ORAL ARGUMENT NOT YET SCHEDULED

CASE NO. 11-1364

(related to Case Nos. 11-1302, 11-1315. 11-1323, 11-1329, 11-1338, 11-1340, 11-1350, and 11-1357)

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

THE STATE OF LOUISIANA,
THE LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
AND THE LOUISIANA PUBLIC SERVICE COMMISSION

Petitioners,

versus

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND
LISA P. JACKSON, ADMINISTRATOR

Respondents.

On Petition for Review from a Final Order of the
United States Environmental Protection Agency

AFFIDAVIT OF DAVID E. DISMUKES, PH.D.

I. Introduction

1. My name is David E. Dismukes. My business address is 5800 One Perkins Place Drive, Suite 5-F, Baton Rouge, Louisiana, 70808. I am a Consulting Economist with the Acadian Consulting Group ("ACG"), a research and consulting firm that specializes in the analysis of regulatory, economic, financial, accounting, and public policy issues associated with energy and infrastructure industries. ACG is a Louisiana-registered partnership, formed in 1995, and is located in Baton Rouge, Louisiana.

2. I hold both M.S. and Ph.D. degrees in economics from Florida State University. Over the past 22 years, I have been actively involved in research, government service, and consulting involving energy and infrastructure industries. My professional experience includes the examination of economic, statistical, and public policy issues in regulated and energy industries.

3. I have participated in over 250 regulatory proceedings in 18 states and have prepared expert witness testimony, reports, and affidavits in Florida, Indiana, Illinois, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Nebraska, Nevada, New Jersey, Ohio, South Carolina, Texas, Utah, Washington and before the Federal Energy Regulatory Commission ("FERC"). I have also testified before the U.S. Congress and various state legislatures. In all of these litigated proceedings, I was accepted as an expert in matters involving economics, statistics, and energy and related infrastructure industries.

4. In addition to my consulting work, I serve as a Professor, Associate Executive Director, and Director of Policy Analysis at the Center for Energy Studies, Louisiana State University ("LSU"). I am also an Adjunct Professor in the E. J. Ourso College of Business

Administration (Department of Economics), a co-director of the Coastal Marine Institute in the School of the Coast and Environment, and a member of the graduate research faculty at LSU.

5. I have published over 120 articles, professional papers, reports, book chapters, books, and manuscripts on energy and infrastructure industries. My professional research experience includes the analysis of a wide range of issues related to regulated energy companies, particularly electric and natural gas utilities. This research includes the examination of resource planning issues, power and natural gas market restructuring, ratemaking and cost recovery issues, power plant efficiency, multi-area dispatch modeling issues, ratemaking and cost of service modeling, and the integration of environmental considerations on utility operations. I am the co-author of a widely-used text book on power plant operations and policy entitled *Operations and Planning in a Competitive Market*, published by CRC Press.

6. I have worked as an advisor or consultant to the Louisiana Public Service Commission ("LPSC" or "the Commission") for over 15 years. My work has primarily been associated with advising the Commission on a variety of ratemaking, public policy, and energy market issues. I have served as the primary outside consultant advising the LPSC over the past four years on the development of policies and ratemaking mechanisms for the recovery of environmental costs, including those associated with the Clean Air Interstate Rule, or "CAIR."

7. A copy of my academic vitae has been provided as Attachment 1 to this affidavit and includes a list of my professional employment positions, publications, technical reports, presentations, and expert reports, testimonies, and affidavits.

8. The LPSC has asked me to review and offer an expert opinion on: (a) the total budget and emissions allowance allocations to Louisiana electric generation units ("EGUs") included in the Cross State Air Pollution Rule ("CSAPR"), published on August 7, 2011; (b) the

potential costs and rate impacts that may arise from Louisiana EGU compliance with CSAPR; and (c) the modeling used by the EPA to allocate Louisiana EGU emissions allowances under CSAPR.

9. In preparing this affidavit, and my expert opinions contained herein, I, and my staff working under my direct supervision, conducted an extensive review of the EPA's power market modeling documentation, defining the methods and assumptions under which emissions allowances included in the Federal Implementation Plan ("FIP") associated with CSAPR were developed. I also researched necessary publicly-available generation and transmission data, including data reported to: regulatory agencies in the State of Louisiana; the U.S. Department of Energy, Energy Information Administration; the FERC; the North American Reliability Council ("NERC") and its respective regional organizations located in Louisiana; and supplemental information provided directly to the Commission and the Louisiana Department of Environmental Quality ("DEQ"). A partial list of sources and data that I used in the preparation of my expert opinions has been provided as Attachment 2. I also participated in a docket opened by the LPSC in which all interested Louisiana stakeholders were invited to submit comments concerning the effect of CSAPR on such commenter's specific operations. I conducted a thorough review of the comments, documents, and data from the participating parties. Excerpts from that LPSC Docket are attached hereto as Attachment 3. I also reviewed the comments filed by the LPSC in response to the proposed Clean Air Transport Rule ("CATR") and such comments are attached hereto as Attachments 4 and 5. I have examined documents, data, and information that I, in my expert opinion, believe is necessary for me to evaluate the impacts of CSAPR on Louisiana. It is my expert opinion that such documents, data, and information are sufficient for me to perform my analysis and render my expert opinions as set forth below.

10. This affidavit is organized into the following sections.

a. Summary of Expert Opinions.

b. The EPA modeling does not properly account for intra-state constraints within Louisiana as well as other constraints to importing power from out of state sources.

c. The EPA model used to develop the emissions allowances for Louisiana includes incorrect data and assumptions with respect to the operational status and operating efficiency of a significant number of Louisiana EGUs.

d. The EPA model ignores the reliability requirements on Louisiana utilities that require operation of older EGUs used to ensure system reliability.

e. CSAPR's compliance timeline is unreasonable and likely to lead to unnecessary costs.

f. The EPA did not account for the proposed rate impacts on Louisiana utilities and ratepayers in its analysis of CSAPR.

g. Conclusions and Expert Opinions.

II. Summary of Expert Opinions.

11. It is my expert opinion that CSAPR budgets an unreasonable number of ozone season ("OS") nitrous oxide ("NOx") allowances to Louisiana EGUs. Louisiana's NOx emissions budget is not only significantly lower than CAIR, the rule CSAPR is intended to replace, but significantly lower than EPA's immediate past CAIR-replacement rule proposal known as the Cross State Transport Rule ("CATR").

12. The unreasonably low Louisiana OS NOx budget will reduce market liquidity for tradable allowances, will drive up compliance costs for utilities and their respective ratepayers, and will likely create significant harm on in-state electric power reliability. The power reliability challenges that are likely to arise from CSAPR implementation are likely to have a direct, adverse impact on the health and safety of Louisiana citizens. Further, CSAPR is likely to have a direct adverse economic, operational, and availability impact on a wide range of critical energy infrastructure located in Louisiana including refineries, petrochemical facilities, gas processing

stations, compression stations for interstate pipelines, and in some instances, the direct production of oil and natural gas.

13. The Integrated Planning Model ("IPM") used by the EPA in developing the allocation of an already limited Louisiana emissions budget is faulty since it relies upon an unreasonable set of assumptions, inaccurate data, and simply fails to appropriately model the unique nature of Louisiana's power markets. These IPM shortcomings lead to an NOx emissions allocation that fails to support a wide range of utility regulatory-must-run ("RMR") EGUs needed to meet important Louisiana power reliability objectives including, but not limited to, load following, backup power, and voltage support. Many Louisiana utilities have maintained that the limited availability of emission allowances under CSAPR will likely lead to widespread blackouts and brownouts in the state during at least the 2012 and 2013 summer seasons. The EPA has provided no information from its modeling output, nor in response to other informal data requests made by the LDEQ and the LPSC, that contradicts the reliability-related concerns expressed by Louisiana utilities. Further, the EPA has provided no specific information that clearly indicates which Louisiana EGUs, or which specific EGUs outside the Entergy sub-region, would be available, and at what levels, to meet the generation requirements of Louisiana EGUs given zero, or an exceptionally limited number of allowances, under CSAPR. Thus, there is no basis to contradict Louisiana utilities' statements, nor their LPSC-filed formal comments, since the EPA has not provided any modeling output nor any other source of information that clearly demonstrates that Louisiana utilities will be able to comply with CSAPR and meet Louisiana's reliability requirements needs at the same time.

14. CSAPR sets an unreasonable compliance timeline that will likely impose significant economic and reliability-related costs. While EGUs, in theory, face a wide range of

potential options for mitigating emissions, those options take time to prudently plan, achieve regulatory approvals, and implement. Most of the meaningful EGU resource options that could be used, individually or collectively, to comply with CSAPR, will take several years to design and develop. Most CSAPR compliance options, such as the installation of control technologies, repowering existing facilities to more efficient technologies, developing additional transmission to move remote higher efficiency generation at industrial facilities, and fuel switching, will take between three to five years to plan, design, achieve regulatory approval, and implement.

15. CSAPR is likely to lead to a significant increase in Louisiana-specific utility costs. These cost increases could amount to over $2 billion, and result in several hundred million in new revenue requirements for Louisiana's regulated utilities over the next five years. These new CSAPR-compliance investments could increase rates by over 12 percent during the 2012 to 2017 time period if the potential capital costs associated with unlikely immediate installation of control technologies on over 9,000 megawatts ("MWs") of Louisiana electric generating capacity were incurred. CSAPR's expedited timeline will likely force Louisiana's utilities to incur additional uneconomic costs through the inefficient use of higher cost, lower emissions fuel; higher market premiums for purchased power, fuel, and equipment due to CSAPR-created market scarcity; and increased regulatory compliance costs.

III. The EPA modeling does not properly account for intra-state constraints within Louisiana as well as other constraints to importing power from out of state sources.

16. CSAPR's emission allowance allocations for Louisiana's EGUs are based upon a modeling approach that fails to capture a number of significant transmission constraints located within the state. The IPM model incorrectly limits its transmission constraints on what is referred to as the "total transfer capabilities" between modeling regions.[1] These transfer

[1] IPM Analysis of the Cross-State Air Pollution Rule (CSAPR), EPA Base Case v.4.10 FTransport, pp. 3-5.

capabilities, however, are not good representations of the true transmission constraints within Louisiana since they are broadly constructed, assumed to be relatively constant, even during peak and off-peak periods, are assumed to be simultaneously available, and are assumed to be the only meaningful transmission constraints that should be modeled for the determination of the appropriate baseline level of emissions for Louisiana EGUs.

17. Figure 1 illustrates the broad, regional transmission interconnections assumed in the IPM between Louisiana (or the Entergy control area) and adjacent regions.

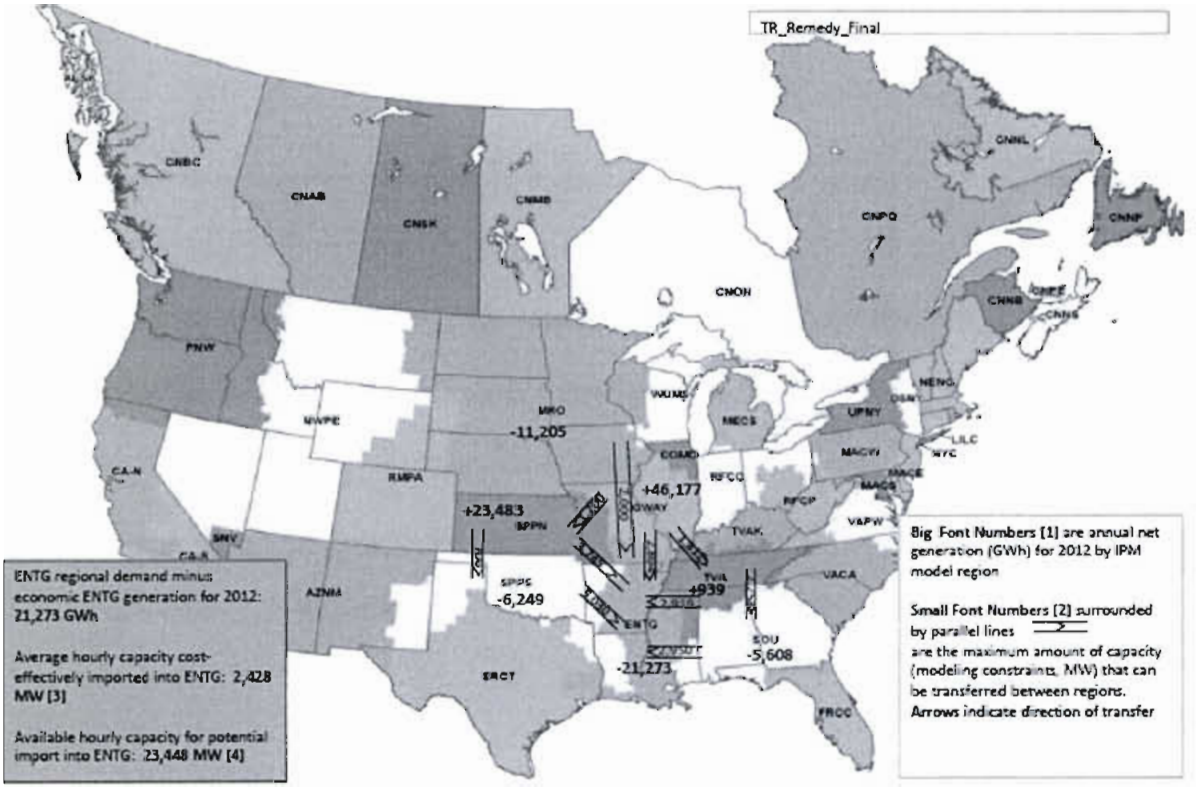

Figure 1: Net General and Transfer Potential[2]

The mapping and identification of the IPM power flows and transfer capabilities highlights the error in the model's transmission assumptions. First, the IPM simply examines broad

[2] "IPM Modeling Results for CSAPR - Focus on Louisiana 08-29-11.xlsx" provided by EPA on August 29, 2011.

simultaneous power flows between regions that do not attempt to recognize any circuit-specific or even area-specific transmission constraints. The IPM also conducts no model output sensitivities that would identify differing loading thresholds that can change due to differences in demand or generator availability, or other seasonal differences that, taken together on a simultaneous basis, can significantly reduce the amount of power that can be imported into any specific control area.

18. In fact, the IPM "transmission constraints" are nothing more than non-simultaneous annual power flow capabilities rather than an effective representation of potential ozone season-specific constraints that could potentially limit power imports from neighboring regions. Presumably, these power flow capabilities allow the IPM to conclude that more efficient out-of-region generation can be imported into Louisiana to offset, at least in part, the generation typically produced by Louisiana EGUs given zero allowances under CSAPR. Further, importable resources are not identified as being unit-contingent, but appear to be characterized as some amorphous flow of power from some undefined set of generators, in some unspecified neighboring geographical locations. These IPM model assumptions regarding Louisiana power import capabilities for Louisiana are not plausible based on my knowledge and experience with how system transmission constraints are represented by Louisiana utilities to both their state and federal energy regulators.

19. The IPM also assumes that the significant dumps of power into the SPPS and ENTG regions can be moved throughout the entire Entergy/Louisiana footprint freely and unimpeded, with no additional transmission or generation constraints over an area that spans from the Oklahoma and Missouri borders to the southern-most reaches of Louisiana. Such assumptions are unreasonable and entirely inconsistent with the daily operation of the SPPS and

ENTG regions. These assumptions will likely compromise regional reliability as generators within the various geographically and/or transmission-constrained areas of Louisiana, that received zero or significantly reduced emissions allowances, will likely have no recourse in the near term (i.e., summers of 2012 to 2014) other than to shut down.

20. Figure 2 highlights the planning sub-regions within the Entergy control area that includes: (1) North Arkansas; (2) the Central planning area; (3) the Western planning area; (4) the area west of the Atchafalaya basin ("WOTAB"); (5) the Amite South area; and (6) the area downstream of the Little Gypsy generating plant ("DSG").

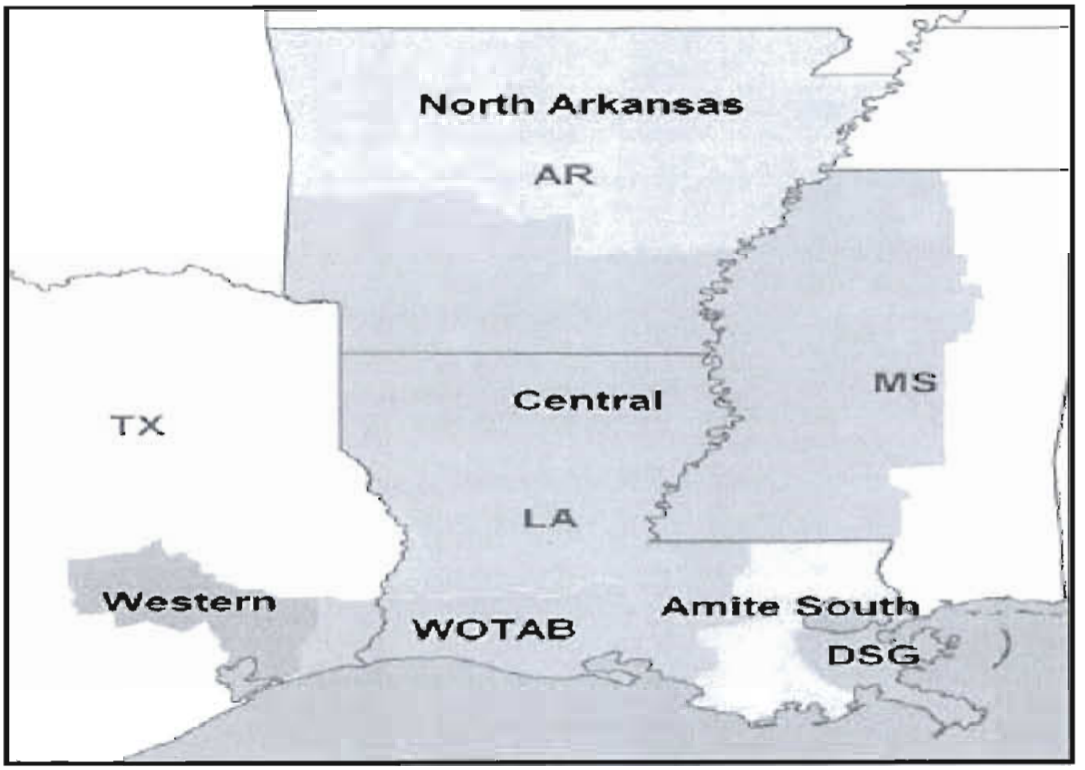

Figure 2: Entergy System Planning Regions[3]

[3] Entergy New Orleans, Inc. Integrated Resource Plan 2010, Chapters 1-12 available at http://www.entergy-neworleans.com/irp/irp_2010.aspx.

Each of these Entergy transmission areas has its own unique transmission constraints (both within and between these planning areas). However, of the six planning areas, the three most southern areas (WOTAB, Amite South, and DSG) tend to face the highest transmission congestion and are the most constrained. These three southern-most transmission planning regions also tend to be the areas with the highest concentrations of households, businesses, industries, and critical energy infrastructure within Louisiana.

21. The IPM entirely overlooks these area-specific constraints. The IPM's exclusion of any sub-regional transmission constraints leads to erroneous EGU-specific allocations. Each of these three highly transmission-constrained planning areas (i.e., WOTAB, Amite South, DSG) tend to operate, particularly during the summer months, as load pockets with highly restricted power flows given their geographic remoteness and geographic restrictions (bayous, swamps, other water bodies) and the high costs of operating around these characteristics through the development of large long-distance transmission lines. The IPM overlooks these basic geographic facts by assuming that that power can move freely both within and between each of these highly constrained areas. Because the EPA did not consider the fact that the transmission constraints within the SPPS and ENTG regions will not allow power to flow fully within the state, the emissions budget assigned to specific Louisiana EGUs is unreasonable.

22. Figure 3 shows the generating units that received zero, or a deficient number of allowances, under CSAPR, by Entergy transmission planning area.

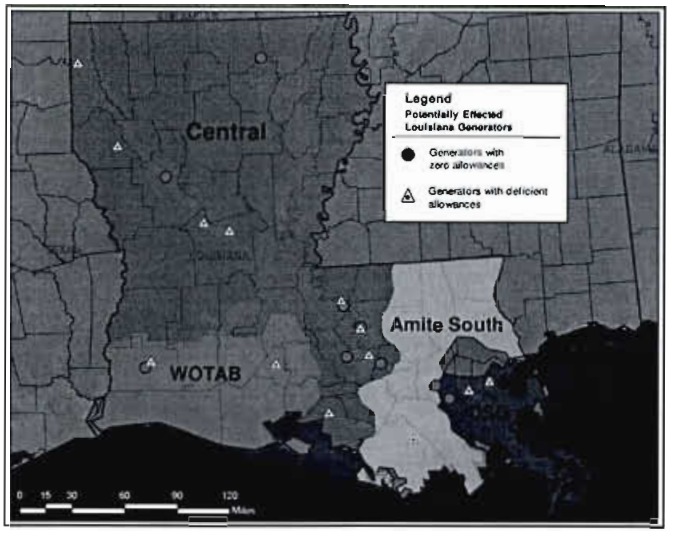

Figure 3. Entergy System Planning Regions and Generating Units[4]

*Note: In instances where multiple generators at a plant received zero allowances or a deficient amount of allowances, more than one generator may be represented by an individual symbol.

23. EGUs with zero allowances are indicated by the red circle symbol, while units given a deficient number of allowances are indicated by the yellow triangle symbol. CSAPR would limit allowances within WOTAB to just 2,573 tons during the 2012 ozone season when some 3,598 tons are needed to meet basic load demands within this area based upon average annual three year emissions. There are four units, accounting for some 251 MWs of capacity that would receive zero allowances in the WOTAB area under CSAPR.[5] CSAPR would also dramatically reduce the necessary allowances for utility-owned units located in the Amite South region. CSAPR would allocate some 1,305 tons of allowances for EGUs located in this portion of the state, when close to 2,492 tons should be allocated to these generators in order to meet their historic three-year average emissions.[6] Failure to allocate the appropriate number of

[4] Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), Final CSAPR Unit Level Allocations under the FIP and Underlying Data, U.S. EPA 2011.

[5] *Id.*

[6] *Id.*

allowances for EGUs in this area of South Louisiana, in particular, could have dramatic reliability impacts during the 2012 ozone season as described by Entergy in their comments to the LPSC in Docket No. R-29380, Subdocket B.[7]

24. Finally, CSAPR would dramatically reduce the necessary allowances for utility-owned units located in the DSG region: the area serving the metropolitan area of New Orleans, Louisiana. CSAPR would allocate some 2,037 tons of allowances for EGUs located in the DSG area, when close to 5,093 tons should be allocated to these generators in order to meet their historic three-year average emissions. Once again, failure to allocate the appropriate number of allowances for EGUs in the DSG area will likely result in power outages in the New Orleans-area next summer.

IV. The EPA model used to develop the emissions allowances for Louisiana includes incorrect data and assumptions with respect to the operational status and operating efficiency of a significant number of Louisiana EGUs.

25. The IPM used to develop Louisiana allowances within CSAPR also includes a number of faulty assumptions associated with the development of new units and the operation of existing units. For instance, the IPM assumes that over 660 MWs of new lower emissions generation capacity will be developed and operational by 2014. These units would have to begin the permitting and development processing, if not some initial construction, immediately in order to meet these operational assumptions. The LPSC has not been notified, nor has it approved or issued Certificates of Non-Jurisdictional Status, to any new generation units of the type envisioned by the IPM and upon which EPA's CSAPR NOx allowance allocations have been based.

26. The new unit assumptions used in the IPM are provided in Table 1. This table has been restricted to natural gas generation since the IPM assumes the addition of some 559 MW

[7] Attachment 3 at pp. 064-087.

new Louisiana-based combined cycle ("CC") generators and 103 MW of new Louisiana-based combustion turbine ("CT") generators.

Table 1: New Unit Assumptions[8]

	Advanced Combined Cycle	Advanced Combustion Turbine
Size (MW)	560	170
Availability (%)	87%	92%
Capacity Factor (%)	71%	32%
Heat Rate (Btu/kWh)	6,810	10,720
NOx Emission Rate (lbs/MMBtu)	0.01	0.01
Overnight Capital Cost (2007$/kW)	$ 976	$ 698
Fixed O&M (2007$/kW/yr)	$ 14.4	$ 12.3
Variable O&M (2007$/MWh)	$ 2.57	$ 3.59

27. CSAPR does not explain where these new CC and CT units will be built, who will build these units, or whether these units can even be designed, engineered, permitted, and constructed in the estimated IPM time period. The assumption that several of these units will come on-line in 2014 is clearly challenged.

28. The IPM assumptions regarding new generator costs and operating characteristics are faulty relative to Louisiana-specific information. One of the first data errors in EPA's IPM model rests with the timing of new generation. EPA assumes that new combined cycle ("CC") generation can be developed within Louisiana in less than three (3) years.

29. While it may be possible to construct a new CC unit in three years, it can take anywhere from three (3) to five (5) years to design, engineer, permit and construct a new CC unit, much less get through the FERC-regulated interconnection study process. The EPA fails to

[8] Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), Capacity Factors Analysis for New Units Final Rule TSD, U.S. EPA 2011; and IPM Analyses of the Cross-State Air Pollution Rule (CSAPR), Documentation: EPA Base Case v.4.10_FTransport, U.S. EPA 2011.

grasp this reality and sets Louisiana emission allowance allocations that simply are unattainable in the time period assumed by the model.

30. Another serious data error included in EPA's IPM model is the estimated operating characteristics for new CC units. The EPA assumes that a CC unit will operate at a 71 percent capacity factor, a heat rate of 6,810 MMBtu, and emit only 0.01 pounds of NOx per MMBtu utilized for generation purposes. These assumptions are drastically inconsistent with the past performance of Louisiana's utility-owned CC units over the past three years.

31. Historically, Louisiana's CC units are sized at an average capacity of 680 MWs per project; about 22 percent larger than the EPA IPM assumption of 560 MW.[9] This point is significant because the size of an EGU influences the potential attained capacity utilization, whether or not a unit is operating at its fully loaded heat rate, its thermal efficiencies, and ultimately its NOx emissions.

32. Louisiana's utility-owned CC generators have operated at about a fifty-six (56) percent capacity utilization rate, on an average annual basis for the past three years.[10] As a consequence, Louisiana's CC units tend to operate at an average heat rate of 8,300 MMBtu, and emit, on average, some 0.30 pounds per MWh generated, not a 6,810 heat rate as assumed by EPA, nor an emissions rate of less than 0.10 pounds per MWh generated, as well.[11]

33. Thus, Louisiana's CC units operate at a capacity utilization rate some 27 percent lower, a heat rate 18 percent higher (less efficient), and an emissions rate some 97 percent higher

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[9] Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), Final CSAPR Unit Level Allocations under the FIP and Underlying Data, U.S. EPA 2011; and IPM Analyses of the Cross-State Air Pollution Rule (CSAPR), IPM Results: IPM Run Files and Parsed Files, TR_Remedy_Final.zip available at http://www.epa.gov.

[10] Clean Air Markets, Data and Maps available at http://camddataandmaps.epa.gov/gdm (2011); and IPM Analyses of the Cross-State Air Pollution Rule (CSAPR), IPM Results: IPM Run Files and Parsed Files, TR_Remedy_Final.zip available at http://www.epa.gov.

[11] *Id.*

than the IPM model suggests. EPA's IPM new unit model assumptions, therefore, would suggest an operating performance for new CC units that is entirely inconsistent with past experience for CC generators in Louisiana and likely unattainable based on real-world, reportable information.

34. While EPA could argue that Louisiana could, and should, improve its generator efficiency performance, and that the IPM assumptions and results simply reflect these efficiency opportunities, such an argument would be factually incorrect and inconsistent with power generation markets within the state and the manner in which Louisiana's regulated utilities have operated their generation facilities, particularly in the congested and highly industrialized portions of South Louisiana.

35. For instance, Entergy and its respective operating companies, stated in their most recent integrated resource planning document, referred to as the Strategic Supply Resource Plan ("SSRP"), that the low capital cost capacity currently utilized at strategic times during the year is an important component of meeting what it refers to as its "flexible capacity requirements."[12] The SSRP is attached as Attachment 6 of this affidavit.

36. According to the SSRP, these typically older, lower capital cost, but higher-than-average operating cost resources are needed to meet a variety of unique load requirements that include: load following; accounting for qualifying facility ("QF") puts; load imbalances; and operating reserves.[13] Entergy notes that one of its more problematic load requirements rests with meeting its legal obligations under the Public Utilities Regulatory Policy Act of 1978

[12] In re: Resolution regarding proposed rulemaking to establish integrated resource planning components and reporting requirements for Entergy New Orleans, Inc. before the Council of the City of New Orleans, Docket No. UD-08-02, Entergy New Orleans, Inc., Integrated Resource Plan Status Report, submitted for public comment on September 30, 2008.

[13] *Id.*

("PURPA") to purchase all of the QF power "put" to its system at the LPSC-approved avoided costs.[14]

37. Today, there are some 39 QFs in Louisiana that can account for over 6,700 MWs of in-state capacity.[15] On any given day, and on any given hour, these QFs can become sellers of a considerable amount of power to the Entergy system. According to Entergy, these flexible capacity requirements will require the Company to hold, on average, somewhere between 4,000 MWs to 6,000 MWs of capacity in "flexible reserve."[16] Entergy notes in its SSRP that sometimes the flexible capacity requirements can reach levels as high as 9,000 MWs, an amount close to the level of capacity that was arbitrarily stripped of allowances under CSAPR.[17]

38. Entergy is required under current federal law to purchase QF power whether it is needed or not. In order to balance its system requirements, Entergy (like many utilities) can often be forced to ramp-down its existing regulated generation to accept power from QFs, particularly during off-peak periods when the power is not needed. Entergy's SSRP notes that these types of QF purchases require the Company to maintain a significant amount of flexible capacity, particularly during off-peak hours, to accommodate these QF "puts."

39. Entergy has regularly noted that QF puts can lead to a dispatch outcome than could be perceived as inefficient when in fact, the outcomes do serve the economic purpose of

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[14] *Id.*

[15] Energy Information Administration, U.S. Department of Energy, Annual Electric Generator Report available at http://www.eia.gov/cneaf/electricity/page/data.html.

[16] In re: Resolution regarding proposed rulemaking to establish integrated resource planning components and reporting requirements for Entergy New Orleans, Inc. before the Council of the City of New Orleans, Docket No. UD-08-02, Entergy New Orleans, Inc., Integrated Resource Plan Status Report, submitted for public comment on September 30, 2008; and Attachment 3 at p. 072.

[17] *Id.*

utilizing older, less capital intensive units to minimize the overall average cost of providing generation services to its regulated ratepayers.

40. Entergy has noted on several occasions, including its SSRP, that it believes the use of older, lower-capital cost generators, that may burn more heat inputs at the margin, will tend to place a much lower burden on the Company's ongoing rate base requirements than newer, more efficient, but higher capital cost state-of-the-art generation. The fact that these units will typically operate at capacity factors well below their optimal fully-loaded heat rate, will create an additional inefficiency over and beyond those related to the units' vintage and age, but is part of the tradeoff that the LPSC evaluates in its consideration of Entergy's rates and service. A list of many of these older units that have not been given any allowances under CSAPR is provided in Table 2 below.

Table 2. Units with No Allowances[18]

		Ozone Season NO_X Emissions					CSAPR Allocation	
		2006	2007	2008	2009	2010	2012	2014
		(tons)						
Big Cajun 1	1B2	-	-	-	-	-	-	-
Michoud	1	0.0	-	-	-	0.1	-	-
Natchitoches	10	0.8	0.7	1.2	-	-	-	-
Sterlington	10	0.0	-	-	-	-	-	-
Waterford 1 & 2	4	-	-	-	2.6	0.3	-	-
Dow St Charles Operations	CGN1	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Dow St Charles Operations	CGN2	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Formosa Plastics	GT2	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Formosa Plastics	GT3	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Georgia Gulf Plaquemine	X773	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Georgia Gulf Plaquemine	X774	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Georgia Gulf Plaquemine	X775	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
PPG Powerhouse C	C1	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
PPG Powerhouse C	C2	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
PPG Powerhouse C	C4	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
PPG Powerhouse C	C5	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Shell Chemical	101G	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Shell Chemical	201G	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Exxon Mobil Corp	CTG1	n.a.	n.a.	n.a.	n.a.	n.a.	-	-

[18] Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), Final CSAPR Unit Level Allocations under the FIP and Underlying Data, U.S. EPA 2011.

41. Thus, the EPA, through its use of the faulty assumptions included in the IPM, has completely overlooked a large number of important historic operating practices of Louisiana's largest utility and the one that will be required to make the biggest percent emissions (generation) reduction and likely incur the largest percent increase in costs, under CSAPR.

42. While broad-based, power production models, such as the IPM, often rely on generalizations and assumptions to compensate for lack of utility or unit-specific information, these types of generalized production models are typically not used as the sole basis for allocating important emission allowances that will determine high-stakes economic winners and losers in a major change of regulation. The results of the IPM are entirely deficient when it comes to "ground-truthing" model outputs. The stakes associated with EPA's regulations are simply too large to simply rely on such a model alone.

43. The CSAPR budget also fails to recognize the significant strides Louisiana's regulators have taken over the past several years to maximize the use of new generation technologies and efficiencies to reduce costs and emissions while also evaluating the impact these changes may have on rates. Figure 4, for instance, shows that while Louisiana fossil generation has increased by as much as 38 percent since 2001, NOx emissions have been reduced by nearly 42 percent over a comparable time period. In fact, overall NOx levels were as high as 100,000 tons at their 1999 peak and by 2010, are almost half of that level. This result was achieved through considerable, concerted, and coordinated statewide regulatory actions that balance costs and benefits to all Louisiana power market stakeholders.

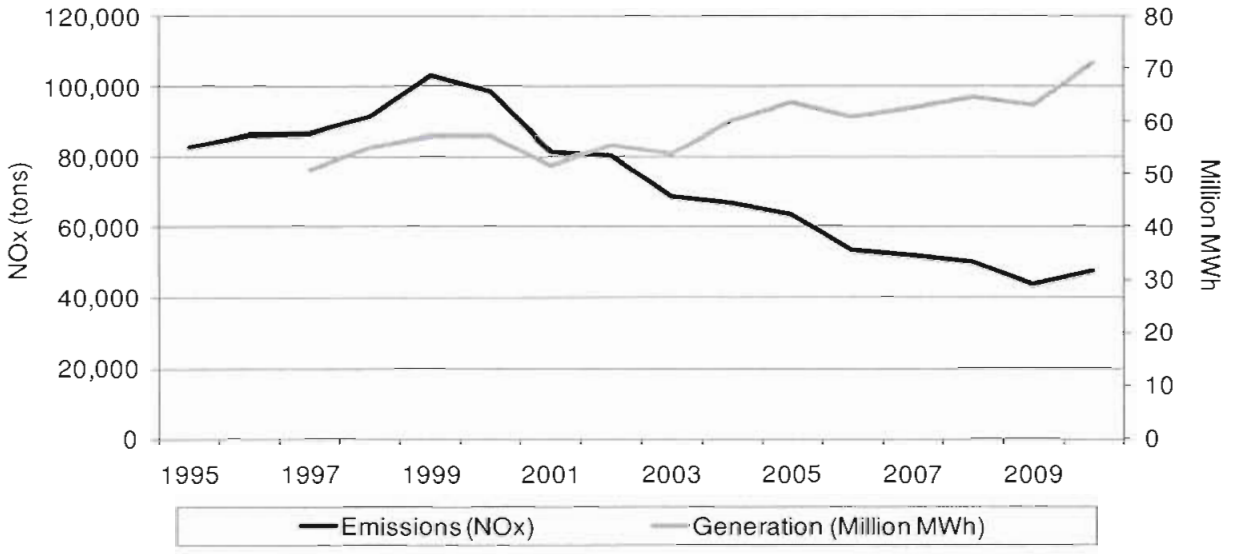

Figure 4. Historic Louisiana Generation and Emissions[19]

44. Figure 5 shows the bottom line impact of these dramatic changes. Louisiana's heat input efficiencies (heat rate) have fallen from a high of 11,305 Btu/kWh in 2001 to a 2010 level of 9,663 Btu/kWh: a 15 percent reduction or improvement in thermal efficiency.

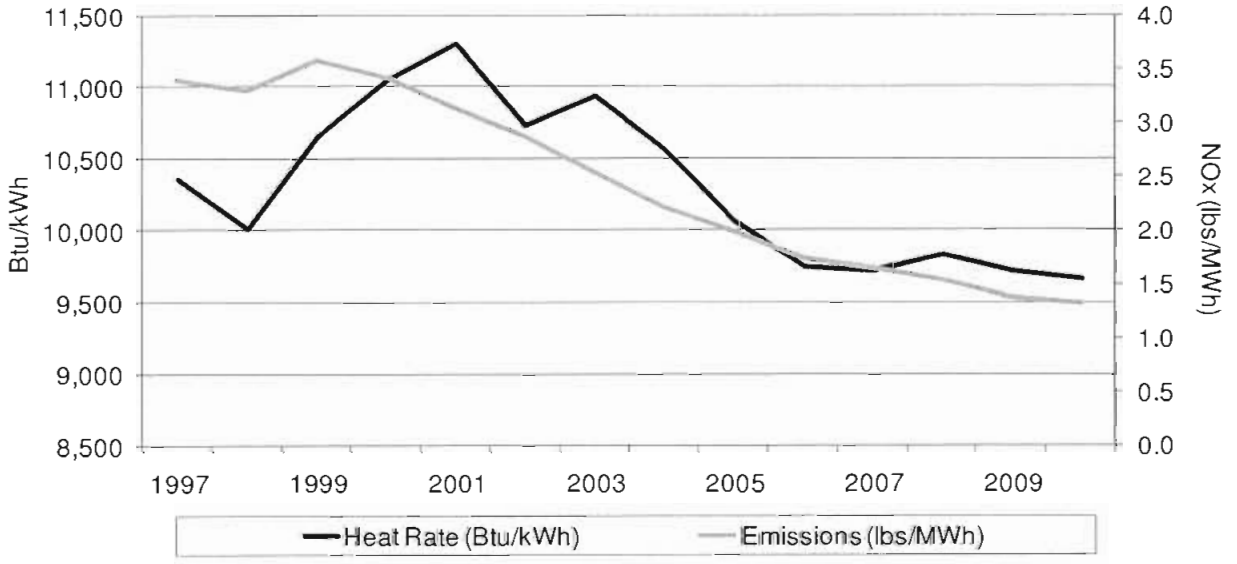

Figure 5. Historic Louisiana Heat Rate and Emissions[20]

[19] Clean Air Markets, Data and Maps available at http://camddataandmaps.epa.gov/gdm (2011).

45. The secondary axis of Figure 5 also shows the significant reductions in Louisiana emissions per MWh of fossil generation. In 1999, Louisiana's fossil units emitted over 3.5 pounds per MWh whereas today, in 2010, those levels are down to about 1.3 pounds per MWh: a 63 percent reduction. If current trends were to continue, Louisiana would even reach the CSAPR target, without any EPA regulations, by roughly 2016. However, the IPM and CSAPR completely ignore the dramatic and important improvements Louisiana has made in NOx emissions over the past decade, and will likely make over the next six to seven years if current improvement rates are maintained.

46. Finally, and perhaps the most striking evidence of the fatally-flawed nature of the IPM results, comes from a simple graphical examination of the implied efficiencies and emissions levels that result from this questionable model when compared to the actual historic and forecasted generation and emissions. Figure 6 shows the implied heat rate and emissions per output ("MWh") resulting from CSAPR ozone season allocations while Figure 7 compares the actual historic and forecasted Louisiana generation and total emissions under CSAPR requirements.

[20] Clean Air Markets, Data and Maps available at http://camddataandmaps.epa.gov/gdm (2011).

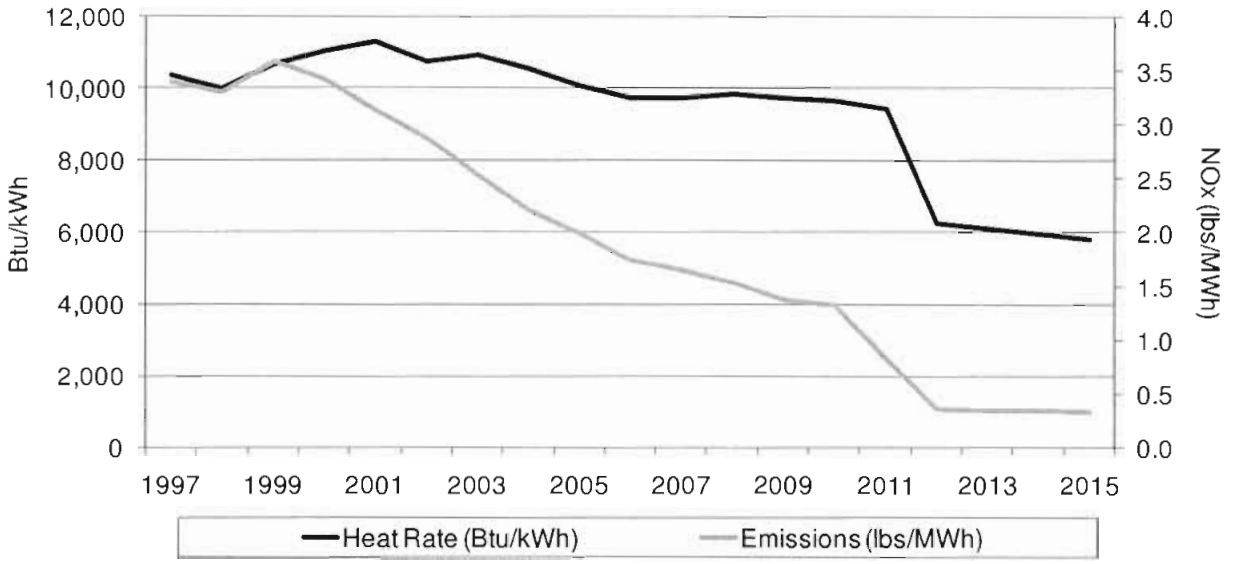

Figure 6. Projected Louisiana Heat Rate and Emissions[21]

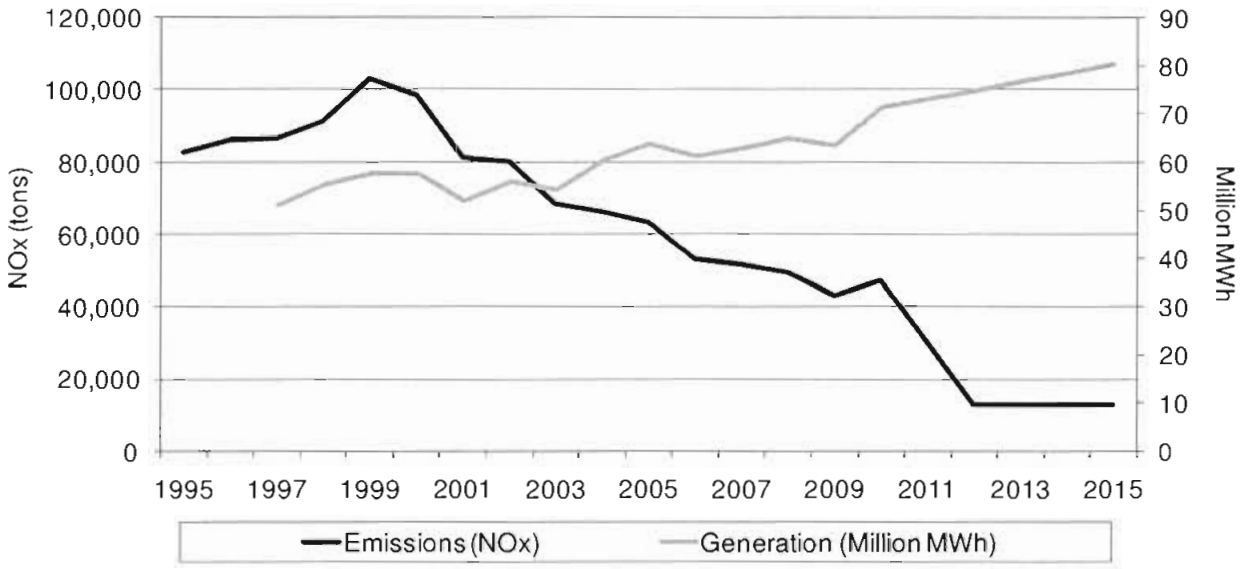

Figure 7. Projected Louisiana Generation and Emissions[22]

Clearly it is unreasonable to assume that by 2015, Louisiana will increase its generation by some 13 percent from 2010 levels, but reduce its emissions by some 72 percent of 2010 levels. The

[21] Clean Air Markets, Data and Maps available at http://camddataandmaps.epa.gov/gdm (2011).

[22] Clean Air Markets, Data and Maps available at http://camddataandmaps.epa.gov/gdm (2011).

unreasonable nature of this expectation is further evident in examining the implied heat rates (thermal efficiencies) needed for Louisiana to meet the standards included in CSAPR. Achieving an overall thermal efficiency of 5,810 and NOx emissions of less than one-half of one pound per MWh of output is not even remotely credible, much less attainable by Louisiana EGUs. Such a result would require Louisiana to reduce its heat inputs by some 32 percent while increasing generation output by 13 percent.

V. The EPA model ignores the reliability requirements on Louisiana utilities that require operation of older EGUs used to ensure system reliability.

47. As discussed above, Louisiana's major utilities have noted that they have configured their generation mix to maximize the use of a unique set of resources to meet the system's large reliability-related requirements that can swing by several thousand MWs in any given hour. Some utilities have expressed the need, and found it more cost-effective, to maintain a significant amount of "flexible capacity" in their plans in order to account for these swings in load and available generation. The utilities that claim they have the more significant "flexible capacity" requirements, however, are also the ones most likely to be negatively impacted by CSAPR. Table 3 shows the three-year average ozone season NOx emissions, the CSAPR ozone season allocations, the CSAPR percent reduction requirements and the 2012 deficit levels, in tons.

Table 3: CSAPR Allocation Summary[23]

	3-Year Average NOx	CSAPR 2012 Allocation	Percent Difference	2012 Deficit
CLECO	2,760.9	1,534.2	-44.4%	(1,226.7)
ELL	6,516.0	2,609.0	-60.0%	(3,907.0)
EGSL	2,925.3	**1,583.0**	-45.9%	(1,342.3)
ENO	896.5	592.0	-34.0%	(304.5)
SWEPCO	1,150.0	630.0	-45.2%	(520.0)
Muni	1,637.5	806.8	-50.7%	(830.7)
Big Cajun 2	5,001.7	2,842.0	-43.2%	(2,159.7)
IPP	281.6	415.0	47.4%	133.4
Cogen	1,864.5	2,018.0	8.2%	153.5
Total	23,034.0	13,030.0	-43.4%	(10,004.0)

Further, a state-by-state comparison of the NOx season allowances budgeted for each state regulated under CSAPR clearly shows that the entire state has been saddled with a disproportionate share of the reductions required by CSAPR. Table 4 shows the budgeted ozone season NOx allowances for each state subject to CSAPR, as well as their actual 2010 emissions, the anticipated deficits based upon actual 2010 emissions, and the percent reductions required under CSAPR from the actual 2010 emissions.

[23] Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), Final CSAPR Unit Level Allocations under the FIP and Underlying Data, U.S. EPA 2011; and Clean Air Markets, Data and Maps available at http://camddataandmaps.epa.gov/gdm (2011).

	Emissions in 2010 (tons NOx)	Emission Budget 2012-2013 (tons NOx)	Emissions Over or (Under) Budget (tons NOx)	Percent Change (%)
Alabama	27,849	31,746	3,897	14%
Arkansas	17,921	15,037	(2,884)	-16%
Florida	33,334	27,825	(5,509)	-17%
Georgia	26,790	27,944	1,154	4%
Illinois	21,371	21,208	(163)	-1%
Indiana	49,159	46,876	(2,283)	-5%
Kentucky	39,065	36,167	(2,898)	-7%
Louisiana	**23,172**	**13,432**	**(9,740)**	**-42%**
Maryland	9,428	7,179	(2,249)	-24%
Mississippi	16,089	10,160	(5,929)	-37%
New Jersey	5,192	3,382	(1,810)	-35%
New York	12,887	8,331	(4,556)	-35%
North Carolina	24,661	22,168	(2,493)	-10%
Ohio	47,582	40,063	(7,519)	-16%
Pennsylvania	58,211	52,201	(6,010)	-10%
South Carolina	13,769	13,909	140	1%
Tennessee	14,667	14,908	241	2%
Texas	68,446	63,043	(5,403)	-8%
Virginia	18,311	14,452	(3,859)	-21%
West Virginia	24,206	25,283	1,077	4%
Total	**552,110**	**495,314**	**(56,796)**	**-10%**

Table 4. CSAPR State Reductions[24]

As a specific example of the dramatic reliability impacts that will be caused by CSAPR's unreasonable budget emissions, I have noted that Entergy's Louisiana operating companies (ELL, EGSL, and ENO) are the entities most likely to be negatively-impacted by CSAPR's inability to recognize Entergy's SSRP requirement for flexible capacity to meet intra-regional

[24] Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), Final CSAPR Unit Level Allocations under the FIP and Underlying Data, U.S. EPA 2011; and Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 Fed. Reg. 48,208 (Aug. 8, 2011).

reliability requirements and are the ones especially at risk for likely reliability-related outages in the 2012 to 2014 time period. In total, the Entergy operating companies within Louisiana account for close to half of the state's total deficit. The reason that the Entergy operating companies account for this overwhelming share of the emissions deficit is that the EGUs assumed by the EPA to be retired or reduced in the IPM model are exactly those units identified by the SSRP to be relied upon in South Louisiana to meet the reliability requirements of these transmission-constrained areas. In fact, Entergy stated in its comments for the LPSC technical conference that it will likely be unable to "maintain adequate system reliability and simultaneously meet CSAPR's requirements to reduce NOx emissions during summer 2012 to the level required by the EPA."[25] Entergy concluded that the EPA modeling was flawed due to "inaccurate projected operational data for EGSL's and ELL's legacy gas-fired units," and therefore the low level of output is unachievable.[26]

48. Entergy will also be required to meet the largest percent NOx emission reductions of any utility in the state, including those that have larger relative shares of coal-fired generation. ELL, for instance, will be required to reduce its seasonal NOx emissions by 60 percent, EGSI will be required to reduce its seasonal NOx emissions by 46 percent and ENO will be required to reduce its seasonal NOx emissions requirements by 34 percent. Collectively, these three Entergy operating companies will be required to reduce their current emissions by 54 percent by May 2012, likely requiring an infeasible and costly investment in controls technology and/or short-term decision to purchase interstate allowances, or other in-state resources, that will likely have dramatic one-year rate impact with an uncertain future benefit.

[25] Attachment 3 at p. 078.

[26] *Id.*

49. CSAPR also fails to appreciate that each of these individual Entergy units operates on a relatively infrequent basis, but collectively are extremely important in meeting many regional reliability requirements (i.e., load following, backup power, voltage support). Collectively the Louisiana EGUs given zero allowances under CSAPR account for over six percent of the state's total generating capacity, seven percent of its 2010 generating output, an estimated nine percent of the state's 2010 total heat input, and an estimated seven percent of its 2010 NOx emissions.

50. Given the utility-provided information, and my own analysis and understanding of Louisiana's generation markets, I believe that CSAPR will, if allowed to become effective for the 2012 ozone season, likely result in serious adverse reliability-related impacts. Louisiana's electric utilities have clearly stated that May 2012 compliance will likely be achieved only through systematic curtailment of service through "brown-outs" and rolling black-outs, and the EPA has not provided any information to contradict this assertion. Neither Louisiana, nor the nation as a whole, can afford for the State to endure rolling CSAPR-created brown-outs and black-outs this upcoming summer. Louisiana and Texas (also dramatically impacted by CSAPR) serve as homes to the largest concentration of critical energy infrastructure in the United States. Combined, Louisiana and Texas account for:

a. Almost 50 percent of all U.S. refining capacity and 60 percent of all U.S. refining capacity east of the Rockies.

b. Home of the Louisiana Offshore Oil Port ("LOOP") that imports over 10 percent of all U.S. crude oil imports.

c. Home to other major ports that, combined, account for almost 60 percent of total U.S. crude oil imports.

d. 13 percent of all interstate pipeline systems moving lower-cost natural gas to consuming areas of the northeastern and southeastern U.S.

e. 45 percent of all natural gas production and 53 percent of all crude oil production, the movement of which is highly dependent upon electricity.

f. 16 percent of all chemical/petrochemical value-added in the U.S.

g. 350,000 workers are employed by these critical infrastructure facilities.

h. The home of the refined product source used by the Colonial pipeline system that delivers gasoline, diesel, home heating oil and jet fuel to the eastern U.S.

51. Power outages on the scale envisioned by Louisiana's utilities and major industries due to CSAPR could significantly impact this critical energy infrastructure on a level potentially equivalent to that experienced during the summer months of 2005 when Hurricane Katrina, then Hurricane Rita, slammed into the central Gulf Coast. One of the primary lessons learned during this period was that electricity was one of the central resources essential to keep critical energy infrastructure moving. Power outages during the summer tropical season of 2005, prevented refineries from operating, which limited gasoline and diesel supplies for crew and offshore service vessels attempting to restore offshore oil and natural gas production. Power outages limited the ability of large natural gas processing facilities and compression stations from cleaning natural gas and pressurizing natural gas that is transported from the Gulf coast to the northeastern and southeastern U.S. for summer power generation needs. Power outages at pumping stations along the Colonial pipeline system limited gasoline supplies as far north as New York and led to sudden surges and spikes in prices during the peak summer driving period.

52. In my opinion, that CSAPR will have serious adverse effects on the reliability of electric supply throughout Louisiana and the Gulf Coast, that could very likely result in ripple effects throughout the rest of the nation. Such effects, while likely, are completely unnecessary if EPA reconsiders and stays CSAPR in order to (a) reset allowance budgets that are more reasonable and achievable based upon Louisiana's historic and projected emissions

improvements and (b) revise its allocation model to account for the unique nature of Louisiana generation resources.

VI. CSAPR's compliance timeline is unreasonable and likely to lead to unnecessary costs.

53. The unprecedented short time frame for compliance with this rule creates a number of resource planning uncertainties for utilities and the LPSC. The LPSC has solicited information from its utilities and other stakeholders, through a written comment and technical conference process. The LPSC is not likely to understand the full impact that CSAPR will have on its regulated utilities given the continued uncertainties associated with this new regulation. Most utilities, to date, have indicated that a number of difficult decisions will have to be made, and are currently being investigated.

54. Major electric reliability organizations such as the regional reliability coordinating councils (SERC and SPP), and reliability regulators, like the FERC, are also in the process of evaluating CSAPR's potential impacts. To date, these analyses are ongoing and have not been finalized.

55. Most important is the fact that all Louisiana regulated investor-owned utilities have advised the LPSC that they will have difficulty complying with the rule under the current time frame allowed, and that there could be considerable reliability-related outages during the summer of 2012.

56. The EPA's interstate trading restrictions will significantly reduce allowance market liquidity, and as a consequence, many near-term market-based solutions for reducing Louisiana's NOx emissions. Transmission constraints further compound the short-term CSAPR compliance options. Limitations on physical and contractual means to comply with a mechanism like CSAPR make it more akin to the command-and-control regulation of the 1970s than the

more innovative market-based solutions that started with the Clean Air Act Amendments ("CAAA") in the 1990s, and continued through the initial adoption of CAIR.

57. CSAPR's limitations on interstate allowance trading undermines a past important compliance option for Louisiana's EGUs. For instance, throughout the 2010 CAIR compliance year, Louisiana met some 48 percent of its overall required NOx reductions through trading interstate allowances: the balance of our compliance was met through the efficiency improvements provided in Figure 5 above.

58. With CAIR, Louisiana has been able to resort to a least-cost, market-based blend of physical compliance (through heat input efficiency) and allowance purchases to meet its overall emission requirements. CSAPR takes these reasonable and balanced policy options off the table and virtually forces physical options of (a) significant capital investments in mitigation technology on older and rarely-used assets needed for reliability purposes or (b) shutting down generators.

59. The EPA's CSAPR fact sheet identifies a number of options in which power plants may achieve necessary emission reductions that include: 1) maintaining effective and frequent operation of already installed control equipment; 2) using low sulfur coal; 3) increasing generation from relatively cleaner units, and/or; 4) installing existing, commercial proven technologies that are widely available and frequently used in this industry, such as low NOx burners, scrubbers (flue gas desulfurization or "FGDs"), or dry sorbent injection ("DSI") equipment options including selective non-catalytic reduction ("SNCR"), selective catalytic reduction ("SCR"), or low NOx burners.[27]

[27] Fact Sheet, The Cross-State Air Pollution Rule: Reducing the Interstate Transport of Fine Particulate Matter and Ozone available at http://www.epa.gov/crossstaterule/pdfs/CSAPRFactsheet.pdf.

60. Option 1 is something Louisiana's EGUs have been, and are required to do, under state law and LDEQ regulations. Furthermore, regulated electric utilities, which comprise the overwhelming share of Louisiana's EGU capacity, are required under LPSC regulations and standard regulatory practices to maintain equipment on a safe, economic, and reliable basis. Maintaining equipment at anything less would be grounds for a prudence disallowance. This compliance option, therefore, is already reflected in the actual emissions data and cannot serve as an "additional" means to reduce NOx emissions.[28]

61. While certain EGUs can, in theory, switch to lower sulfur coal, practical contracting and physical configuration issues are very likely to limit, if not eliminate this as a shorter-term compliance option since: (a) most Louisiana solid fuel generators are configured to burn lignite not a wide and differing blend of fuels from a variety of sources, and the use of alternative sources of fuel would likely have additional efficiency, availability, and capital cost issues; (b) most utilities have longer term contracts with Louisiana-based, or East Texas-based lignite mines that cannot be voided without some form of contract cancellation costs; (c) new fuel contracts would have to be market-tested under a competitive procurement process that could take at least one year.

62. EPA's third option (utilizing more efficient power generation) is something that has been pursued, and continues to be pursued by Louisiana's regulated utilities, under the direction of the LPSC. The clear efficiency improvements outlined in Figure 5 above show that Louisiana has made, and will likely continue to make, considerable gains with this option. The option, however, must be timed with market availability, reliability, and other cost considerations: utilities cannot simply enter the market and make random solicitations, particularly in the back-draft of the issuance of CSAPR, and expect to find low-cost, low-

[28] La. Admin. Code, Tit. 33, Part III, § 905.

emissions generation available on a long-term basis without having to pay some form of market premium.

63. The installation of control technologies is also an important option for many Louisiana EGUs, but one that simply cannot be done under the implementation periods included in CSAPR. For instance, ExxonMobil, a large combined heat and power ("CHP") generator, that also happens to operate the country's second largest refinery and integrated chemical complex in Baton Rouge, notes that "the nine month time frame does not allow an adequate time frame for completion of major projects needed for us to be in compliance, projects of this scale typically take three years or more to design, fund, and implement."[29]

64. Likewise, Lafayette Utilities System ("LUS"), the largest municipal power generator in Louisiana, estimated a project development period of some 40 months (over three years) to permit, design, install and complete a controls investment project.[30] Further, as a public municipal utility, the LUS would be required to add another six to eight month bonding process, something currently not incorporated in the EPA modeling assumptions.[31] LUS anticipates that if everything went perfectly, they would be able to comply with CSAPR emissions requirements by 2015 or 2016: not 2012.[32]

65. Currently, some 60 percent of Louisiana's active generating capacity has some form of NOx mitigation equipment installed that includes low NOx burners, SCRs, and/or reburning processes. That leaves some 40 percent of Louisiana's currently operating generation capacity with no form of NOx emissions control. This capacity is primarily comprised of units

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[29] Attachment 3 at p. 150, lines 1-4.

[30] Attachment 3 at p. 152, lines 2-4.

[31] *Id.* at lines 4-5.

[32] *Id.* at lines 6-7.

that are older, clearly not controlled, and used infrequently for peak demand and/or reliability purposes. These units cannot be shut-down and replaced overnight due to the design, engineering, permitting, regulatory, and construction processes. Instead, these units will likely have to install controls, a compliance option which itself is challenging since the installation of controls requires significant time for design, engineering, permitting and installation.

VII. The EPA did not account for the proposed rate impacts on Louisiana utilities and ratepayers in its analysis of CSAPR.

66. Even if an assumption that adequate control technologies could be installed in time to comply with CSAPR (which it cannot), Louisiana's EGUs, collectively, would be forced to incur over $2.28 billion in capital investments within the matter of eight months: an order of magnitude that has not been seen in Louisiana for any completed capital project in the power generation sector and level that is simply implausible. The revenue requirement, or total annual rate impact, associated with the installation of controls at these facilities, could be as much as $299 million on an annual average basis, over the next five years. This would increase utility base rates by as much as $3.802 per MWh, or by 11.2 percent.

67. These are not the only capital investment costs that will be incurred by Louisiana ratepayers of EGUs attempting to meet CSAPR's expedited timeline. A wide variety of scarcity costs will likely be passed along to Louisiana ratepayers if EGUs are required to comply with EPA's CSAPR provisions by May, 2012. These scarcity costs would include, but are not limited to: (a) premiums arising from the rush for a limited amount of controls technology; (b) premiums for a limited amount of tradable allowances since most states under CSAPR have allowance budgets that are short their average annual requirements; (c) premiums for short-term constrained fuel resources, or transportation resources need to move these fuels to new and unanticipated

uses (i.e., rail, pipeline); (d) upward pressure on the costs of supporting equipment purchases; and (e) near-term premiums on engineering, design, and permitting services.

68. Lastly, there are a whole class of potentially stranded costs likely to arise from CSAPR. Stranded costs could include longer-term fuel contracts for units likely, and/or modeled to be, unnecessary under EPA's projected CSAPR base case. Many generators, particularly coal plants, have long-term coal and rail arrangements for fuel deliveries. Generators (utilities) will likely be required to either pay for these unused fuel requirements, or pay a large exit fee for their cancellation. Reservation and demand charges for natural gas purchases, deliveries, and storage could also be stranded for those units assumed to not run, and yet have longer term arrangements.

69. CSAPR also fails to consider the increased inefficiencies that may arise by running older natural gas plants in lieu of coal generation for baseload purposes to reduce overall emissions. While natural gas prices are low in today's current market, a sudden shift in the use of natural gas, which may be likely given the cumulative impacts of all of EPA's proposed and pending rules, could drive up costs by as much as 20 percent according to some estimates.[33]

VIII. Conclusions and Expert Opinions.

70. It is my expert opinion that:

a. CSAPR budgets an unreasonable number of ozone season nitrous oxide allowances to Louisiana EGUs. Louisiana's NOx emissions budget is not only significantly lower than CAIR, the rule CSAPR is intended to replace, but

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[33] *See, e.g.*, NERA Consulting. Proposed CATR + MACT, *Prepared for American Coalition for Clean Coal Electricity*, available at http://www.americaspower.org/news/new-analysis-finds-epas-power-plant-regulations-would-increase-electricity-costs-lose-jobs (May 2011) or http://www.americaspower.org/NERA_CATR_MACT_29.pdf (May 2011); Cichanowicz, J. Edward. *Current capital cost and cost-effectiveness of power plant emissions control technologies.* Prepared for Utility Air Regulatory Group available at *www.publicpower.org/files/PDFs/UARGSCR_FGDFinal.pdf* (January 2010).

significantly lower than EPA's immediate past CAIR-replacement rule proposal known as the Cross State Transport Rule.

b. The unreasonably low Louisiana OS NOx budget will reduce market liquidity for tradable allowances, will drive up compliance costs for utilities and their respective ratepayers, and will likely create significant harm on in-state electric power reliability. The power reliability challenges that are likely to arise from CSAPR implementation are likely to have a direct, adverse impact on the health and safety of Louisiana citizens. Further, CSAPR is likely to have a direct adverse economic, operational, and availability impact on a wide range of critical energy infrastructure located in Louisiana including refineries, petrochemical facilities, gas processing stations, compression stations for interstate pipelines, and in some instances, the direct production of oil and natural gas.

c. The Integrated Planning Model ("IPM") used by the EPA in developing the allocation of an already limited Louisiana emissions budget is faulty since it relies upon an unreasonable set of assumptions, inaccurate data, and simply fails to appropriately model the unique nature of Louisiana's power markets. These IPM shortcomings lead to an NOx emissions allocation that fails to support a wide range of utility regulatory-must-run ("RMR") EGUs needed to meet important Louisiana power reliability objectives including, but not limited to, load following, backup power, and voltage support.

d. Many Louisiana, utilities have maintained that the limited availability of emission allowances under CSAPR will likely lead to widespread blackouts and brownouts in the state during at least the 2012 and 2013 summer seasons. The EPA has

provided no information in its public modeling data, nor in response to other informal data requests made by the LDEQ and the LPSC, that contradicts the reliability-related concerns expressed by Louisiana utilities. The EPA has provided no specific information that clearly indicates which Louisiana EGUs, or which specific EGUs outside the Entergy subregion, would be available, and at what levels, to meet the generation requirements of Louisiana EGUs given zero, or an exceptionally limited number of allowances, under CSAPR. Thus, there is no basis to contradict Louisiana utilities' statements, nor their LPSC-filed formal comments, since the EPA has not provided any modeling output nor any other source of information that clearly demonstrates that Louisiana utilities will be able to comply with CSAPR and meet Louisiana's reliability requirements needs.

e. CSAPR sets an unreasonable compliance timeline that will likely impose significant economic and reliability-related costs. While EGUs, in theory, face a wide range of potential options for mitigating emissions, those options take time to prudently plan, achieve regulatory approvals, and implement. Most of the meaningful EGU resource options that could be used, individually or collectively, to comply with CSAPR, will take several years to design and develop. Most CSAPR compliance options, such as the installation of control technologies, repowering existing facilities to more efficient technologies, developing additional transmission to move remote higher efficiency generation at industrial facilities, and fuel switching, will take between three to five years to plan, design, achieve regulatory approval, and implement.

f. CSAPR is likely to lead to a significant increase in Louisiana-specific utility costs. These cost increases could amount to over $2 billion, and result in several hundred million in new revenue requirements for Louisiana's regulated utilities over the next five years. These new CSAPR-compliance investments would increase rates by over 12 percent during the 2012 to 2017 time period if the potential capital costs associated with unlikely immediate installation of control technologies on over 9,000 megawatts ("MWs") of Louisiana electric generating capacity were incurred. CSAPR's expedited timeline will likely force Louisiana's utilities to incur additional uneconomic costs through the inefficient use of higher cost, lower emissions fuel; higher market premiums for purchased power, fuel, and equipment due to CSAPR-created market scarcity; and increased regulatory compliance costs.

71. Based on the foregoing, it is my opinion that the data used by EPA in development of CSAPR is fundamentally flawed in multiple respects that are of central relevance to the rule and which render the resulting mandates of the rule, at least as they pertain to Louisiana, unreasonable and unachievable. Therefore, in my expert opinion, CSAPR is arbitrary and the EPA should not only reconsider the rule but issue an immediate stay of its provisions during the pendency of the reconsideration.

UNITED STATES OF AMERICA
BEFORE THE
ENVIRONMENTAL PROTECTION AGENCY

Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals	)))))	Docket No. EPA-HQ-OAR-2009-0491
State of Louisiana Parish of East Baton Rouge	))	

AFFIDAVIT OF DAVID E. DISMUKES, PH.D.

I, David E. Dismukes, being duly sworn, depose and state that the contents of the foregoing Affidavit on behalf of the Louisiana Public Service Commission, are true, correct, accurate and complete, to the best of my knowledge, information and belief.

David E. Dismukes, Ph.D.

SUBSCRIBED AND SWORN TO before me, the undersigned Notary Public, this 4th day of Oct. 2011.

Andrea M. Knouse
Notary Public

ANDREA M. KNOUSE
Notary Public
State of Louisiana
Notary ID Number 90860
My Commission is for Life

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(SEAL)
My Commission Expires:
death

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