Demand for Natural Gas." (2014). Louisiana Chemical

- Association Annual Meeting, New Orleans, Louisiana. October 23.
29. "Trends in Energy & Energy-Related Economic Development." (2014). 2014 Government Finance Officer Association Meetings, Baton Rouge, Louisiana. October 9.
 30. "The Conventional Wisdom Associated with Unconventional Resource Development." (2014). National Association for Business Economics Annual Conference, Chicago, Illinois. September 28.
 31. Unconventional Oil & Natural Gas: Overview of Resources, Economics & Policy Issues. (2014). Society of Environmental Journalists Annual Meeting. New Orleans, Louisiana. September 4.
 32. "Natural Gas Leveraged Economic Development in the South." (2014). Southern Governors Association Meeting, Little Rock, Arkansas. August 16.
 33. "The Past, Present and Future of CHP Development in Louisiana." (2014). Louisiana Public Service Commission CHP Workshop, Baton Rouge, Louisiana. June 25.
 34. "Regional Natural Gas Demand Growth: Industrial and Power Generation Trends." (2014). Kinetica Partners Shippers Meeting, New Orleans, Louisiana. April 30.
 35. "The Technical and Economic Potential for CHP in Louisiana and the Impact of the Industrial Investment Renaissance on New CHP Capacity Development." (2014). Electric Power 2014, New Orleans, Louisiana. April 1.
 36. "Industry Investments and the Economic Development of Unconventional Development." (2014). Tuscaloosa Marine Shale Conference & Expo, Natchez, Mississippi. March 31.
 37. Discussion Panelist. Energy Outlook 2035: The Global Energy Industry and Its Impact on Louisiana, (2014). Grow Louisiana Coalition, Baton Rouge, Louisiana. March 18.
 38. "Natural Gas and the Polar Vortex: Has Recent Weather Led to a Structural Change in Natural Gas Markets?" (2014). National Association of State Utility Consumer Advocates Monthly Gas Committee Meeting. February 19.
 39. "Some Unconventional Thoughts on Regional Unconventional Gas and Power Generation Requirements." (2014). Gulf Coast Power Association Special Briefing, New Orleans, Louisiana. February 6.
 40. "Leveraging Energy for Industrial Development." (2013). 2013 Governor's Energy Summit, Jackson, Mississippi. December 5.
 41. "Natural Gas Line Extension Policies: Ratepayer Issues and Considerations." (2013). National Association of State Utility Consumer Advocates Annual Meeting, Orlando, Florida. November 19.
 42. "Replacement, Reliability & Resiliency: Infrastructure & Rate-making Issues in the Power & Natural Gas Distribution Industries." (2013). Louisiana State Bar, Public Utility Section Meetings. November 15.
 43. "Natural Gas Markets: Leveraging the Production Revolution into an Industrial Renaissance." (2013). International Technical Conference, Houston, TX. October 11.
 44. "Natural Gas, Coal & Power Generation Issues and Trends." (2013). Southeast Labor and Management Public Affairs Committee Conference, Chattanooga, Tennessee. September 27.

45. "Recent Trends in Pipeline Replacement Trackers." (2013). National Association of Statute Utility Consumer Advocates Monthly Gas Committee Meeting. September 19.
46. Discussion Panelist (2013). Think About Energy Summit, America's Natural Gas Alliance, Columbus Ohio. September 16-17.
47. "Future Test Years: Issues to Consider." (2013). National Regulatory Research Institute, Teleseminar on Future Test Years. August 28.
48. "Industrial Development Outlook for Louisiana." (2013). Louisiana Water Synergy Project Meetings, Jones Walker Law Firm, Baton Rouge, Louisiana. July 30.
49. "Natural Gas & Electric Power Coordination Issues and Challenges." (2013). Utilities State Government Organization Conference, Pointe Clear, Alabama. July 9.
50. "Natural Gas Market Issues & Trends." (2013). Western Conference of Public Service Commissioners, Santa Fe, New Mexico. June 3.
51. "Louisiana Unconventional Natural Gas and Industrial Redevelopment." (2013). Louisiana Chemical Association/Louisiana Chemical Industry Alliance Annual Legislative Conference, Baton Rouge, Louisiana. May 8.
52. "Infrastructure Cost Recovery Mechanism: Overview of Issues." (2013). Energy Bar Association Annual Meeting, Washington, D.C. May 1.
53. "GOM Offshore Oil and Gas." (2013). Energy Executive Roundtable, New Orleans, Louisiana. March 27.
54. "Louisiana Unconventional Natural Gas and Industrial Redevelopment." (2013). Risk Management Association Luncheon, March 21.
55. "Natural Gas Market Update and Emerging Issues." (2013). NASUCA Gas Committee Conference Call/Webinar, March 12.
56. "Unconventional Resources and Louisiana's Manufacturing Development Renaissance." (2013). Baton Rouge Press Club, De La Ronde Hall, Baton Rouge, LA, January 28.
57. "New Industrial Operations Leveraged by Unconventional Natural Gas." (2013) American Petroleum Institute-Louisiana Chapter. Lafayette, LA, Petroleum Club, January 14.
58. "What's Going on with Energy? How Unconventional Oil and Gas Development is Impacting Renewables, Efficiency, Power Markets, and All that Other Stuff." (2012). Atlanta Economics Club Monthly Meeting. Atlanta, GA. December 11.
59. "Trends, Issues, and Market Changes for Crude Oil and Natural Gas." (2012). East Iberville Community Advisory Panel Meeting. St. Gabriel, LA. September 26.
60. "Game Changers in Crude and Natural Gas Markets." (2012). Chevron Community Advisory Panel Meeting. Belle Chase, LA, September 17.
61. "The Outlook for Renewables in a Changing Power and Natural Gas Market." (2012). Louisiana Biofuels and Bioprocessing Summit. Baton Rouge, LA. September 11.
62. "The Changing Dynamics of Crude and Natural Gas Markets." (2012). Chalmette Refining Community Advisory Panel Meeting. Chalmette, LA, September 11.
63. "The Really Big Game Changer: Crude Oil Production from Shale Resources and the Tuscaloosa Marine Shale." (2012). Baton Rouge Chamber of Commerce Board Meeting.

Baton Rouge, LA, June 27.

64. "The Impact of Changing Natural Gas Prices on Renewables and Energy Efficiency." (2012). NASUCA Gas Committee Conference Call/Webinar. 12 June 2012.
65. "Issues in Gas-Renewables Coordination: How Changes in Natural Gas Markets Potentially Impact Renewable Development" (2012). Energy Bar Association, Louisiana Chapter, Annual Meeting, New Orleans, LA. April 12, 2012.
66. "Issues in Natural Gas End-Uses: Are We Really Focusing on the Real Opportunities?" (2012). Energy Bar Association, Louisiana Chapter, Annual Meeting, New Orleans, LA. April 12, 2012.
67. "The Impact of Legacy Lawsuits on Conventional Oil and Gas Drilling in Louisiana." (2012). Louisiana Oil and Gas Association Annual Meeting, Lake Charles, LA. February 27, 2012.
68. "The Impact of Legacy Lawsuits on Conventional Oil and Gas Drilling in Louisiana." (2012) Louisiana Oil and Gas Association Annual Meeting. Lake Charles, Louisiana. February 27, 2012.
69. "Louisiana's Unconventional Plays: Economic Opportunities, Policy Challenges. Louisiana Mid-Continent Oil and Gas Association 2012 Annual Meeting. (2012) New Orleans, Louisiana. January 26, 2012.
70. "EPA's Recently Proposed Cross State Air Pollution Rule ("CSAPR") and Its Impacts on Louisiana." (2011). Bossier Chamber of Commerce. November 18, 2011.
71. "Facilitating the Growth of America's Natural Gas Advantage." (2011). BASF U.S. Shale Gas Workshop Management Meeting. Florham Park, New Jersey. November 1, 2011.
72. "CSAPR and EPA Regulations Impacting Louisiana Power Generation." (2011). Air and Waste Management Association (Louisiana Section) Fall Conference. Environmental Focus 2011: a Multi-Media Forum. Baton Rouge, LA. October 25, 2011.
73. "Natural Gas Trends and Impact on Industrial Development." (2011). Central Gulf Coast Industrial Alliance Conference. Arthur R. Outlaw Convention Center. Mobile, AL. September 22, 2011.
74. "Energy Market Changes and Policy Challenges." (2011). Southeast Manpower Tripartite Alliance ("SEMTA") Summer Conference. Nashville, TN September 2, 2011.
75. "EPA Regulations, Rates & Costs: Implications for U.S. Ratepayers." (2011). Workshop: "A Smarter Approach to Improving Our Environment." 38th Annual American Legislative Exchange Council ("ALEC") Meetings. New Orleans, LA. August 5, 2011.
76. Panelist/Moderator. Workshop: "Why Wait? Start Energy Independence Today." 38th Annual American Legislative Exchange Council ("ALEC") Meetings. New Orleans, LA. August 4, 2011.
77. "Facilitating the Growth of America's Natural Gas Advantage." Texas Chemical Council, Board of Directors Summer Meeting. San Antonio, TX. July 28, 2011.
78. "Creating Ratepayer Benefits by Reconciling Recent Gas Supply Opportunities with Past Policy Initiatives." National Association of State Utility Consumer Advocates ("NASUCA"), Monthly Gas Committee Meeting. July 12, 2011.

79. "Energy Market Trends and Policies: Implications for Louisiana." (2011). Lakeshore Lion's Club Monthly Meeting. Baton Rouge, Louisiana. June 20, 2011.
80. "America's Natural Gas Advantage: Securing Benefits for Ratepayers Through Paradigm Shifts in Policy." Southeastern Association of Regulatory Commissioners ("SEARUC") Annual Meeting. Nashville, Tennessee. June 14, 2011.
81. "Learning Together: Building Utility and Clean Energy Industry Partnerships in the Southeast." (2011). American Solar Energy Society National Solar Conference. Raleigh Convention Center, Raleigh, North Carolina. May 20, 2011.
82. "Louisiana Energy Outlook and Trends." (2011). Executive Briefing. Counsel General of Canada. LSU Center for Energy Studies, Baton Rouge, Louisiana. May 24, 2011.
83. "Louisiana's Natural Gas Advantage: Can We Hold It? Grow It? Or Do We Need to be Worrying About Other Problems?" (2011). Louisiana Chemical Association Annual Legislative Conference, Baton Rouge, Louisiana, May 5, 2011.
84. "Energy Outlook and Trends: Implications for Louisiana. (2011). Executive Briefing, Legislative Staff, Congressman William Cassidy. LSU Center for Energy Studies, Baton Rouge, Louisiana. March 25, 2011.
85. "Regulatory Issues in Inflation Adjustment Mechanisms and Allowances." (2011). Gas Committee, National Association of State Utility Consumer Advocates ("NASUCA"). February 15, 2011.
86. "Regulatory Issues in Inflation Adjustment Mechanisms and Allowances." (2010). 2010 Annual Meeting, National Association of State Utility Consumer Advocates ("NASUCA"), Omni at CNN Center, Atlanta, Georgia, November 16, 2010.
87. "How Current and Proposed Energy Policy Impacts Consumers and Ratepayers." (2010). 122nd Annual Meeting, National Association of Regulatory Utility Commissioners ("NARUC"), Omni at CNN Center, Atlanta, Georgia, November 15, 2010.
88. "Energy Outlook: Trends and Policies." (2010). 2010 Tri-State Member Service Conference; Arkansas, Louisiana, and Mississippi Electric Cooperatives. L'Auberge du Lac Casino Resort, Lake Charles, Louisiana, October 14, 2010.
89. "Deepwater Moratorium and Louisiana Impacts." (2010). The Energy Council Annual Meeting. Gulf of Mexico Deepwater Horizon Accident, Response, and Policy. Beau Rivage Conference Center. Biloxi, Mississippi. September 25, 2010.
90. "Overview on Offshore Drilling and Production Activities in the Aftermath of Deepwater Horizon." (2010) Jones Walker Banking Symposium. The Oil Spill: What Will it Mean for Banks in the Region? New Orleans, Louisiana. August 31, 2010.
91. "Long-Term Energy Sector Impacts from the Oil Spill." (2010). Second Annual Louisiana Oil & Gas Symposium. The BP Gulf Oil Spill: Long-Term Impacts and Strategies. Baton Rouge Geological Society. August 16, 2010.
92. "Overview and Issues Associated with the Deepwater Horizon Accident." (2010). Global Interdependence Meeting on Energy Issues. Baton Rouge, LA. August 12, 2010.
93. "Overview and Issues Associated with the Deepwater Horizon Accident." (2010). Regional Roundtable Webinar. National Association for Business Economics. August 10, 2010.
94. "Deepwater Moratorium: Overview of Impacts for Louisiana." Louisiana Association of

- Business and Industry Meeting. Baton Rouge, LA. June 25, 2010.
95. Moderator. Senior Executive Roundtable on Industrial Energy Efficiency. U.S. Department of Energy Conference on Industrial Efficiency. Office of Renewable Energy and Energy Efficiency. Royal Sonesta Hotel, New Orleans, LA. May 21, 2010.
 96. "The Energy Outlook: Trends and Policies Impacting Southeastern Natural Gas Supply and Demand Growth." Second Annual Local Economic Analysis and Research Network ("LEARN") Conference. Federal Reserve Bank of Atlanta. March 29, 2010.
 97. "Natural Gas Supply Issues: Gulf Coast Supply Trends and Implications for Louisiana." Energy Bar Association, New Orleans Chapter Meeting. Jones Walker Law Firm. January 28, 2010, New Orleans, LA.
 98. "Potential Impacts of Federal Greenhouse Gas Legislation on Louisiana Industry." LCA Government Affairs Committee Meeting. November 10, 2009. Baton Rouge, LA
 99. "Regulatory and Ratemaking Issues Associated with Cost and Revenue Tracker Mechanisms." National Association of State Utility Consumer Advocates ("NASUCA") Annual Meeting. November 10, 2009.
 100. "Louisiana's Stakes in the Greenhouse Gas Debate." Louisiana Chemical Association and Louisiana Chemical Industry Alliance Annual Meeting: The Billing Dollar Budget Crisis: Catastrophe or Change? New Orleans, LA.
 101. "Gulf Coast Energy Outlook: Issues and Trends." Women's Energy Network, Louisiana Chapter. September 17, 2009. Baton Rouge, LA.
 102. "Gulf Coast Energy Outlook: Issues and Trends." Natchez Area Association of Energy Service Companies. September 15, 2009, Natchez, MS.
 103. "The Small Picture: The Cost of Climate Change to Louisiana." Louisiana Association of Business and Industry, U.S. Chamber of Commerce, Louisiana Oil and Gas Association, and LSU Center for Energy Studies Conference: Can Louisiana Make a Buck After Climate Change Legislation? August 21, 2009. Baton Rouge, LA.
 104. "Carbon Legislation and Clean Energy Markets: Policy and Impacts." National Association of Conservation Districts, South Central Region Meeting. August 14, 2009. Baton Rouge, LA.
 105. "Evolving Carbon and Clean Energy Markets." The Carbon Emissions Continuum: From Production to Consumption." Jones Walker Law Firm and LSU Center for Energy Studies Workshop. June 23, 2009. Baton Rouge, LA
 106. "Potential Impacts of Cap and Trade on Louisiana Ratepayers: Preliminary Results." (2009). Briefing before the Louisiana Public Service Commission. Business and Executive Meeting, May 12, 2009. Baton Rouge, LA.
 107. "Natural Gas Outlook." (2009). Briefing before the Louisiana Public Service Commission. Business and Executive Meeting, May 12, 2009. Baton Rouge, LA.
 108. "Gulf Coast Energy Outlook: Issues and Trends." (2009). ISA-Lafayette Technical Conference & Expo. Cajundome Conference Center. Lafayette, Louisiana. March 12, 2009.
 109. "The Cost of Energy Independence, Climate Change, and Clean Energy Initiatives on Utility Ratepayers." (2009). National Association of Business Economics (NABE). 25th

- Annual Washington Economic Policy Conference: Restoring Financial and Economic Stability. Arlington, VA March 2, 2009.
110. Panelist, "Expanding Exploration of the U.S. OCS" (2009). Deep Offshore Technology International Conference and Exhibition. PennWell. New Orleans, Louisiana. February 4, 2009.
 111. "Gulf Coast Energy Outlook." (2008.) Atmos Energy Regional Management Meeting. Louisiana and Mississippi Division. New Orleans, Louisiana. October 8, 2008.
 112. "Background, Issues, and Trends in Underground Hydrocarbon Storage." (2008). Presentation before the LSU Center for Energy Studies Industry Advisory Board Meeting. Baton Rouge, Louisiana. August 27, 2008.
 113. "Greenhouse Gas Regulations and Policy: Implications for Louisiana." (2008). Presentation before the Praxair Customer Seminar. Houston, Texas, August 14, 2008.
 114. "Market and Regulatory Issues in Alternative Energy and Louisiana Initiatives." (2008). Presentation before the 2008 Statewide Clean Cities Coalition Conference: Making Sense of Alternative Fuels and Advanced Technologies. New Orleans, Louisiana, March 27, 2008.
 115. "Regulatory Issues in Rate Design, Incentives, and Energy Efficiency." (2007) Presentation before the New Hampshire Public Utilities Commission. Workshop on Energy Efficiency and Revenue Decoupling. November 7, 2007.
 116. "Regulatory Issues for Consumer Advocates in Rate Design, Incentives, and Energy Efficiency." (2007). National Association of State Utility Consumer Advocates, Mid-Year Meeting. June 12, 2007.
 117. "Regulatory and Policy Issues in Nuclear Power Plant Development." (2007). LSU Center for Energy Studies Industry Advisory Council Meeting. Baton Rouge, LA. March 23, 2007.
 118. "Oil and Gas in the Gulf of Mexico: A North American Perspective." (2007). Canadian Consulate, Heads of Mission EnerNet Workshop, Houston, Texas. March 20, 2007.
 119. "Regulatory Issues for Consumer Advocates in Rate Design, Incentives & Energy Efficiency. (2007). National Association of State Utility Consumer Advocates ("NASUCA") Gas Committee Monthly Meeting. February 13, 2006.
 120. "Recent Trends in Natural Gas Markets." (2006). National Association of Regulatory Utility Commissioners, 118th Annual Convention. Miami, FL November 14, 2006.
 121. "Energy Markets: Recent Trends, Issues & Outlook." (2006). Association of Energy Service Companies (AESC) Meeting. Petroleum Club, Lafayette, LA, November 8, 2006.
 122. "Energy Outlook" (2006). National Business Economics Issues Council. Quarterly Meeting, Nashville, TN, November 1-2, 2006.
 123. "Global and U.S. Energy Outlook." (2006). Energy Virginia Conference. Virginia Military Institute, Lexington, VA October 17, 2006.
 124. "Interdependence of Critical Energy Infrastructure Systems." (2006). Cross Border Forum on Energy Issues: Security and Assurance of North American Energy Systems. Woodrow Wilson Center for International Scholars. Washington, DC, October 13, 2006.
 125. "Determining the Economic Value of Coastal Preservation and Restoration on Critical

- Energy Infrastructure.” (2006) The Economic and Market Impacts of Coastal Restoration: America’s Wetland Economic Forum II. Washington, DC September 28, 2006.
126. “Relationships between Power and Other Critical Energy Infrastructure.” (2006). Rebuilding the New Orleans Region: Infrastructure Systems and Technology Innovation Forum. United Engineering Foundation. New Orleans, LA, September 24-25, 2006.
 127. “Outlook, Issues, and Trends in Energy Supplies and Prices.” (2006.) Presentation to the Southern States Energy Board, Associate Members Meeting. New Orleans, Louisiana. July 14, 2006.
 128. “Energy Sector Outlook.” (2006). Baton Rouge Country Club Meeting. Baton Rouge, Louisiana. July 11, 2006.
 129. “Oil and Gas Industry Post 2005 Storm Events.” (2006). American Petroleum Institute, Teche Chapter. Production, Operations, and Regulations Annual Meeting. Lafayette, Louisiana. June 29, 2006.
 130. “Concentration of Energy Infrastructure in Hurricane Regions.” (2006). Presentation before the National Commission on Energy Policy Forum: Ending the Stalemate on LNG Facility Siting. Washington, DC. June 21, 2006.
 131. “LNG—A Premier.” (2006). Presentation Given to the U.S. Department of Energy’s “LNG Forums.” Los Angeles, California. June 1, 2006.
 132. “Regional Energy Infrastructure, Production and Outlook.” (2006). Executive Briefing for Board of Directors, Louisiana Oil and Gas Plc., Enhanced Exploration, Inc. and Energy Self-Service, Inc. Covington, Louisiana, May 12, 2006.
 133. “The Impacts of the Recent Hurricane Season on Energy Production and Infrastructure and Future Outlook.” Presentation before the Industrial Energy Technology Conference 2006. New Orleans, Louisiana, May 9, 2006.
 134. “Update on Regional Energy Infrastructure and Production.” (2006). Executive Briefing for Delegation Participating in U.S. Department of Commerce Gulf Coast Business Investment Mission. Baton Rouge, Louisiana May 5, 2006.
 135. “Hurricane Impacts on Energy Production and Infrastructure.” (2006). Presentation before the Interstate Natural Gas Association of America Mid-Year Meeting. Hyatt Regency Hill Country. April 21, 2006.
 136. “LNG—A Premier.” Presentation Given to the U.S. Department of Energy’s “LNG Forums.” Astoria, Washington. April 28, 2006.
 137. Natural Gas Market Outlook. Invited Presentation Given to the Georgia Public Service Commission and Staff. Georgia Institute of Technology, Atlanta, Georgia. March 10, 2006.
 138. The Impacts of Hurricanes Katrina and Rita on Louisiana’s Energy Industry. Presentation to the Louisiana Economic Development Council. Baton Rouge, Louisiana. March 8, 2006.
 139. Energy Markets: Hurricane Impacts and Outlook. Presentation to the 2006 Louisiana Independent Oil and Gas Association Annual Conference. L’Auberge du Lac Resort and Casino. Lake Charles, Louisiana. March 6, 2006

140. Energy Market Outlook and Update on Hurricane Damage to Energy Infrastructure. Presentation to the Energy Council 2005 Global Energy and Environmental Issues Conference. Santa Fe, New Mexico, December 10, 2005.
141. "Putting Our Energy Infrastructure Back Together Again." Presentation Before the 117th Annual Convention of the National Association of Regulatory Utility Commissioners (NARUC). November 15, 2005. Palm Springs, CA
142. "Hurricanes and the Outlook for Energy Markets." Presentation before the Baton Rouge Rotary Club. November 9, 2005, Baton Rouge, LA.
143. "Hurricanes, Energy Supplies and Prices." Presentation before the Louisiana Department of Natural Resources and Atchafalaya Basin Committee Meeting. November 8, 2005. Baton Rouge, LA.
144. "The Impact of the Recent Hurricane's on Louisiana's Energy Industry." Presentation before the Louisiana Independent Oil and Gas Association Board of Directors Meeting. November 8, 2005. Baton Rouge, LA.
145. "The Impact of the Recent Hurricanes on Louisiana's Infrastructure and National Energy Markets." Presentation before the Baton Rouge City Club Distinguished Speaker Series. October 13, 2005. Baton Rouge, LA.
146. "The Impact of the Recent Hurricanes on Louisiana's Infrastructure and National Energy Markets." Presentation before Powering Up: A Discussion About the Future of Louisiana's Energy Industry. Special Lecture Series Sponsored by the Kean Miller Law Firm. October 13, 2005. Baton Rouge, LA.
147. "The Impact of Hurricane Katrina on Louisiana's Energy Infrastructure and National Energy Markets." Special Lecture on Hurricane Impacts, LSU Center for Energy Studies, September 29, 2005.
148. "Louisiana Power Industry Overview." Presentation before the Clean Air Interstate Rule Implementation Stakeholders Meeting. August 11, 2005. Louisiana Department of Environmental Quality.
149. "CES 2005 Legislative Support and Outlook for Energy Markets and Policy." Presentation before the LMOGA/LCA Annual Post-Session Legislative Committee Meeting. August 10-13, 2005. Perdido Key, Florida.
150. "Electric Restructuring: Past, Present, and Future." Presentation to the Southeastern Association of Tax Administrators Annual Conference. Sheraton Hotel and Conference Facility. New Orleans, LA July 12, 2005.
151. "The Outlook for Energy." Lagniappe Studies Continuing Education Course. Baton Rouge, LA. July 11, 2005.
152. "The Outlook for Energy." Sunshine Rotary Club. Baton Rouge, LA. April 27, 2005.
153. "Background and Overview of LNG Development." Energy Council Workshop on LNG/CNG. Biloxi, Ms: Beau Rivage Resort and Hotel, April 9, 2005.
154. "Natural Gas Supply, Prices, and LNG: Implications for Louisiana Industry." Cytec Corporation Community Advisory Panel. Fortier, LA January 14, 2005.
155. "The Economic Opportunities for a Limited Industrial Retail Choice Plan." Louisiana Department of Economic Development. Baton Rouge, Louisiana. November 19, 2004.

156. "Energy Issues for Industrial Customers of Gas and Power." Louisiana Association of Business and Industry, Energy Council Meeting. Baton Rouge, Louisiana. October 11, 2004.
157. "Energy Issues for Industrial Customers of Gas and Power." Annual Meeting of the Louisiana Chemical Association and the Louisiana Chemical Industry Alliance. Point Clear, Alabama. October 8, 2004.
158. "Energy Issues for Industrial Customers of Gas and Power." American Institute of Chemical Engineers – New Orleans Section. New Orleans, LA. September 22, 2004.
159. "Natural Gas Supply, Prices and LNG: Implications for Louisiana Industry." Dow Chemical Company Community Advisory Panel Meeting. Plaquemine, LA. August 9, 2004.
160. "Energy Issues for Industrial Customers of Gas and Power." Louisiana Chemical Association Post-Legislative Meeting. Springfield, LA. August 9, 2004.
161. "LNG In Louisiana." Joint Meeting of the Louisiana Economic Development Council and the Governors Cabinet Advisory Council. Baton Rouge, LA. August 5, 2004.
162. "Louisiana Energy Issues." Louisiana Mid-Continent Oil and Gas Association Post Legislative Meetings. Sandestin, Florida. July 28, 2004.
163. "The Gulf South: Economic Opportunities Related to LNG." Presentation before the Energy Council's 2004 State and Provincial Energy and Environmental Trends Conference. Point Clear, AL, June 26, 2004.
164. "Natural Gas and LNG Issues for Louisiana." Presentation before the Rhodia Community Advisory Panel. May 20, 2004, Baton Rouge, LA.
165. "The Economic Opportunities for LNG Development in Louisiana." Presentation before the Louisiana Chemical Association Plant Managers Meeting. May 27, 2004. Baton Rouge, LA.
166. "The Economic Opportunities for LNG Development in Louisiana." Presentation before the Louisiana Chemical Association/Louisiana Chemical Industry Alliance Legislative Conference. May 26, 2004. Baton Rouge, LA.
167. "The Economic Opportunities for LNG Development in Louisiana." Presentation before the Petrochemical Industry Cluster, Greater New Orleans, Inc. May 19, 2004, Destrehan, LA.
168. "Industry Development Issues for Louisiana: LNG, Retail Choice, and Energy." Presentation before the LSU Center for Energy Studies Industry Associates. May 14, 2004, Baton Rouge, LA.
169. "The Economic Opportunities for LNG Development in Louisiana." Presentation before the Board of Directors, Greater New Orleans, Inc. May 13, 2004, New Orleans, LA.
170. "Natural Gas Outlook: Trends and Issues for Louisiana." Presentation before the Louisiana Joint Agricultural Association Meetings. January 14, 2004, Hotel Acadiana, Lafayette, Louisiana.
171. "Natural Gas Outlook" Presentation before the St. James Parish Community Advisory Panel Meeting. January 7, 2004, IMC Production Facility, Convent, Louisiana.

172. "Competitive Bidding in the Electric Power Industry." Presentation before the Association of Energy Engineers. Business Energy Solutions Expo. December 11-12, 2003, New Orleans, Louisiana.
173. "Regional Transmission Organization in the South: The Demise of SeTrans" Presentation before the LSU Center for Energy Studies Industry Associates Advisory Council Meeting. December 9, 2003. Baton Rouge, Louisiana.
174. "Affordable Energy: The Key Component to a Strong Economy." Presentation before the National Association of Regulatory Utility Commissioners ("NARUC"), November 18, 2003, Atlanta, Georgia.
175. "Natural Gas Outlook." Presentation before the Louisiana Chemical Association, October 17, 2003, Pointe Clear, Alabama.
176. "Issues and Opportunities with Distributed Energy Resources." Presentation before the Louisiana Biomass Council. April 17, 2003, Baton Rouge, Louisiana.
177. "What's Happened to the Merchant Energy Industry? Issues, Challenges, and Outlook" Presentation before the LSU Center for Energy Studies Industry Associates Advisory Council Meeting. November 12, 2002. Baton Rouge, Louisiana.
178. "An Introduction to Distributed Energy Resources." Presentation before the U.S. Department of Energy, Office of Renewable Energy and Energy Efficiency, State Energy Program/Rebuild America Conference, August 1, 2002, New Orleans, Louisiana.
179. "Merchant Energy Development Issues in Louisiana." Presentation before the Program Committee of the Center for Legislative, Energy, and Environmental Research (CLEER), Energy Council. April 19, 2002.
180. "Power Plant Siting Issues in Louisiana." Presentation before 24th Annual Conference on Waste and the Environment. Sponsored by the Louisiana Department of Environmental Quality. Lafayette, Louisiana, Cajundome. March 12, 2002.
181. "Merchant Power and Deregulation: Issues and Impacts." Presentation before the Air and Waste Management Association Annual Meeting. Baton Rouge, LA, November 15, 2001.
182. "Moving to the Front of the Lines: The Economic Impact of Independent Power Production in Louisiana." Presentation before the LSU Center for Energy Studies Merchant Power Generation and Transmission Conference, Baton Rouge, LA. October 11, 2001.
183. "Economic Impacts of Merchant Power Plant Development in Mississippi." Presentation before the U.S. Oil and Gas Association Annual Oil and Gas Forum. Jackson, Mississippi. October 10, 2001.
184. "Economic Opportunities for Merchant Power Development in the South." Presentation before the Southern Governor's Association/Southern State Energy Board Meetings. Lexington, KY. September 9, 2001.
185. "The Changing Nature of the Electric Power Business in Louisiana." Presentation before the Louisiana Department of Environmental Quality. Baton Rouge, LA, August 27, 2001.
186. "Power Business in Louisiana: Background and Issues." Presentation before the Louisiana Interagency Group on Merchant Power Development. Baton Rouge, LA, July 16, 2001.

187. "The Changing Nature of the Electric Power Business in Louisiana: Background and Issues." Presentation before the Louisiana Office of the Governor. Baton Rouge, LA, July 16, 2001.
188. "The Changing Nature of the Electric Power Business in Louisiana: Background and Issues." Presentation before the Louisiana Department of Economic Development. Baton Rouge, LA, July 3, 2001.
189. "The Economic Impacts of Merchant Power Plant Development In Mississippi." Presentation before the Mississippi Public Service Commission. Jackson, Mississippi, March 20, 2001.
190. "Energy Conservation and Electric Restructuring." With Ritchie D. Priddy. Presentation before the Louisiana Department of Natural Resources. Baton Rouge, Louisiana, October 23, 2000.
191. "Pricing and Regulatory Issues Associated with Distributed Energy." Joint Conference by Econ One Research, Inc., the Louisiana State University Distributed Energy Resources Initiative, and the University of Houston Energy Institute: "Is the Window Closing for Distributed Energy?" Houston, Texas, October 13, 2000.
192. "Electric Reliability and Merchant Power Development Issues." Technical Meetings of the Louisiana Public Service Commission. Baton Rouge, LA. August 29, 2000.
193. "A Introduction to Distributed Energy Resources." Summer Meetings, Southeastern Association of Regulatory Utility Commissioners (SEARUC). New Orleans, LA. June 27, 2000.
194. Roundtable Moderator/Discussant. Mid-South Electric Reliability Summit. U.S. Department of Energy. New Orleans, Louisiana. April 24, 2000.
195. "Electricity 101: Definitions, Precedents, and Issues." Energy Council's 2000 Federal Energy and Environmental Matters Conference. Loews L'Enfant Plaza Hotel, Washington, D.C. March 11-13, 2000.
196. "LSU/CES Distributed Energy Resources Initiatives." Los Alamos National Laboratories. Office of Energy and Sustainable Systems. Los Alamos, New Mexico. February 16, 2000.
197. "Distributed Energy Resources Initiatives." Louisiana State University, Center for Energy Studies Industry Associates Meeting. Baton Rouge, Louisiana. December 15, 1999.
198. "Merchant Power Opportunities in Louisiana." Louisiana Mid-Continent Oil and Gas Association (LMOGA) Power Generation Committee Meetings. Baton Rouge, Louisiana. November 10, 1999.
199. Roundtable Discussant. "Environmental Regulation in a Restructured Market" The Big E: How to Successfully Manage the Environment in the Era of Competitive Energy. PUR Conference. New Orleans, Louisiana. May 24, 1999.
200. "The Political Economy of Electric Restructuring In the South" Southeastern Electric Exchange, Rate Section Annual Conference. New Orleans, Louisiana. May 7, 1999.
201. "The Dynamics of Electric Restructuring in Louisiana." Joint Meeting of the American Association of Energy Engineers and the International Association of Facilities Managers. Metairie, Louisiana. April 29, 1999.

202. "The Implications of Electric Restructuring on Independent Oil and Gas Operations." Petroleum Technology Transfer Council Workshop: Electrical Power Cost Reduction Methods in Oil and Gas Field Operations. Lafayette, Louisiana, March 24, 1999.
203. "What's Happened to Electricity Restructuring in Louisiana?" Louisiana State University, Center for Energy Studies Industry Associates Meeting. March 22, 1999.
204. "A Short Course on Electric Restructuring." Central Louisiana Electric Company. Sales and Marketing Division. Mandeville, Louisiana, October 22, 1998.
205. "The Implications of Electric Restructuring on Independent Oil and Gas Operations." Petroleum Technology Transfer Council Workshop: Electrical Power Cost Reduction Methods in Oil and Gas Field Operations. Shreveport, Louisiana, October 13, 1998.
206. "How Will Utility Deregulation Affect Tourism." Louisiana Travel Promotion Association Annual Meeting, Alexandria, Louisiana. January 15, 1998.
207. "Reflections and Predictions on Electric Utility Restructuring in Louisiana." With Fred I. Denny. Louisiana State University, Center for Energy Studies Industry Associates Meeting. November 20, 1997.
208. "Electric Utility Restructuring in Louisiana." Hammond Chamber of Commerce, Hammond, Louisiana. October 30, 1997.
209. "Electric Utility Restructuring." Louisiana Association of Energy Engineers. Baton Rouge, Louisiana. September 11, 1997.
210. "Electric Utility Restructuring: Issues and Trends for Louisiana." Opelousas Chamber of Commerce, Opelousas, Louisiana. June 24, 1997.
211. "The Electric Utility Restructuring Debate In Louisiana: An Overview of the Issues." Annual Conference of the Public Affairs Research Council of Louisiana. Baton Rouge, Louisiana. March 25, 1997.
212. "Electric Restructuring: Louisiana Issues and Outlook for 1997." Louisiana State University, Center for Energy Studies Industry Associates Meeting, Baton Rouge, Louisiana, January 15, 1997.
213. "Restructuring the Electric Utility Industry." Louisiana Propane Gas Association Annual Meeting, Alexandria, Louisiana, December 12, 1996.
214. "Deregulating the Electric Utility Industry." Eighth Annual Economic Development Summit, Baton Rouge, Louisiana, November 21, 1996.
215. "Electric Utility Restructuring in Louisiana." Jennings Rotary Club, Jennings, Louisiana, November 19, 1996.
216. "Electric Utility Restructuring in Louisiana." Entergy Services, Transmission and Distribution Division, Energy Centre, New Orleans, Louisiana, September 12, 1996
217. "Electric Utility Restructuring" Louisiana Electric Cooperative Association, Baton Rouge, Louisiana, August 27, 1996.
218. "Electric Utility Restructuring -- Background and Overview." Louisiana Public Service Commission, Baton Rouge, Louisiana, August 14, 1996.
219. "Electric Utility Restructuring." Sunshine Rotary Club Meetings, Baton Rouge, Louisiana, August 8, 1996.

220. Roundtable Moderator, "Stakeholder Perspectives on Electric Utility Stranded Costs." Louisiana State University, Center for Energy Studies Seminar on Electric Utility Restructuring in Louisiana, Baton Rouge, May 29, 1996.
221. Panelist, "Deregulation and Competition." American Nuclear Society: Second Annual Joint Louisiana and Mississippi Section Meetings, Baton Rouge, Louisiana, April 20, 1996.

EXPERT WITNESS, LEGISLATIVE, AND PUBLIC TESTIMONY; EXPERT REPORTS, RECOMMENDATIONS, AND AFFIDAVITS

1. Expert Testimony. Docket No. 15-098-U. (2016). Before the Arkansas Public Service Commission. *In the Matter of the Application of CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas Gas for a General Change or Modification in its Rates, Charges and Tariffs.* On behalf of the Office of the Arkansas Attorney General. Issues: formula rate plan, cost of service and rate design.
2. Expert Testimony. BPU Docket No. GM15101196. (2016). *In the Matter of the Merger of Southern Company and AGL Resources, Inc.* On behalf of the New Jersey Division of Rate Counsel. Issues: merger standards of review, customer dividend contributions, synergy savings and costs to achieve, ratemaking treatment of merger-related costs.
3. Expert Testimony. Docket No. 15-078-U. (2015). Before the Arkansas Public Service Commission. *In the Matter of the Joint Application of SourceGas Inc., SourceGas LLC, SourceGas Holdings LLC and Black Hills Utility Holdings, Inc. for all Necessary Authorizations and Approvals for Black Hills Utility Holdings, Inc. to Acquire SourceGas Holdings LLC.* On behalf of the Office of the Arkansas Attorney General. Issues: public policy and regulatory policy associated with the acquisition.
4. Expert Testimony. Docket No. 15-031-U. (2015). Before the Arkansas Public Service Commission. *In the Matter of the Application of SourceGas Arkansas Inc. for an Order Approving the Acquisition of Certain Storage Facilities and the Recovery of Investments and Expenses Associated Therewith.* On behalf of the Office of the Arkansas Attorney General. Issues: cost-benefit analysis, transmission cost analysis, and a due diligence analysis.
5. Expert Testimony. Docket No. 15-015-U. (2015). Before the Arkansas Public Service Commission. *In the Matter of the Application of Entergy Arkansas, Inc. for Approval of Changes in Rates for Retail Electric Service.* On behalf of the Office of the Arkansas Attorney General. Issues: economic development riders and production plant cost allocation.
6. Expert Testimony. Docket No. 7970. (2015). Before the Vermont Public Service Board. *Petition of Vermont Gas Systems, Inc., for a certificate of public good pursuant to 30 V.S.A. § 248, authorizing the construction of the "Addison Natural Gas Project" consisting of approximately 43 miles of new natural gas transmission pipeline in Chittenden and Addison Counties, approximately 5 miles of new distribution mainlines in Addison County, together with three new gate stations in Williston, New Haven, and Middlebury, Vermont.* On behalf of AARP-Vermont. Issues: net economic benefits of proposed natural gas transmission project.
7. Expert Testimony. File No. ER-2014-0370 (2015). Before the Public Service Commission of the State of Missouri. *In the Matter of Kansas City Power & Light Company for Authority*

Implement A General Rate Increase for Electric Service. On behalf of the Missouri Office of the People's Counsel. Issues: customer charges, rate design, revenue distribution, class cost of service, and policy and ratemaking considerations in connection with electric vehicle charging stations.

8. Expert Testimony. File No. ER-2014-0351 (2015). Before the Public Service Commission of the State of Missouri. *In the Matter of The Empire District Electric Company for Authority To File Tariffs Increasing Rates for Electric Service Provided to Customers In the Company's Missouri Service Area.* On behalf of the Missouri Office of the People's Counsel. Issues: customer charges, rate design, revenue distribution, and class cost of service.
9. Expert Testimony. D.P.U. 14-130 (2015). Before the Massachusetts Department of Public Utilities. *Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for approval by the Department of Public Utilities of the Company's 2015 Gas System Enhancement Program Plan, pursuant to G.L. c. 164, § 145, and for rates effective May 1, 2015.* On behalf of the Attorney General's Office. Issues: ratepayer protections, cost allocations, rate design, performance metrics.
10. Expert Testimony. D.P.U. 14-131 (2015). Before the Massachusetts Department of Public Utilities. *Petition of The Berkshire Gas Company for approval by the Department of Public Utilities of the Company's Gas System Enhancement Program Plan for 2015, pursuant to G.L. c. 164, § 145, and for rates effective May 1, 2015.* On behalf of the Attorney General's Office. Issues: ratepayer protections, cost allocations, rate design, performance metrics.
11. Expert Testimony. D.P.U. 14-132 (2015). Before the Massachusetts Department of Public Utilities. *Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for approval by the Department of Public Utilities of the Companies' Gas System Enhancement Program for 2015, pursuant to G.L. c. 164, § 145, and for rates effective May 1, 2015.* On behalf of the Attorney General's Office. Issues: ratepayer protections, cost allocations, rate design, performance metrics.
12. Expert Testimony. D.P.U. 14-133 (2015). Before the Massachusetts Department of Public Utilities. *Petition of Liberty Utilities for approval by the Department of Public Utilities of the Company's Gas System Enhancement Program Plan for 2015, pursuant to G.L. c. 164, § 145, and for rates effective May 1, 2015.* On behalf of the Attorney General's Office. Issues: ratepayer protections, cost allocations, rate design, performance metrics.
13. Expert Testimony. D.P.U. 14-134 (2015). Before the Massachusetts Department of Public Utilities. *Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for approval by the Department of Public Utilities of the Company's Gas System Enhancement Program Plan for 2015, pursuant to G.L. c. 164, § 145, and for rates to be effective May 1, 2015.* On behalf of the Attorney General's Office. Issues: ratepayer protections, cost allocations, rate design, performance metrics.
14. Expert Testimony. D.P.U. 14-135 (2015). Before the Massachusetts Department of Public Utilities. *Petition of NSTAR Gas Company for approval by the Department of Public Utilities of the Company's Gas System Enhancement Program Plan for 2015, pursuant to G.L. c. 164, § 145, and for rates to be effective May 1, 2015.* On behalf of the Attorney General's Office. Issues: ratepayer protections, cost allocations, rate design, performance metrics.
15. Expert Report. Docket No. X-33192 (2015). Before the Louisiana Public Service

- Commission. *Examination of the Comprehensive Costs and Benefits of Net Metering in Louisiana*. On behalf of the Louisiana Public Service Commission. Issues: cost-benefit, cost of service, rate impact.
16. Expert Testimony. F.C. 1119 (2014). Before the District of Columbia Public Service Commission. *In the Matter of the Merger of Exelon Corporation, Pepco Holdings, Inc., Potomac Electric Power Company, Exelon Energy Delivery Company, LLC, and new Special Purpose Entity, LLC*. On behalf of the Office of the People's Counsel. Issues: economic impact analysis, reliability, consumer investment fund, regulatory oversight, impacts to competitive electricity markets.
 17. Expert Testimony. D.P.U. 14-86 (2014). Before the Massachusetts Department of Public Utilities. *Joint Petition of the Department of Environmental Protection and the Department of Energy Resources requesting the Department of Public Utilities to adopt the avoided costs of complying with the Global Warming Solutions Act, using the marginal abatement cost curve method, in assessing the cost effectiveness of energy efficiency programs*. On behalf of the Office of the Ratepayer Advocate. Issues: public policy, carbon emissions, marginal abatement cost curve analysis.
 18. Expert Report. Civil Action 1:08-cv-0046 (2014). Before the U.S. District Court for the Southern District of Ohio. *Anthony Williams, et al., v. Duke Energy International, Inc., et al.* On behalf of Markovits, Stock & DeMarco, Attorneys & Counselors at Law. Issues: public utility regulation, electric power markets, economic harm.
 19. Expert Testimony. D.P.U. 14-64 (2014). Before the Massachusetts Department of Public Utilities. *NSTAR Gas Company/HOPCO Gas Services Agreement. On behalf of the Office of the Public Advocate*. Issues: certain ratemaking features associated with the proposed Gas Service Agreement.
 20. Expert Testimony. Docket Nos. 14-0224 and 14-0225 (2014). Before the Illinois Commerce Commission. *In the Matter of the Peoples Gas Light and Coke Company and North Shore Gas Company Proposed General Increase in Rates for Gas Service (consolidated)*. On behalf of the People of the State of Illinois. Issues: test year expenses, cost benchmarking analysis, pipeline replacement, and leak rate comparisons.
 21. Expert Testimony. Docket 8191 (2014). Before the Vermont Public Service Board. *In Re: Petition of Green Mountain Power Corporation for Approval of a Successor Alternative Regulation Plan*. On the behalf of AARP-Vermont. Issues: Alternative Regulation.
 22. Expert Testimony. Docket No. 2013-00168 (2014). Before the Maine Public Utilities Commission. *In the Matter of the Request for Approval of an Alternative Rate Plan (ARP 2014) Pertaining to Central Maine Power Company*. On behalf of the Office of the Public Advocate. Issues: class cost of service study, marginal cost of service study, revenue distribution and rate design.
 23. Expert Testimony. D.P.U. 13-90 (2013). Before the Massachusetts Department of Public Utilities. *Petition of Fitchburg Gas and Electric Light Company (Electric Division) d/b/a Unitil to the Department of Public Utilities for approval of the rates and charges and increase in base distribution rates for electric service*. On behalf of the Office of the Ratepayer Advocate. Issues: capital cost adjustment mechanism and performance-based regulation.
 24. Expert Testimony. BPU Docket Nos. EO13020155 and GO13020156. (2013). Before the

- State of New Jersey Board of Public Utilities. *I/M/O The Petition of Public Service Electric & Gas Company for the Approval of the Energy Strong Program*. On behalf of the Division of Rate Counsel. Issues: economic impact, infrastructure replacement program rider, pipeline replacement, leak rate comparisons and cost benefit analysis.
25. Expert Testimony. D.P.U. 13-75 (2013). Before the Massachusetts Department of Public Utilities. *Investigation by the Department of Public Utilities on its Own Motion as to the Propriety of the Rates and Charges by Bay State Gas Company d/b/a Columbia Gas of Massachusetts set forth in Tariffs M.D.P.U. Nos. 140 through 173, and Approval of an Increase in Base Distribution Rates for Gas Service Pursuant to G.L. c. 164, § 94 and 220 C.M.R. § 5.00 et seq., filed with the Department on April 16, 2013, to be effective May 1, 2013*. On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Issues: Target infrastructure replacement program rider, pipeline replacement, and leak rate comparisons; environmental benefits analysis; O&M offset; and cost benchmarking analysis.
 26. Expert Testimony. Docket No. 13-115 (2013). Before the Delaware Public Service Commission. *In the Matter of the Application of Delmarva Power & Light Company FOR an Increase in Electric Base Rates and Miscellaneous Tariff Changes* (Filed March 22, 2013). On the Behalf of Division of the Public Advocate. Issues: pro forma infrastructure proposal, class cost of service study, revenue distribution, and rate design.
 27. Expert Testimony. Formal Case No. 1103 (2013). Before the Public Service Commission of the District of Columbia. *In the Matter of the Application of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*. On the Behalf of the Office of the People's Counsel of the District of Columbia. Issues: Pro forma adjustment for reliability investments.
 28. Expert Testimony. Case No. 9326 (2013). Before the Public Service Commission of Maryland. *In the Matter of the Application of Baltimore Gas and Electric Company for Adjustments to its Electric and Gas Base Rates*. On the Behalf of the Maryland Office of the People's Counsel. Issues: Electric Reliability Investment ("ERI") initiatives, pro forma gas infrastructure proposal, tracker mechanisms, class cost of service study, revenue distribution, and rate design
 29. Rulemaking Testimony. (2013). Before the Louisiana Tax Commission. Examination of Louisiana Assessors' Association Well Diameter Analysis, economic development policies regarding midstream assets and industrial development.
 30. Expert Testimony. Case No. 9317 (2013). Before the Public Service Commission of Maryland. *In the Matter of the Application of Delmarva Power & Light Company for Adjustments to its Retail Rates for the Distribution of Electric Energy*. Direct, and Surrebuttal. On the Behalf of the Maryland Office of the People's Counsel. Issues: Grid Resiliency Charge, tracker mechanisms, pipeline replacement, class cost of service study, revenue distribution, and rate design.
 31. Expert Testimony. Case No. 9311 (2013). Before the Public Service Commission of Maryland. *In the Matter of the Application of Potomac Electric Power Company for an Increase in its Retail Rates for the Distribution of Electric Energy*. Direct, and Surrebuttal. On the Behalf of the Maryland Office of the People's Counsel. Issues: Grid Resiliency Charge, tracker mechanisms, pipeline replacement, class cost of service study, revenue distribution, and rate design.

32. Expert Testimony. Docket No. 12AL-1268G (2013). Before the Public Utilities Commission of the State of Colorado. *In the Matter of the Tariff Sheets Filed by Public Service Company of Colorado with Advice No. 830 – Gas. Answer.* On the Behalf of the Colorado Office of Consumer Counsel. Issues: Pipeline System Integrity Adjustment, tracker mechanisms, pipeline replacement and leak rate comparisons.
33. Expert Testimony. BPU Docket No. EO12080721 (2013). Before the New Jersey Board of Public Utilities. *In the Matter of the Public Service Electric & Gas Company for Approval of an Extension of Solar Generation Program.* On the Behalf of the New Jersey Division of Rate Counsel. Direct, Rebuttal, Surrebuttal. Issues: solar energy market design, solar energy market conditions, solar energy program design and net economic benefits.
34. Expert Testimony. BPU Docket No. EO12080726 (2013). Before the New Jersey Board of Public Utilities. *In the Matter of the Petition of Public Service Electric & Gas Company for Approval of a Solar Loan III Program.* On the Behalf of the New Jersey Division of Rate Counsel. Direct, Rebuttal and Surrebuttal. Issues: solar energy market design, solar energy market conditions, solar energy program design.
35. Expert Testimony. BPU Docket No. EO11050314V. (2012). Before the New Jersey Board of Public Utilities. *In the Matter of the Petition of Fishermen’s Atlantic City Windfarm, LLC for the Approval of the State Waters Project and Authorizing Offshore Wind Renewable Energy Certificates.* On the Behalf of the New Jersey Division of Rate Counsel. December 17, 2012. Issues: approval of offshore wind project and ratepayer financial support for the proposed project.
36. Expert Testimony. D.P.U. 12-25. (2012). Before the Massachusetts Department of Public Utilities. *In the Matter of Bay State Gas Company d/b/a/ Columbia Gas Company of Massachusetts Request for Increase in Rates.* On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Issues: Target infrastructure replacement program rider, pipeline replacement and leak rate comparisons.
37. Expert Testimony. Docket Nos. UE-120436, et.al. (consolidated). (2012). Before the Washington Utilities and Transportation Commission. *Washington Utilities and Transportation Commission v. Avista Corporation D/B/A Avista Utilities.* On the Behalf of the Washington Attorney General, Office of the Public Counsel. Issues: Revenue Decoupling, lost revenues, tracker mechanisms, attrition adjustments.
38. Expert Testimony. Case No. 9286. (2012) Before the Public Service Commission of Maryland. *In Re: Potomac Electric Power Company (“Pepco”) General Rate Case.* On the Behalf of the Maryland Office of the People’s Counsel. Issues: Capital tracker mechanisms/reliability investment mechanisms, reliability issues, regulatory lag, class cost of service, revenue distribution, rate design.
39. Expert Testimony. Case No 9285. (2012) Before the Public Service Commission of Maryland. *In Re: the Delmarva Power and Light Company General Rate Case.* On the Behalf of the Maryland Office of the People’s Counsel. Issues: Capital tracker mechanisms/reliability investment mechanisms, reliability issues, regulatory lag, class cost of service, revenue distribution, rate design.
40. Expert Testimony. Docket Nos. UE-110876 and UG-110877 (consolidated). (2012). Before the Washington Utilities and Transportation Commission. *Washington Utilities and Transportation Commission v. Avista Corporation D/B/A Avista Utilities.* On the Behalf of the Washington Attorney General, Office of the Public Counsel. Issues: Revenue

Decoupling, lost revenues, tracker mechanisms.

41. Expert Testimony. BPU Docket No. EO11050314V. (2012). Before the New Jersey Board of Public Utilities. *In the Matter of the Petition of Fishermen's Atlantic City Windfarm, LLC for the Approval of the State Waters Project and Authorizing Offshore Wind Renewable Energy Certificates*. On the Behalf of the New Jersey Division of Rate Counsel. February 3, 2012. Issues: approval of offshore wind project and ratepayer financial support for the proposed project.
42. Expert Testimony. Docket No. NG 0067. (2012). Before the Public Service Commission of Nebraska. *In the Matter of the Application of SourceGas Distribution, LLC Approval of a General Rate Increase*. On the Behalf of the Public Advocate. January 31, 2012. Issues: Revenue Decoupling, Customer Adjustments, Weather Normalization Adjustments, Class Cost of Service Study, Rate Design.
43. Expert Testimony. Docket No. G-04204A-11-0158. (2011). Before the Arizona Corporation Commission. On the Behalf of the Arizona Corporation Commission Staff. *In the Matter of the Application of UNS Gas, Inc. for the Establishment of Just and Reasonable Rates and Charges Designed to Realize a Reasonable Rate of Return on the Fair Value of Its Arizona Properties*. Issues: Revenue Decoupling; Class Cost of Service Modeling; Revenue Distribution; Rate Design.
44. Expert Testimony. Formal Case Number 1087. (2011). Before the Public Service Commission of the District of Columbia. On the Behalf of the Office of the People's Counsel of the District of Columbia. *In the Matter of the Application of Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*. Issues: Regulatory lag, ratemaking principles, reliability-related capital expenditure tracker proposals.
45. Expert Affidavit. Case No. 11-1364. (2011). *The State of Louisiana, the Louisiana Department of Environmental Quality, and the Louisiana Public Service Commission v. United States Environmental Protection Agency and Lisa P. Jackson*. Before the United States Court of Appeals for the District of Columbia Circuit. On the behalf of the State of Louisiana, the Louisiana Department of Environmental Quality, and the Louisiana Public Service Commission. Issues: Impacts of environmental costs on electric utilities, compliance requirements, investment cost of mitigation equipment, multi-area dispatch modeling and plant retirements.
46. Expert Affidavit. Docket No. EPA-HQ-OAR-2009-0491. (2011). Before the U.S. Environmental Protection Agency. *Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals*. On the Behalf of the Louisiana Public Service Commission. Issues: Impacts of environmental costs on electric utilities, compliance requirements, investment cost of mitigation equipment, multi-area dispatch modeling and plant retirements.
47. Expert Testimony. Case No. 9296. (2011). Before the Maryland Public Service Commission. *On the Behalf of the Maryland Office of People's Counsel. In the Matter of the Application of Washington Gas Light Company for Authority to Increase Existing Rates and Charges and Revise its Terms and Conditions for Gas Service*. Issues: Infrastructure Cost Recovery Rider; Class Cost of Service Modeling; Revenue Distribution; Rate Design.
48. Expert Testimony. Docket No. G-01551A-10-0458. (2011). Before the Arizona Corporation Commission. On the Behalf of the Arizona Corporation Commission Staff. *In*

- the Matter of the Application of Southwest Gas Corporation for the Establishment of Just and Reasonable Rates and Charges Designed to Realize A Reasonable Rate of Return on the Fair Value of its Properties throughout Arizona.* Issues: Revenue Decoupling; Class Cost of Service Modeling; Revenue Distribution; Rate Design.
49. Expert Testimony. Docket No. 11-0280 and 11-0281. (2011). Before the Illinois Commerce Commission. On the Behalf of the Illinois Attorney General, the Citizens Utility Board, and the City of Chicago, Illinois. *In re: Peoples Gas Light and Coke Company and North Shore Natural Gas Company.* Issues: Revenue Decoupling and Rate Design. (Direct and Rebuttal)
 50. Expert Testimony. D.P.U. 11-01. (2011). Before the Massachusetts Department of Public Utilities. On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. *Petition of the Fitchburg Electric and Gas Company (Electric Division) for Approval of A General Increase in Electric Distribution Rates and Approval of a Revenue Decoupling Mechanism.* Issues: Capital Cost Rider, Revenue Decoupling.
 51. Expert Testimony. D.P.U. 11-02. (2011). Before the Massachusetts Department of Public Utilities. On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. *Petition of the Fitchburg Electric and Gas Company (Gas Division) for Approval of A General Increase in Electric Distribution Rates and Approval of a Revenue Decoupling Mechanism.* Issues: Pipeline Replacement Rider, Revenue Decoupling.
 52. Expert Affidavit. Docket No. EL-11-13 (2011). Before the Federal Energy Regulatory Commission. Petition for Preliminary Ruling, Atlantic Grid Operations. On the Behalf of the New Jersey Division of Rate Counsel. Issues: Offshore wind generation development, offshore wind transmission development, ratemaking treatment of development costs, transmission development incentives.
 53. Expert Opinion. Case No. CI06-195. (2011). Before the District Court of Jefferson County, Nebraska. On the Behalf of the City of Fairbury, Nebraska and Michael Beachler. *In re: Endicott Clay Products Co. vs. City of Fairbury, Nebraska and Michael Beachler.* Issues: rate design and ratemaking, time of use and time differentiated rate structures, empirical analysis of demand and usage trends for tariff eligibility requirements.
 54. Expert Testimony. D.P.U. 10-114. (2010). Before the Massachusetts Department of Public Utilities. On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Petition of the New England Gas Company for Approval of A General Increase in Electric Distribution Rates and Approval of a Revenue Decoupling Mechanism. Issues: infrastructure replacement rider.
 55. Expert Testimony. D.P.U. 10-70. (2010). Before the Massachusetts Department of Public Utilities. Petition of the Western Massachusetts Electric Company for Approval of A General Increase in Electric Distribution Rates and Approval of a Revenue Decoupling Mechanism. On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Issues: Revenue decoupling; infrastructure replacement rider; performance-based regulation; inflation adjustment mechanisms; and rate design.
 56. Expert Testimony. G.U.D. Nos. 998 & 9992. (2010). Before the Texas Railroad Commission. *In the Matter of the Rate Case Petition of Texas Gas Services, Inc.* On the Behalf of the City of El Paso, Texas. Issues: Cost of service, revenue distribution, rate design, and weather normalization.

57. Expert Testimony. B.P.U Docket No. GR10030225. (2010). Before the New Jersey Board of Public Utilities. In the Matter of the Petition of New Jersey Natural Gas Company for Approval of Regional Greenhouse Gas Initiative Programs and Associated Cost Recovery Mechanisms Pursuant to N.J.S.A. 48:3-98.1. On the Behalf of the Department of the Public Advocate, Division of Rate Counsel. Issues: solar energy proposals, solar securitization issues, solar energy policy issues.
58. Expert Testimony. D.P.U. 10-55. (2010). Before the Massachusetts Department of Public Utilities. Investigation Into the Propriety of Proposed Tariff Changes for Boston Gas Company, Essex Gas Company, and Colonial Gas Company. (d./b./a. National Grid). On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Issues: Revenue decoupling; pipeline-replacement rider; performance-based regulation; partial productivity factor estimates, inflation adjustment mechanisms; and rate design.
59. Expert Testimony. Cause No.43839. (2010). Before the Indiana Utility Regulatory Commission. In the Matter of Southern Indiana Gas and Electric Company d/b/a/ Vectren Energy Delivery of Indiana, Inc. (Vectren South-Electric). On the behalf of the Indiana Office of Utility Consumer Counselor (OUCC). Issues: revenue decoupling, variable production cost riders, gains on off-system sales, transmission cost riders.
60. Congressional Testimony. Before the United States Congress. (2010). U.S. House of Representatives, Committee on Natural Resources. Hearing on the Consolidated Land, Energy, and Aquatic Resources Act. June 30, 2010.
61. Expert Testimony. Before the City Counsel of El Paso, Texas; Public Utility Regulatory Board. (2010). On the Behalf of the City of El Paso. In Re: Rate Application of Texas Gas Services, Inc. Issues: class cost of service study (minimum system and zero intercept analysis), rate design proposals, weather normalization adjustment, and its cost of service adjustment clause, conservation adjustment clause proposals, and other cost tracker policy issues.
62. Expert Testimony. Docket 09-00183. (2010). Before the Tennessee Regulatory Authority. In the Matter of the Petition of Chattanooga Gas Company for a General Rate Increase, Implementation of the EnergySMART Conservation Programs, and Implementation of a Revenue Decoupling Mechanism. On the Behalf of Tennessee Attorney General, Consumer Advocate & Protection Division. Issues: revenue decoupling and energy efficiency program review and cost effectiveness analysis.
63. Expert Testimony and Exhibits. Docket No. 10-240. (2010). Before the Louisiana Office of Conservation. In Re: Cadeville Gas Storage, LLC. On the Behalf of Cardinal Gas Storage, LLC. Issues: alternative uses and relative economic benefits of conversion of depleted hydrocarbon reservoir for natural gas storage purposes.
64. Expert Testimony. Docket No. 09505-EI. (2010). Before the Florida Public Service Commission. In Re: Review of Replacement Fuel Costs Associated with the February 26, 2008 outage on Florida Power & Light's Electrical System. On the Behalf of the Florida Office of Public Counsel for the Citizens of the State of Florida. Issues: Replacement costs for power outage, regulatory policy/generation development incentives, renewable and energy efficiency incentives.
65. Expert Testimony. Docket 09-00104. (2009). Before the Tennessee Regulatory Authority. In the Matter of the Petition of Piedmont Natural Gas Company, Inc. to Implement a Margin Decoupling Tracker Rider and Related Energy Efficiency and Conservation Programs. On

- the Behalf of the Tennessee Attorney General, Consumer Advocate & Protection Division. Issues: revenue decoupling, energy efficiency program review, weather normalization.
66. Expert Testimony. Docket Number NG-0060. (2009). Before the Nebraska Public Service Commission. In the Matter of SourceGas Distribution, LLC Approval for a General Rate Increase. On the Behalf of the Nebraska Public Advocate. October 29, 2009. Issues: revenue decoupling, inflation trackers, infrastructure replacement riders, customer adjustment rider, weather normalization rider, weather normalization adjustments, estimation of normal weather for ratemaking purposes.
 67. Expert Report and Deposition. Before the 23rd Judicial District Court, Parish of Assumption, State of Louisiana. On the Behalf of Dow Hydrocarbons and Resources, Inc. September 1, 2009. (Deposition, November 23-24, 2009). Issues: replacement and repair costs for underground salt cavern hydrocarbon storage.
 68. Expert Testimony. D.P.U. 09-39. Before the Massachusetts Department of Public Utilities. (2009). Investigation Into the Propriety of Proposed Tariff Changes for Massachusetts Electric Company and Nantucket Electric Company (d./b./a. National Grid). On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Issues: Revenue decoupling; infrastructure rider; performance-based regulation; inflation adjustment mechanisms; revenue distribution; and rate design.
 69. Expert Testimony. D.P.U. 09-30. Before the Massachusetts Department of Public Utilities. (2009). In the Matter of Bay State Gas Company Request for Increase in Rates. On the Behalf of the Office of the Attorney General, Office of Ratepayer Advocacy. Issues: Revenue decoupling; target infrastructure replacement program rider; revenue distribution; and rate design.
 70. Expert Testimony. Docket EO09030249. (2009). Before the New Jersey Board of Public Utilities. In the Matter of the Petition of Public Service Electric and Gas Company for Approval of a Solar Loan II Program and An Associated Cost Recovery Mechanism. On the Behalf of the Department of the Public Advocate, Division of Rate Counsel. Issues: solar energy market design, renewable portfolio standards, solar energy, and renewable financing/loan program design.
 71. Expert Testimony. Docket EO0920097. (2009). Before the New Jersey Board of Public Utilities. In the Matter of the Verified Petition of Rockland Electric Company for Approval of an SREC-Based Financing Program and An Associated Cost Recovery Mechanism. On the Behalf of the Department of the Public Advocate, Division of Rate Counsel. Issues: solar energy market design; renewable energy portfolio standards; solar energy.
 72. Expert Rebuttal Report. Civil Action No.: 2:07-CV-2165. (2009). Before the U.S. District Court, Western Division of Louisiana, Lake Charles Division. Prepared on the Behalf of the Transcontinental Pipeline Corporation. Issues: expropriation and industrial use of property.
 73. Expert Testimony. Docket EO06100744. (2008). Before the New Jersey Board of Public Utilities. In the Matter of the Renewable Portfolio Standard – Amendments to the Minimum filing Requirements for Energy Efficiency, Renewable Energy, and Conservation Programs and For Electric Distribution Company Submittals of Filings in connection with Solar Financing (Atlantic City Electric Company). On the Behalf of the Department of the Public Advocate, Division of Rate Counsel. Issues: Solar energy market design; renewable energy portfolio standards; solar energy. (Rebuttal and Surrebuttal)

74. Expert Testimony. Docket EO08090840. (2008). Before the New Jersey Board of Public Utilities. In the Matter of the Renewable Portfolio Standard – Amendments to the Minimum filing Requirements for Energy Efficiency, Renewable Energy, and Conservation Programs and For Electric Distribution Company Submittals of Filings in connection with Solar Financing (Jersey Central Power & Light Company). On the Behalf of the Department of the Public Advocate, Division of Rate Counsel. Issues: Solar energy market design; renewable energy portfolio standards; solar energy. (Rebuttal and Surrebuttal)
75. Expert Testimony. Docket UG-080546. (2008). Before the Washington Utilities and Transportation Commission. On the Behalf of the Washington Attorney General (Public Counsel Section). Issues: Rate Design, Cost of Service, Revenue Decoupling, Weather Normalization.
76. Congressional Testimony. (2008). Senate Republican Conference: Panel on Offshore Drilling in the Restricted Areas of the Outer Continental Shelf. September 18, 2008.
77. Expert Testimony. Appeal Number 2007-125 and 2007-299. (2008). Before the Louisiana Tax Commission. On the Behalf of Jefferson Island Storage and Hub, LLC (AGL Resources). Issues: Valuation Methodologies, Underground Storage Valuation, LTC Guidelines and Policies, Public Purpose of Natural Gas Storage. July 15, 2008 and August 20, 2008.
78. Expert Testimony. Docket Number 07-057-13. (2008). Before the Utah Public Service Commission. In the Matter of the Application of Questar Gas Company to File a General Rate Case. On the Behalf of the Utah Committee of Consumer Services. Issues: Cost of Service, Rate Design. August 18, 2008 (Direct, Rebuttal, Surrebuttal).
79. Rulemaking Testimony. (2008). Before the Louisiana Tax Commission. Examination of Replacement Cost Tables, Depreciation and Useful Lives for Oil and Gas Properties. Chapter 9 (Oil and Gas Properties) Section. August 5, 2008.
80. Legislative Testimony. (2008). Examination of Proposal to Change Offshore Natural Gas Severance Taxes (HB 326 and Amendments). Joint Finance and Appropriations Committee of the Alabama Legislature. March 13, 2008.
81. Public Testimony. (2007). Issues in Environmental Regulation. Testimony before Gubernatorial Transition Committee on Environmental Regulation (Governor-Elect Bobby Jindal). December 17, 2007.
82. Public Testimony. (2007). Trends and Issues in Alternative Energy: Opportunities for Louisiana. Testimony before Gubernatorial Transition Committee on Natural Resources (Governor-Elect Bobby Jindal). December 13, 2007.
83. Expert Report and Recommendation: Docket Number S-30336 (2007). Before the Louisiana Public Service Commission. In re: Entergy Gulf States, Inc. Application for Approval of Advanced Metering Pilot Program. Issues: pilot program for demand response programs and advanced metering systems.
84. Expert Testimony. Docket EO07040278 (2007). Before the New Jersey Board of Public Utilities. In the Matter of the Petition of Public Service Electric & Gas Company for Approval of a Solar Energy Program and An Associated Cost Recovery Mechanism. On the Behalf of the Department of the Public Advocate, Division of Rate Counsel. Issues: renewable energy market development, solar energy development, SREC markets, rate

- impact analysis, cost recovery issues.
85. Expert Testimony: Docket Number 05-057-T01 (2007). Before the Utah Public Service Commission. In the Matter of: Joint Application of Questar Gas Company, the Division of Public Utilities, and Utah Clean Energy for Approval of the Conservation Enabling Tariff Adjustment Options and Accounting Orders. On the behalf of the Utah Committee of Consumer Services. Issues: Revenue Decoupling, Demand-side Management; Energy Efficiency policies. (Direct, Rebuttal, and Surrebuttal Testimony)
 86. Expert Testimony (Non-sworn rulemaking testimony) Docket Number RR-2008, (2007). Before the Louisiana Tax Commission. In re: Commission Consideration of Amendment and/or Adoption of Tax Commission Real/Personal Property Rules and Regulations. Issues: Louisiana oil and natural gas production trends, appropriate cost measures for wells and subsurface property, economic lives and production decline curve trends.
 87. Expert Report, Recommendation, and Proposed Rule: Docket Number R-29213 & 29213-A, ex parte, (2007). Before the Louisiana Public Service Commission. In re: Investigation to determine if it is appropriate for LPSC jurisdictional electric utilities to provide and install time-based meters and communication devices for each of their customers which enable such customers to participate in time-based pricing rate schedules and other demand response programs. On the behalf of the Louisiana Public Service Commission Staff. Report and Recommendation. Issues: demand response programs, advanced meter systems, cost recovery issues, energy efficiency issues, regulatory issues.
 88. Expert Report, Recommendation, and Proposed Rule: Docket Number R-29712, ex parte, (2007) Before the Louisiana Public Service Commission. In re: Investigation into the ratemaking and generation planning implications of nuclear construction in Louisiana. On the behalf of the Louisiana Public Service Commission Staff. Report and Recommendation. Issues: nuclear cost power plant development, generation planning issues, and cost recovery issues.
 89. Expert Testimony, Case Number U-14893, (2006). Before the Michigan Public Service Commission. In the Matter of SEMCO Energy Gas Company for Authority to Redesign and Increase Its Rates for the Sale and Transportation of Natural Gas In its MPSC Division and for Other Relief. On the behalf of the Michigan Attorney General. Issues: Rate Design, revenue decoupling, financial analysis, demand-side management program and energy efficiency policy. (Direct and Rebuttal Testimony).
 90. Expert Report, Recommendation, and Proposed Rule: Docket Number R-29380, ex parte, (2006). Before the Louisiana Public Service Commission. In re: An Investigation Into the Ratemaking and Generation Planning Implications of the U.S. EPA Clean Air Interstate Rule. On the behalf of the Louisiana Public Service Commission Staff. Report and Recommendation. Issues: environmental regulation and cost recovery; allowance allocations and air credit markets; ratepayer impacts of new environmental regulations.
 91. Expert Affidavit Before the Louisiana Tax Commission (2006). On behalf of ANR Pipeline, Tennessee Gas Transmission and Southern Natural Gas Company. Issues: Competitive nature of interstate and intrastate transportation services.
 92. Expert Affidavit Before the 19th Judicial District Court (2006). Suit Number 491, 453 Section 26. On behalf of Transcontinental Pipeline Corporation, et.al. Issues: Competitive nature of interstate and intrastate transportation services.

93. Expert Testimony: Docket Number 05-057-T01 (2006). Before the Utah Public Service Commission. In the Matter of: Joint Application of Questar Gas Company, the Division of Public Utilities, and Utah Clean Energy for Approval of the Conservation Enabling Tariff Adjustment Options and Accounting Orders. On the behalf of the Utah Committee of Consumer Services. Issues: Revenue Decoupling, Demand-side Management; Energy Efficiency policies. (Rebuttal and Supplemental Rebuttal Testimony)
94. Legislative Testimony (2006). Senate Committee on Natural Resources. Senate Bill 655 Regarding Remediation of Oil and Gas Sites, Legacy Lawsuits, and the Deterioration of State Drilling.
95. Expert Report: Rulemaking Docket (2005). Before the New Jersey Bureau of Public Utilities. In re: Proposed Rulemaking Changes Associated with New Jersey's Renewable Portfolio Standard. Expert Report. The Economic Impacts of New Jersey's Proposed Renewable Portfolio Standard. On behalf of the New Jersey Office of Ratepayer Advocate. Issues: Renewable Portfolio Standards, rate impacts, economic impacts, technology cost forecasts.
96. Expert Testimony: Docket Number 2005-191-E. (2005). Before the South Carolina Public Service Commission. On behalf of NewSouth Energy LLC. In re: General Investigation Examining the Development of RFP Rules for Electric Utilities. Issues: Competitive bidding; merchant development. (Direct and Rebuttal Testimony).
97. Expert Testimony: Docket No. 05-UA-323. (2005). Before the Mississippi Public Service Commission. On the behalf of Calpine Corporation. In re: Entergy Mississippi's Proposed Acquisition of the Attala Generation Facility. Issues: Asset acquisition; merchant power development; competitive bidding.
98. Expert Testimony: Docket Number 050045-EI and 050188-EI. (2005). Before the Florida Public Service Commission. On the behalf of the Citizens of the State of Florida. In re: Petition for Rate Increase by Florida Power & Light Company. Issues: Load forecasting; O&M forecasting and benchmarking; incentive returns/regulation.
99. Expert Testimony (non-sworn, rulemaking): Comments on Decreased Drilling Activities in Louisiana and the Role of Incentives. (2005). Louisiana Mineral Board Monthly Docket and Lease Sale. July 13, 2005
100. Legislative Testimony (2005). Background and Impact of LNG Facilities on Louisiana. Joint Meeting of Senate and House Natural Resources Committee. Louisiana Legislature. May 19, 2005.
101. Public Testimony. Docket No. U-21453. (2005). Technical Conference before the Louisiana Public Service Commission on an Investigation for a Limited Industrial Retail Choice Plan.
102. Expert Testimony: Docket No. 2003-K-1876. (2005). On Behalf of Columbia Gas Transmission. Expert Testimony on the Competitive Market Structure for Gas Transportation Service in Ohio. Before the Ohio Board of Tax Appeals.
103. Expert Report and Testimony: Docket No. 99-4490-J, *Lafayette City-Parish Consolidated Government, et. al. v. Entergy Gulf States Utilities, Inc. et. al.* (2005, 2006). On behalf of the City of Lafayette, Louisiana and the Lafayette Utilities Services. Expert Rebuttal Report of the Harborfront Consulting Group Valuation Analysis of the LUS Expropriation. Filed before 15th Judicial District Court, Lafayette, Louisiana.

104. Expert Testimony: ANR Pipeline Company v. Louisiana Tax Commission (2005), Number 468,417 Section 22, 19th Judicial District Court, Parish of East Baton Rouge, State of Louisiana Consolidated with Docket Numbers: 480,159; 489,776;480,160; 480,161; 480,162; 480,163; 480,373; 489,776; 489,777; 489,778;489,779; 489,780; 489,803; 491,530; 491,744; 491,745; 491,746; 491,912;503,466; 503,468; 503,469; 503,470; 515,414; 515,415; and 515,416. In re: Market structure issues and competitive implications of tax differentials and valuation methods in natural gas transportation markets for interstate and intrastate pipelines.
105. Expert Report and Recommendation: Docket No. U-27159. (2004). On Behalf of the Louisiana Public Service Commission Staff. Expert Report on Overcharges Assessed by Network Operator Services, Inc. Before the Louisiana Public Service Commission.
106. Expert Testimony: Docket Number 2004-178-E. (2004). Before the South Carolina Public Service Commission. On behalf of Columbia Energy LLC. In re: Rate Increase Request of South Carolina Electric and Gas. (Direct and Surrebuttal Testimony)
107. Expert Testimony: Docket Number 040001-EI. (2004). Before the Florida Public Service Commission. On behalf of Power Manufacturing Systems LLC, Thomas K. Churbuck, and the Florida Industrial Power Users Group. In re: Fuel Adjustment Proceedings; Request for Approval of New Purchase Power Agreements. Company examined: Florida Power & Light Company.
108. Expert Affidavit: Docket Number 27363. (2004). Before the Public Utilities Commission of Texas. Joint Affidavit on Behalf of the Cities of Texas and the Staff of the Public Utilities Commission of Texas Regarding Certified Issues. In Re: Application of Valor Telecommunications, L.P. For Authority to Establish Extended Local Calling Service (ELCS) Surcharges For Recovery of ELCS Surcharge.
109. Expert Report and Testimony. Docket 1997-4665-PV, 1998-4206-PV, 1999-7380-PV, 2000-5958-PV, 2001-6039-PV, 2002-64680-PV, 2003-6231-PV. (2003) Before the Kansas Board of Tax Appeals. (2003). In the Matter of the Appeals of CIG Field Services Company from orders of the Division of Property Valuation. On the Behalf of CIG Field Services. Issues: the competitive nature of natural gas gathering in Kansas.
110. Expert Report and Testimony: Docket Number U-22407. Before the Louisiana Public Service Commission (2002). On the Behalf of the Louisiana Public Service Commission Staff. Company examined: Louisiana Gas Services, Inc. Issues: Purchased Gas Acquisition audit, fuel procurement and planning practices.
111. Expert Testimony: Docket Number 000824-EI. Before the Florida Public Service Commission. (2002). On the Behalf of the Citizens of the State of Florida. Company examined: Florida Power Corporation. Issues: Load Forecasts and Billing Determinants for the Projected Test Year.
112. Public Testimony: Louisiana Board of Commerce and Industry (2001). Testimony on the Economic Impacts of Merchant Power Generation.
113. Expert Testimony: Docket Number 24468. (2001). On the Behalf of the Texas Office of Public Utility Counsel. Public Utility Commission of Texas Staff's Petition to Determine Readiness for Retail Competition in the Portion of Texas Within the Southwest Power Pool. Company examined: AEP-SWEPCO.
114. Expert Report. (2001) On Behalf of David Liou and Pacific Richland Products, Inc. to

- Review Cogeneration Issues Associated with Dupont Dow Elastomers, L.L.C. (DDE) and the Dow Chemical Company (Dow).
115. Expert Testimony: Docket Number 01-1049, Docket Number 01-3001. (2001) On behalf the Nevada Office of Attorney General, Bureau of Consumer Protection. Petition of Central Telephone Company-Nevada D/b/a Sprint of Nevada and Sprint Communications L.P. for Review and Approval of Proposed Revised Performance Measures and Review and Approval of Performance Measurement Incentive Plans. Before the Public Utilities Commission of Nevada.
 116. Expert Affidavit: Multiple Dockets (2001). Before the Louisiana Tax Commission. On the Behalf of Louisiana Interstate Pipeline Companies. Testimony on the Competitive Nature of Natural Gas Transportation Services in Louisiana.
 117. Expert Affidavit before the Federal District Court, Middle District of Louisiana (2001). Issues: Competitive Nature of the Natural Gas Transportation Market in Louisiana. On behalf of a Consortium of Interstate Natural Gas Transportation Companies.
 118. Public Testimony: Louisiana Board of Commerce and Industry (2001). Testimony on the Economic and Ratepayer Benefits of Merchant Power Generation and Issues Associated with Tax Incentives on Merchant Power Generation and Transmission.
 119. Expert Testimony: Docket Number 01-1048 (2001). Before the Public Utilities Commission of Nevada. On the Behalf of the Nevada Office of the Attorney General, Bureau of Consumer Protection. Company analyzed: Nevada Bell Telephone Company. Issues: Statistical Issues Associated with Performance Incentive Plans.
 120. Expert Testimony: Docket 22351 (2001). Before the Public Utility Commission of Texas. On the Behalf of the City of Amarillo. Company analyzed: Southwestern Public Service Company. Issues: Unbundled cost of service, affiliate transactions, load forecasting.
 121. Expert Testimony: Docket 991779-EI (2000). Before the Florida Public Service Commission. On the Behalf of the Citizens of the State of Florida. Companies analyzed: Florida Power & Light Company; Florida Power Corporation; Tampa Electric Company; and Gulf Power Company. Issues: Competitive Nature of Wholesale Markets, Regional Power Markets, and Regulatory Treatment of Incentive Returns on Gains from Economic Energy Sales.
 122. Expert Testimony: Docket 990001-EI (1999). Before the Florida Public Service Commission. On the Behalf of the Citizens of the State of Florida. Companies analyzed: Florida Power & Light Company; Florida Power Corporation; Tampa Electric Company; and Gulf Power Company. Issues: Regulatory Treatment of Incentive Returns on Gains from Economic Energy Sales.
 123. Expert Testimony: Docket 950495-WS (1996). Before the Florida Public Service Commission. On the Behalf of the Citizens of the State of Florida. Company analyzed: Southern States Utilities, Inc. Issues: Revenue Repression Adjustment, Residential and Commercial Demand for Water Service.
 124. Legislative Testimony. Louisiana House of Representatives, Special Subcommittee on Utility Deregulation. (1997). On Behalf of the Louisiana Public Service Commission Staff. Issue: Electric Restructuring.
 125. Expert Testimony: Docket 940448-EG -- 940551-EG (1994). Before the Florida Public

Service Commission. On the Behalf of the Legal Environmental Assistance Foundation. Companies analyzed: Florida Power & Light Company; Florida Power Corporation; Tampa Electric Company; and Gulf Power Company. Issues: Comparison of Forecasted Cost-Effective Conservation Potentials for Florida.

126. Expert Testimony: Docket 920260-TL, (1993). Before the Florida Public Service Commission. On the Behalf of the Florida Public Service Commission Staff. Company analyzed: BellSouth Communications, Inc. Issues: Telephone Demand Forecasts and Empirical Estimates of the Price Elasticity of Demand for Telecommunication Services.
127. Expert Testimony: Docket 920188-TL, (1992). Before the Florida Public Service Commission. On the Behalf of the Florida Public Service Commission Staff. Company analyzed: GTE-Florida. Issues: Telephone Demand Forecasts and Empirical Estimates of the Price Elasticity of Demand for Telecommunication Services.

REFEREE AND EDITORIAL APPOINTMENTS

Contributor, 2014-Current, *Wall Street Journal*, *Journal Reports*, *Energy*

Editorial Board Member, 2015-Current, *Utilities Policy*

Referee, 2014-Current, *Utilities Policy*

Referee, 2010-Current, *Economics of Energy & Environmental Policy*

Referee, 1995-Current, *Energy Journal*

Contributing Editor, 2000-2005, *Oil, Gas and Energy Quarterly*

Referee, 2005, *Energy Policy*

Referee, 2004, *Southern Economic Journal*

Referee, 2002, *Resource & Energy Economics*

Committee Member, IAEE/USAEE Student Paper Scholarship Award Committee, 2003

PROPOSAL TECHNICAL REVIEWER

California Energy Commission, Public Interest Energy Research (PIER) Program (1999).

PROFESSIONAL ASSOCIATIONS

American Economic Association, American Statistical Association, Southern Economic Association, Western Economic Association, International Association of Energy Economists ("IAEE"), United States Association of Energy Economics ("USAEE"), the National Association for Business Economics ("NABE"), and the Energy Bar Association.

HONORS AND AWARDS

National Association of Regulatory Utility Commissioners (NARUC). Best Paper Award for papers published in the *Journal of Applied Regulation* (2004).

Baton Rouge Business Report, Selected as "Top 40 Under 40" (2003).

Omicron Delta Epsilon (1992-Current).

Interstate Oil and Gas Compact Commission (IOGCC) "Best Practice" Award for Research on the Economic Impact of Oil and Gas Activities on State Leases for the Louisiana Department of Natural Resources (2003).

Distinguished Research Award, Academy of Legal, Ethical and Regulatory Issues, Allied Academics (2002).

Florida Public Service Commission, Staff Excellence Award for Assistance in the Analysis of Local Exchange Competition Legislation (1995).

TEACHING EXPERIENCE

Energy and the Environment (Survey Course)

Principles of Microeconomic Theory

Principles of Macroeconomic Theory

Lecturer, Environmental Management and Permitting. Lecture in Natural Gas Industry, LNG and Markets.

Lecturer, Electric Power Industry Environmental Issues, Field Course on Energy and the Environment. (Dept. of Environmental Studies).

Lecturer, Electric Power Industry Trends, Principles Course in Power Engineering (Dept. of Electric Engineering).

Lecturer, LSU Honors College, Senior Course on "Society and the Coast."

Continuing Education. Electric Power Industry Restructuring for Energy Professionals.

"The Gulf Coast Energy Situation: Outlook for Production and Consumption." Educational Course and Lecture Prepared for the Foundation for American Communications and the Society for Professional Journalists, New Orleans, LA, December 2, 2004

"The Impact of Hurricane Katrina on Louisiana's Energy Infrastructure and National Energy Markets." Educational Course and Lecture Prepared for the Foundation for American Communications and the Society for Professional Journalists, Houston, TX, September 13, 2005.

"Forecasting for Regulators: Current Issues and Trends in the Use of Forecasts, Statistical, and Empirical Analyses in Energy Regulation." Instructional Course for State Regulatory Commission Staff. Institute of Public Utilities, Kellogg Center, Michigan State University. July 8-9, 2010.

"Regulatory and Ratemaking Issues with Cost and Revenue Trackers." Michigan State University, Institute of Public Utilities. Advanced Regulatory Studies Program. September 29, 2010.

"Demand Modeling and Forecasting for Regulators." Michigan State University, Institute of Public Utilities. Advanced Regulatory Studies Program. September 30, 2010.

"Demand Modeling and Forecasting for Regulators." Michigan State University, Institute of Public Utilities, Forecasting Workshop, Charleston, SC. March 7-9, 2011.

"Regulatory and Cost Recovery Approaches for Smart Grid Applications." Michigan State University, Institute of Public Utilities, Smart Grid Workshop for Regulators. Charleston, SC. March 7-11, 2011.

"Regulatory and Ratemaking Issues Associated with Cost and Expense Adjustment Mechanisms." Michigan State University, Institute of Public Utilities, Advanced Regulatory Studies Program. Lansing, Michigan. September 28, 2011.

"Utility Incentives, Decoupling, and Renewable Energy Programs." Michigan State University, Institute of Public Utilities, Advanced Regulatory Studies Program. Lansing, Michigan. September 29, 2011.

"Regulatory and Cost Recovery Approaches for Smart Grid Applications." Michigan State University, Institute of Public Utilities, Smart Grid Workshop for Regulators. Charleston, SC. March 6-8, 2012.

"Traditional and Incentive Ratemaking Workshop." New Mexico Public Utilities Commission Staff. Santa Fe, NM October 18, 2012.

"Traditional and Incentive Ratemaking Workshop." New Jersey Board of Public Utilities Staff. Newark, NJ. March 1, 2013.

THESIS/DISSERTATIONS COMMITTEES

Active:

2 Thesis Committee Memberships (Environmental Studies)

1 Ph.D. Dissertation Committee (Economics)

Completed:

6 Thesis Committee Memberships (Environmental Studies, Geography)

4 Doctoral Committee Memberships (Information Systems & Decision Sciences, Agricultural and Resource Economics, Economics, Education and Workforce Development).

2 Doctoral Examination Committee Membership (Information Systems & Decision Sciences, Education and Workforce Development)

1 Senior Honors Thesis (Journalism, Loyola University)

LSU SERVICE AND COMMITTEE MEMBERSHIPS

Committee Member, Energy Education Curriculum Committee. E.J. Ourso College of Business. LSU (2016-Current).

Chairman, LSU Energy Initiative/LSU Energy Council (2014-Current).

Co-Director & Steering Committee Member, LSU Coastal Marine Institute (2009-2014).

CES Promotion Committee, Division of Radiation Safety (2006).

Search Committee Chair (2006), Research Associate 4 Position.

Search Committee Member (2005), Research Associate 4 Position.

Search Committee Member (2005), CES Communications Manager.

LSU Graduate Research Faculty, Associate Member (1997-2004); Full Member (2004-2010); Affiliate Member with Full Directional Rights (2011-2014); Full Member (2014-current).

LSU Faculty Senate (2003-2006).

Conference Coordinator. (2005-Current) Center for Energy Studies Conference on Alternative Energy.

LSU CES/SCE Public Art Selection Committee (2003-2005).

Conference Coordinator. Center for Energy Studies Annual Energy Conference/Summit. (2003-Current).

Conference Coordinator. Center for Energy Studies Seminar Series on Electric Utility Restructuring and Wholesale Competition. (1996-2003).

Co-Chairman, Review Committee, Louisiana Port Construction and Development Priority Program Rules and Regulations, On Behalf of the LSU Ports and Waterways Institute. (1997).

LSU Main Campus Cogeneration/Turbine Project, (1999-2000).

LSU InterCollege Environmental Cooperative. (1999-2001).

LSU Faculty Senate Committee on Public Relations (1997-1999).

LSU Faculty Senate Committee on Student Retention and Recruitment (1999-2003).

PROFESSIONAL SERVICE

Program Committee Member (2015). Gulf Coast Power Association Workshop/Special Briefing. "Gulf Coast Disaster Readiness: A Past, Present and Future Look at Power and Industry Readiness in MISO South."

Advisor (2008). National Association of Regulatory Utility Commissioners ("NARUC"). Study Committee on the Impact of Executive Drilling Moratoria on Federal Lands.

Steering Committee Member, Louisiana Representative (2008-Current). Southeast Agriculture & Forestry Energy Resources Alliance. Southern Policies Growth Board.

Advisor (2007-Current). National Association of State Utility Consumer Advocates ("NASUCA"), Natural Gas Committee.

Program Committee Chairman (2007-2008). U.S. Association of Energy Economics ("USAEE") Annual Conference, New Orleans, LA

Finance Committee Chairman (2007-2008). USAEE Annual Conference, New Orleans, LA

Committee Member (2006), International Association for Energy Economics ("IAEE") Nominating Committee.

Founding President (2005-2007) Louisiana Chapter, USAEE.

Secretary (2001) Houston Chapter, USAEE.

Advisor, Louisiana LNG Buyers/Developers Summit, Office of the Governor/Louisiana Department of Economic Development/Louisiana Department of Natural Resources, and Greater New Orleans, Inc. (2004).