BOEHM, KURTZ & LOWRY
ATTORNEYS AT LAW
36 EAST SEVENTH STREET
SUITE 1510
CINCINNATI, OHIO 45202
TELEPHONE (513) 421-2255

TELECOPIER (513) 421-2764

RECEIVED
MAY 28 2010
PUBLIC SERVICE COMMISSION

Via Overnight Mail

May 27, 2010

Mr. Jeff Derouen, Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602

Re: Case No. 2010-00043

Dear Mr. Derouen:

Please find enclosed the original and twelve (12) copies each of the DIRECT TESTIMONY AND EXHIBITS OF DR. MATHEW J. MOREY ON BEHALF OF THE KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC. filed in the above-referenced matter. By copy of this letter, all parties listed on the Certificate of Service have been served.

Please place this document of file.

Very Truly Yours,

Michael L. Kurtz, Esq.
BOEHM, KURTZ & LOWRY

MLKkew
Attachment
cc: Richard Raff, Esq.
Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served by electronic mail (when available) and by mailing a true and correct copy by regular ordinary U.S. mail, unless other noted, this 27th day of May, 2010 the following:

Keith L Beall, Esquire
P.O. Box 4202
Carmel, IN 46082-4202

Douglas L Beresford
Hogan & Hartson, L.L.P.
555 Thirteenth Street, N.W.
Washington, DC 20004-1109

David Brown
Stites & Harbison, PLLC
1800 Providian Center
400 West Market Street
Louisville, KY 40202

David G Crockett
Vice President - System Operations
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42419-0024

Mark David Goss
Frost, Brown, Todd, LLC
250 West Main Street
Suite 2700
Lexington, KY 40507

Honorable James M Miller
Attorney at Law
Sullivan, Mountjoy, Stainback & Miller, PSC
100 St. Ann Street
P.O. Box 727
Owensboro, KY 42302-0727

Gregory A Troxell
Esquire
P.O. Box 4202
Carmel, IN 46082-4202

Albert Yockey
Vice President Government Relations
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42419-0024

Michael L. Kurtz, Esq.

RECEIVED
MAY 28 2010
PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application of Big Rivers Electric	)	
Corporation for Approval to Transfer	)	
Functional Control of Its Transmission	)	**Case No. 2010-00043**
System to Midwest Independent	)	
Transmission System Operator, Inc.	)	

DIRECT TESTIMONY

AND EXHIBITS

OF

DR. MATHEW J. MOREY

ON BEHALF OF THE
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

CHRISTENSEN ASSOCIATES ENERGY CONSULTING, LLC
MADISON, WISCONSIN

MAY 2010

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application of Big Rivers Electric	)	
Corporation for Approval to Transfer	)	
Functional Control of Its Transmission	)	**Case No. 2010-00043**
System to Midwest Independent	)	
Transmission System Operator, Inc.	)	

DIRECT TESTIMONY OF DR. MATHEW J. MOREY

I. QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Mathew J. Morey. I am a Senior Consultant with Christensen Associates Energy Consulting, LLC, 800 University Bay Drive, Suite 400, Madison, Wisconsin.

Q. Who are you testifying for?

A. I am here on behalf of Kentucky Industrial Utility Customers, Inc. (KIUC). KIUC is representing Alcan Primary Products Corporation, Century Aluminum of Kentucky, General Partnership, Domtar Paper Co., LLC and Kimberly Clark Corporation.

Q. Please describe your education, background and employer.

A. I received my doctorate in economics and statistics from the University of Illinois in 1977, and taught economics and econometrics for nearly twenty years. During that time, I also worked as a consultant to companies in and regulators of the telephone, natural gas, and electricity industries. I served as Director of Economics at the Edison Electric Institute from 1996 to 2000. Prior to joining Christensen Associates in 2003, I was an independent consultant to companies in the electricity industry both in the U.S. and Canada.

I have testified before state and federal regulatory agencies, including the Federal Energy Regulatory Commission, on a wide range of electric industry issues including stranded costs, market power, seams elimination cost adjustment charges, utility codes of conduct, utility affiliate transfer pricing rules, distribution standby and transmission rate design, the costs and benefits of membership in Regional Transmission Organizations (RTOs), and the economic advantages and disadvantages of independent coordinators of transmission. A complete list of my appearances is provided in my resume appended hereto.

I have testified before the Kentucky Public Service Commission (Commission) in Case No. 2003-00266, in which Louisville Gas & Electric Company and Kentucky Utilities Company sought the Commission's authorization to exit the Midwest Independent Transmission System Operator (MISO).

II. PURPOSE AND ORGANIZATION OF TESTIMONY

Q. What is the purpose of your testimony?

A. I have been engaged by KIUC to examine whether the costs for the Big Rivers Electric Corporation (BREC) to become a member of MISO are fairly represented by the pre-filed direct testimony in this case. I find that the costs of MISO membership will be significantly higher over the long term than have been presented by BREC.

III. SUMMARY

Q. Please summarize your findings.

A. First, BREC did not incorporate into its cost-benefit analyses the hundreds of millions of dollars that it will very likely incur over the next decade or so as a MISO member for regional transmission expansion costs under the MISO Transmission Expansion Plan (MTEP).

Second, BREC's cost-benefit analysis only goes out to 2015. This is too short a timeframe to capture the majority of MTEP charges that BREC will incur for the billions of dollars of transmission investment that MISO expects its transmission owner members to undertake to move wind power eastward out of the Great Plains.

Third, to understand the true incremental costs of MISO membership as the change case, it is necessary to compare the MISO membership option to the status quo. Unfortunately, BREC's cost-benefit analysis does not compare MISO membership against the status quo of its reserve sharing arrangement in 2009 within the Midwest Contingency Reserve Sharing Group (MCRSG). I have made that comparison.

In addition to the above three major concerns, the BREC analyses does not include certain costs of BREC joining MISO. These include uplift costs and the additional legal costs of participating in MISO proceedings.

The potential for avoiding some MTEP costs through the grandfathering (GFA) of the Member contracts is far from certain. FERC policy has been moving in the opposite direction. Thus, the Commission should consider the impact on Big Rivers if FERC does not approve GFA status for the Member contracts. Nevertheless, if GFA status is granted to this portion of BREC's native load, then system costs will be lower and all ratepayers (Rural, Large Industrial and Smelter) will benefit.

If GFA status is not approved by FERC, then BREC's increased net costs from MISO compared to the status quo today for 2011-2025 are estimated to be $283.6 million (present value). If FERC approves GFA status to the Member load for the entire 2011-2025 period, then the present value net cost is reduced to $162.1 million.

Even with this very significant cost exposure MISO may still be the least cost option for meeting the NERC reserve sharing requirements if there are no feasible alternatives. It is my understanding that Big Rivers has continued to explore additional alternatives to MISO membership but has not yet presented those to the Commission. Given the significance of this issue, I recommend that the Commission require and assist in the search for a lower cost option.

IV. THE COST-BENEFIT ANALYSIS OF BREC IS INCOMPLETE.

Q. Did BREC's cost-benefit study include an estimate of BREC's share of MTEP transmission expansion costs?

A. No. BREC did not include an estimate of BREC's share of MTEP costs in its presentation to this Commission.

Q. What are MTEP transmission expansion costs?

A. Schedule 26 MTEP costs are the costs of the high voltage transmission investments in MISO that are deemed to have region-wide benefits and allocated to transmission owners and customers. A MISO transmission owner is responsible for its Member Load Ratio

(MLR) share of MTEP costs over the life of the transmission projects planned and approved while it is a member.

Q. What MTEP transmission investment costs are anticipated in MISO over the next ten to fifteen years?

A. The MTEP planning process anticipates investment of more than $22 billion in an extra high voltage transmission overlay designed to transport vast amounts of wind generation from the upper Midwest. If BREC joins MISO, then it will be responsible for its share of these transmission projects, if they are built. This is by far the largest cost exposure associated with MISO membership.

Q. What is the long-term estimate of BREC's load ratio share of those MTEP investment costs?

A. In response to discovery, Mr. Moeller of MISO calculated that BREC's annual MTEP costs (in 2009 dollars) would be $50.5 million in 2024 (assuming no grandfathering of transmission contracts) and $27.6 million (assuming the Member transmission contracts are grandfathered by FERC for the entire period).

Q. Did BREC consider these costs at any time prior to filing its cost-benefit analysis with the Commission?

A. Yes. Even though not presented to this Commission, Charles River Associates' (CRAs') December 17, 2009 Preliminary Economic Assessment prepared for BREC management and the BREC Board considered Schedule 26 (MTEP) transmission expansion costs. The CRA analysis examined the MISO option and considered BREC's potential share of the cost of new high-voltage transmission to be constructed within the MISO footprint.

In the high cost scenario, CRA reported to BREC that its MTEP costs could exceed $26 million annually.

Q. Why did BREC exclude consideration of MTEP transmission costs from its cost-benefit analysis submitted to the Commission?

A. The apparent rational for BREC's exclusion of MTEP in its Commission testimony is uncertainty surrounding the ultimate cost. In my opinion, uncertainty about BREC's share of MTEP costs is not a valid basis to completely ignore the largest probable expense of MISO membership. The estimates provided by MISO's own witness, discussed above and in more detail in Section V of my testimony, support my conclusion.

Q. Have you included an estimate of BREC's share of MTEP costs in your own cost-benefit analysis?

A. Yes. It is included in my discussion of this issue in Section V.

Q. Is the five-year timeframe used in BREC's cost-benefit study adequate?

A. No. The five-year timeframe assumed for the cost-benefit analysis is far too short, as there is a significant possibility that BREC would join for a much longer period. Cutting the analysis off at five years avoids consideration of the vast majority of transmission investment costs that BREC would share as a MISO member.

On the other hand, if BREC only joins MISO for 5 years, as Mr. Luciani's analysis could be interpreted to imply, then an exit fee should be calculated and included in the analysis. Mr. Luciani's analysis does not consider such an exit fee. On page 35 of his direct testimony, BREC witness David Crockett states that MISO estimated BREC's exit fee in 2015 would be $3.5 million, but that amount does not include obligations associated with

MTEP costs approved in MISO's MTEP from 2011 to 2014. In response to Item KIUC 2-4, Mr. Crockett provides a revised exit fee for 2015 of $3.3 million. This also does not include the cost responsibility for MTEP costs. BREC's responsibility for MTEP costs would be determined separately, and would depend on the present value of BREC's load ratio share of the MTEP costs for projects approved over the period 2011 to 2014. However, this obligation could be significant, in the tens of millions of dollars if BREC were held responsible for its load ratio share of the entire investment cost, which could be in the billions of dollars by the end of 2014.

Q. Should BREC's presentation to the Commission have compared the MISO membership case to the status quo?

A. Yes. For the Commission to comprehensively understand the costs associated with BREC joining MISO, a comparison should be made between the MISO membership case, otherwise known as the change case, and a base case that represents BREC's recent situation in which it was a member of a reserve sharing arrangement, in particular, the MCRSG. A comparison of this type reveals what the cost of MISO membership is relative to the costs that BREC would have incurred under a continuation of its historical arrangements for satisfying NERC's reserve requirements.

The hypothetical Stand-alone option that Mr. Luciani presents in his testimony actually represents another change case. There are many other hypothetical change cases that could be constructed and examined, but were not for various reasons. The picture presented in testimony by BREC and witness Mr. Luciani makes it difficult to appreciate just how costly the MISO membership option may turn out to be as a solution to BREC's contingency reserve problem, which is why I have compared the incremental cost of the MISO option to BREC's 2009 status as a member of the MCRSG.

Q. Did BREC's study also omit certain cost categories?

A. Yes. Mr. Luciani's analysis does not include a variety of minor cost categories, such as MISO's uplift costs and the additional legal costs that BREC will incur to participate in MISO proceedings. Mr. Luciani, in response to Item KIUC 1-39, indicates that he "did not have sufficient information to quantify these charges." Nonetheless, these are real costs which do not have the zero values implicitly assumed by Mr. Luciani; and it is possible to make reasonable estimates of these costs.

The first of these costs is MISO's revenue neutrality uplift (RNU), which consists of costs that MISO recovers on a regionwide basis because it lacks means of allocating them directly to specific market participants. For example, generation resources that are made available as a result of the Reliability Assessment Commitment (RAC) process receive compensation at least equal to their availability costs even when they are not dispatched. When real-time Locational Marginal Prices (LMPs) are not sufficient to fully compensate resources for their availability costs, they receive a real-time Revenue Sufficiency Guarantee (RSG) make-whole payment for the shortfall. To the extent that the RSG make-whole payments are not fully funded by RSG charges to market participants, they are uplifted to market participants based on load ratio share. The MISO RNU over the period 2007 to 2009 averaged \$96.8 million per year. Assuming a 1.78% load ratio share, BREC's allocation of that RNU would be about \$1.7 million per year if the Member contracts are not grandfathered. If the Member load portion receives GFA status and is exempted from these charges, BREC's allocation may be about 1.14%, or about $1.1 million. The amount of RNU allocated to BREC will vary by year, but it is safe to say that BREC load will be responsible for a portion of this uplift component.

The second cost category is Infeasible LTTR Uplift costs, which arise when long-term transmission rights (LTTRs) become infeasible because actual transmission transfer capabilities turn out to be lower than forecast at the time that the LTTRs were issued, due to changes in topology, loop flows, or other reasons. MISO guarantees the quantity of these rights through an allocation of infeasible Auction Revenue Rights (ARRs). The costs of this allocation of infeasible ARRs are uplifted to the holders of LTTRs. The Infeasible LTTR Uplift cost for 2009 was $13.7 million, which was covered by 96% of market participants that were eligible for LTTRs. Assuming BREC is eligible for LTTRs, BREC's allocation of this uplift would be roughly $0.2 million. The amount of Infeasible LTTR Uplift cost allocated to BREC will vary by year, but it is safe to say that BREC's load will be responsible for a portion of this uplift cost.

BREC will also incur additional legal costs because of its participation in MISO proceedings before FERC. When Louisville Gas & Electric Company and Kentucky Utilities Company were members of MISO, they incurred such legal costs at the rate of $0.8 to $1.0 million per year. Because of BREC's smaller size, I scaled this down to $0.1 million for BREC.

V. A MORE COMPLETE ANALYSIS SHOWS THAT BREC'S COSTS OF MISO MEMBERSHIP ARE LIKELY TO BE MUCH HIGHER THAN BREC ADMITTED IN ITS TESTIMONY.

Q. Did you perform a complete cost-benefit study of MISO membership compared to the status quo today?

A. Yes. To correct omissions made in the BREC testimony, I have recomputed the costs and benefits of the MISO membership case ("MISO Case") under the following assumptions. First, the base case (status quo) assumes that BREC continues as a member of the MCRSG ("MCRSG Case"). Second, I assume that, in the MISO case, BREC will be a MISO member from 2011 to 2025. Third, I assume that BREC will be subject to Schedule 26 (MTEP) costs beginning in 2011 and each year thereafter. Fourth, I assume that BREC will be subject to uplift charges (such as RNU) and to legal costs associated with involvement in MISO proceedings.

Q. How did you handle the possibility that FERC may grandfather some load and exempt it from MTEP costs?

A. I consider two scenarios for the MISO Case. The first scenario assumes that BREC is responsible for its load ratio share of MTEP costs for 100% of BREC's load, including the loads of both Members and Smelters. This scenario is called the "0% GFA Case" because no BREC load receives GFA status. The second scenario assumes that BREC is responsible for its load ratio share of MTEP costs for the Smelter load only, which is 64% of total BREC load. This scenario is called the "36% GFA Case" because 36% of BREC's load receives GFA status.

Q. Did you accept as correct any of the assumptions made by BREC in its analysis?

A. Yes. In my cost-benefit study I have accepted most of Mr. Luciani's assumptions and intermediate calculations used in his application of the GE MAPS model. In particular, I accept his analysis of production costs, off-system purchase costs, and sales revenues for the MISO Case relative to the MCRSG Case. As indicated by Mr. Luciani in his response to data request Item KIUC 1-2, this analysis shows that MISO membership will reduce the production costs to serve BREC load by $2.4 million in 2011.

I extrapolate Mr. Luciani's production cost savings value for 2011 to the period from 2012 to 2015 based on the pattern of production costs to serve native load for the period 2011 to 2015 identified in Mr. Luciani's analysis of the MISO Case compared to the Stand-alone case as presented in his testimony. For the period from 2016 through 2025, I assume that BREC's production cost savings as a MISO member will increase by 7.70% per year, which is the average annual rate of growth in production savings for the period 2011 to 2015.

Q. How did you quantify BREC's potential MTEP exposure?

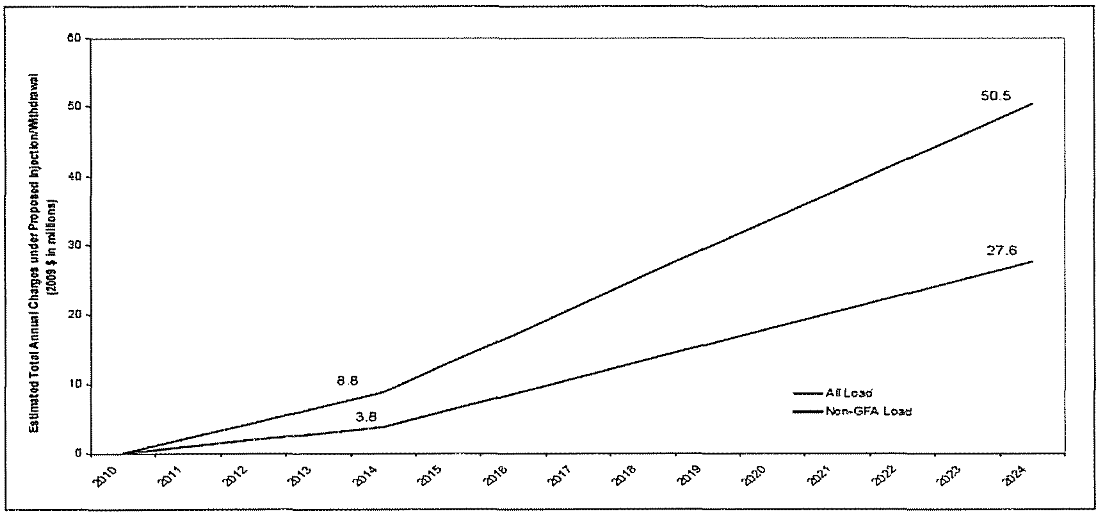
A. I relied on information provided by MISO. On April 9, 2010, MISO placed onto its website a spreadsheet file entitled "Draft Injection-Withdrawal Model 04-09-10.xls." This spreadsheet is used by MISO to estimate the MTEP charges to MISO members under the proposed Injection-Withdrawal (I/W) approach for allocating transmission investment costs in the MISO region.

Mr. Moeller relied on a version of this spreadsheet to calculate BREC's annual MTEP charges for 2014 and for 2024. Electronic copies of the spreadsheet were provided along with Mr. Moeller's written response to Item KIUC 2-7. Two sets of estimates are provided in Mr. Moeller's response corresponding to the Injection/Withdrawal (I/W) approach to allocate transmission investment costs. One set of estimates for 2014 and 2024 is based on 0% GFA Scenario. The other set of estimates for 2014 and 2024 is based on the "36% GFA Scenario."

Under the "0% GFA Scenario," Mr. Moeller states that BREC's MTEP costs are estimated to be $8.8 million (2009 $) in 2014. Under the "36% GFA Scenario," Mr. Moeller states that BREC's MTEP costs are estimated to be $3.8 million (2009 $) in 2014.

On page 3 of Mr. Moeller's written response to Item KIUC 2-7, his Figure 1 shows that BREC's annual MTEP costs are relatively small before 2015 but then rise rapidly up to $50.5 million (2009 $) per year in 2024 for the "0% GFA Scenario" and $27.6 million (2009 $) per year for the "36% GFA Scenario." I reproduce Figure 1 from Item KIUC 2-7 to illustrate.

Figure 1
Interpolated 2010 to 2024 Estimated Annual Charges to Big Rivers Based on Injection-Withdrawal Proposal (March 22, 2010)



While the MISO responses to Item PSC 1-2 and Item KIUC 2-7 provide sufficient information to compute BREC's share of MTEP costs under both GFA scenarios for 2014 and 2024, they do not provide estimates for other years over the period 2011 to 2025. Therefore, to establish an estimate of BREC's share of MTEP costs for each year of the period, I inferred annual BREC MTEP charges by linearly interpolating and extrapolating the estimated 2014 and 2024 values to the other years. For the "0% GFA Scenario," starting with the 2014 MTEP charge of $9.25 million (nominal $), I increase the charge each year by $4.94 million.[1] The resulting series of MTEP charge values starts at $9.25 million (nominal $) and rises to $58.63 million (nominal $) in 2025. The 2025 value is extrapolated by adding $4.94 million to the 2024 value. I also extrapolate values for MTEP charges for the years 2010 to 2013, by starting in year 2010 with $0

[1] $4.94 = ($58.63 - $9.25) / 10.

(nominal) and increasing each year by \$2.31 million (nominal \$) up to and including 2013.

For the "36% GFA Scenario," I repeat the foregoing steps, starting with \$3.99 million (2014 \$) and increasing the charge each year by \$2.80 million[2] (nominal \$) up to the 2024 MTEP charge of \$32.04 million (nominal \$). Again, BREC's MTEP charge for 2025 is extrapolated from the 2024 charge by adding \$2.80 million to the 2024 charge. I repeat my steps for the extrapolation of MTEP charges for the years 2010 to 2013, increasing each year by \$0.95 million (nominal \$).

Q. What are the results of your cost-benefit study?

A. The results of my cost-benefit study are summarized in Tables 1 and 2. My Exhibits 1 and 2 provide additional detail. Over the period 2011 to 2025, the incremental net cost of MISO compared to the status quo today assuming no GFA is estimated to be \$283.6 million (present value). If FERC approves GFA status for the Member transmission contracts for the entire 2011-2025 period, the present value cost for the BREC system is \$162.1 million.

---

[2] \$2.80 million = (\$32.04 million – \$3.99 million) divided by 10.

Table 1
Present Values of the Net Benefits (Costs) of BREC's MISO Membership Relative to the Status Quo: With GFA for Member Load

	2011-2015	2011-2025
Decreased Cost to Serve BR Load	11.7	34.1
Midwest ISO Admin Charges	(17.0)	(41.7)
FERC Charges	(2.9)	(6.7)
Internal Staffing/Equip Costs	(3.3)	(8.1)
Legal Costs	(0.4)	(1.0)
Schedule 26 (MTEP Costs)	(13.2)	(126.8)
Infeasible LTTR Uplift Costs	(0.6)	(1.5)
Revenue Neutrality Uplift	(4.5)	(10.5)
Net Benefit (Cost)	(30.3)	(162.1)

Table 2
Present Values of the Net Benefits (Costs) of BREC's MISO Membership Relative to the Status Quo: Without GFA for Member Load

	2011-2015	2011-2025
Decreased Cost to Serve BR Load	11.7	34.1
Midwest ISO Admin Charges	(17.0)	(41.7)
FERC Charges	(2.9)	(6.7)
Internal Staffing/Equip Costs	(3.3)	(8.1)
Legal Costs	(0.4)	(1.0)
Schedule 26 (MTEP Costs)	(29.4)	(241.5)
Infeasible LTTR Uplift Costs	(1.0)	(2.3)
Revenue Neutrality Uplift	(7.1)	(16.5)
Net Benefit (Cost)	(49.4)	(283.6)

Tables 1 and 2 show that the MISO option is more expensive than the status quo pre-MISO regardless of the timeframe of the analysis or of whether Member load will have grandfathered treatment. The net present value of MISO membership relative to the RSG membership option is negative for the period 2011 to 2015, and hugely negative for the period 2011 to 2025. For the 2011-2025 timeframe, MISO will cost an extra $162.1 million if Member load has grandfathered treatment or an extra $283.6 million if Member load does not have grandfathered treatment. Both GFA scenarios thus demonstrate that

BREC's membership in MISO compared to the status quo would not provide sufficient savings in production costs to overcome the added costs of membership, the most significant of which is the MTEP costs.

Q. Is there considerable uncertainty regarding whether FERC will grant GFA status to some of BREC's transmission contracts?

A. Yes. There has been some question about what status will be accorded by FERC to Big Rivers' transmission contracts with its Members and the Smelters. Several scenarios are possible. First, the Members' load may be granted GFA status, but not be granted "Carved-Out" GFA status. The FERC's decision in the Dairyland case would suggest that "Carved-Out" GFA status is out of the question.[3] Second, neither the Members' load nor the Smelters' load may be given GFA status. Third, the Members' load may be accorded GFA status for a few years, but then that status may be eliminated through an order by FERC in a subsequent year.

With or without GFA status for some load, MISO MTEP charges will be a significant system cost for all BREC ratepayers. On the other hand, if some load receives GFA status, then all BREC ratepayers (Smelter, Large Industrial, and Rural) will benefit from the reduced BREC system transmission expense for MTEP.

The uncertainties about the GFA treatment of BREC's transmission contracts and about the final method for the regionwide allocation of MTEP costs among MISO members do not provide reasonable justification for excluding consideration of such costs in a cost-benefit analysis of the MISO membership option. Quite the contrary, the uncertainty

---

[3] Federal Energy Regulatory Commission, *Order on Tariff Revisions and Complaint*, Docket Nos. ER10-73-000, ER10-74-000, and EL10-9-000, Issued December 15, 2009.

calls for a reasonable quantitative characterization of expected MTEP costs under plausible scenarios. Otherwise, the estimate of MISO membership costs will be grossly understated.

Q. Did BREC model a series of different Stand-alone options and compare those alternatives to MISO?

A. No. BREC modeled only one Stand-alone option.

Q. What Stand-alone option did BREC model?

A. In BREC's Stand-alone option, it needs 417 MW of contingency reserves. The contingency reserve requirement is assumed to be met through 65 MW of the Reid CT, 152 MW of BREC's coal units operating at less than their maximum output, and 200 MW obtained from either reduction in Smelter load or through construction of new peaking units, or some combination of these. The MISO membership option thus enables BREC to avoid the cost of 200 MW of new peaking units or the cost of Smelter load reductions, both of which were valued by Mr. Luciani at the annualized cost of new peaking capacity, which he forecasts to be $22 million (nominal dollars) per year in 2011, rising at about 2% per annum.

Q. Did the Smelters require a $22 million dollar annual payment for 200 MW of interruptible power?

A. No. I am advised that BREC and the Smelters have not even begun pricing negotiations on the cost of the interruptible power that the Smelters could provide for reserve sharing, so the cost of reserves from this source are as yet unknown. I am also advised that the Smelters may be able to provide up to 320 MW of interruptible power, in contrast to the

200 MW assumed by Mr. Luciani. This would result in less base load generation being idled.

Q. Which is more expensive, MISO or the Stand-alone option modeled by BREC?

A. My conclusion is that MISO membership is less costly than the Stand-alone option modeled by BREC, even when all significant MISO costs are included. However, in view of the significant cost associated with MISO membership, it seems well worthwhile to seek to discover whether there is a lower cost Stand-alone solution (or some other solution) which has yet to be considered.

Q. If the Smelters were able to provide more than 200 MW of interruptible power at a lower cost than assumed by Mr. Lucciani does this necessarily mean that MISO is not the least cost option?

A. No. Despite the significant cost of MISO membership option, it may still be the least cost option of meeting NERC reserve sharing requirements. However, because of the significant cost impacts, and subsequent rate impacts for BREC load, I am convinced that it is worthwhile for BREC to continue to vigorously explore other Stand-alone options That is why I recommend that the Commission require and assist in a search for a lower cost alternative. I know that BREC's CEO Mr. Bailey has testified that he is open to lower cost alternatives to MISO, and I have no reason to doubt him.

VI. CONCLUSIONS AND RECOMMENDATIONS

Q. What are your conclusions and recommendations?

A. The BREC testimony excludes significant potential costs for it in connection with membership in MISO, particularly BREC's prospective share of MISO's forthcoming investments in new transmission infrastructure. Relative to the case in which BREC continues as a member of the MCRSG, the net present value cost of MISO membership is significantly negative, even when the shorter period of 2011 to 2015 is considered. The financial and rate impacts of likely MTEP charges for all ratepayers on the BREC system (Smelter, Large Industrial, and Rural) will be significant even if some BREC load receives GFA status.

BREC witnesses have testified that it has examined a number of alternatives to MISO membership and found that none were either electrically or financially feasible. However, in view of the significant MTEP costs that BREC is likely to face over the long term, I recommend that the Commission provide BREC additional time to search for a less expensive alternative to MISO membership as a solution to its reserve requirements problem and to order it to explore all other compliance options in depth and report its findings to the Commission.

Q. Does this complete your testimony?

A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application of Big Rivers Electric	**)**	
Corporation for Approval to Transfer	**)**	
Functional Control of Its Transmission	**)**	**Case No. 2010-00043**
System to Midwest Independent	**)**	
Transmission System Operator, Inc.	**)**	

EXHIBITS

OF

DR. MATHEW J. MOREY

ON BEHALF OF THE
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

CHRISTENSEN ASSOCIATES ENERGY CONSULTING, LLC
MADISON, WISCONSIN

MAY 2010

Exhibit 1

Net Benefit (Cost) of BREC MISO Membership vs. Reserve Sharing via MCRSG: With GFA for Member Load

	Year																
	2011	**2012**	**2013**	**2014**	**2015**	**Present Value**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**Present Value**
Decreased Cost to Serve BR Load	2.4	2.6	2.9	3.1	3.2	11.7	3.5	3.7	3.7	4.0	4.0	4.3	4.3	4.7	4.7	5.0	34.1
Midwest ISO Admin Charges	(4.6)	(4.1)	(3.9)	(3.9)	(4.1)	(17.0)	(4.2)	(4.3)	(4.4)	(4.4)	(4.5)	(4.6)	(4.7)	(4.8)	(4.9)	(5.0)	(41.7)
FERC Charges	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(2.9)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(6.7)
Internal Staffing/Equip Costs	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	(3.3)	(0.8)	(0.8)	(0.8)	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)	(1.0)	(1.0)	(8.1)
Legal Costs	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.4)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(1.0)
Schedule 26 (MTEP Costs)	(1.0)	(2.0)	(3.0)	(4.0)	(6.8)	(13.2)	(9.6)	(12.4)	(15.2)	(18.0)	(20.8)	(23.6)	(26.4)	(29.2)	(32.0)	(34.8)	(126.8)
Infeasible LTTR Uplift Costs	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.6)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(1.5)
Revenue Neutrality Uplift	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(4.5)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(10.5)
Subtotal	(6.1)	(6.3)	(6.9)	(7.6)	(10.5)	(30.3)	(13.2)	(15.8)	(18.7)	(21.3)	(24.3)	(26.9)	(29.8)	(32.4)	(35.3)	(37.8)	(162.1)

Exhibit 2

Net Benefit (Cost) of BREC MISO Membership vs. Reserve Sharing via MCRSG: Without GFA for Member Load

	2011	2012	2013	2014	2015	Present Value	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Present Value
Decreased Cost to Serve BR Load	2.4	2.6	2.9	3.1	3.2	11.7	3.5	3.7	3.7	4.0	4.0	4.3	4.3	4.7	4.7	5.0	34.1
Midwest ISO Admin Charges	(4.6)	(4.1)	(3.9)	(3.9)	(4.1)	(17.0)	(4.2)	(4.3)	(4.4)	(4.4)	(4.5)	(4.6)	(4.7)	(4.8)	(4.9)	(5.0)	(41.7)
FERC Charges	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(2.9)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(6.7)
Internal Staffing/Equip Costs	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	(3.3)	(0.8)	(0.8)	(0.8)	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)	(1.0)	(1.0)	(8.1)
Legal Costs	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.4)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(1.0)
Schedule 26 (MTEP Costs)	(2.3)	(4.6)	(6.9)	(9.2)	(14.2)	(29.4)	(19.1)	(24.1)	(29.0)	(33.9)	(38.9)	(43.8)	(48.8)	(53.7)	(58.6)	(63.6)	(241.5)
Infeasible LTTR Uplift Costs	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(1.0)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(2.3)
Revenue Neutrality Uplift	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(7.1)	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(1.7)	(16.5)
Subtotal	(8.1)	(9.7)	(11.5)	(13.6)	(18.6)	(49.4)	(23.4)	(28.2)	(33.2)	(38.0)	(43.0)	(47.8)	(52.8)	(57.5)	(62.6)	(67.3)	(283.6)

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application of Big Rivers Electric Corporation for Approval to Transfer Functional Control of Its Transmission System to Midwest Independent Transmission System Operator, Inc.	)	**Case No. 2010-00043**

AFFIDAVIT OF DR. MATHEW J. MOREY

Commonwealth of Virginia)
) ss:
Alexandria City)

Dr. Mathew J. Morey, being first duly sworn, deposes and says that the facts and conclusions set forth in the attached statement are true and correct to the best of his knowledge, information and belief; and that he does adopt the same as his sworn declaration in this proceeding.

M J Morey

Dr. Mathew J. Morey

Subscribed and sworn to before me, the undersigned notary public, this 21st day of May 2010.

Matthew D. Reid

Notary Public

My Commission expires: July 31, 2012

OFFICIAL SEAL
MATTHEW D. REID
Notary Public
COMMONWEALTH OF VIRGINIA
My Commission Expires JULY 31, 2012
ID #348579

MATHEW J. MOREY

RESUME

January 2010

Addresses:

Laurits R. Christensen Associates, Inc.
800 University Bay Drive, Suite 400
Madison, Wisconsin 53705-2299
Telephone: 608.231.2266
Fax: 608.231.2108
Email: mjmorey@LRCA.com

LRCA, Virginia Office
409 Cambridge Road
Alexandria, VA 22314-4813
703.823.0261 Tel./Fax
703.244.1345 Cell
envisioninc@comcast.net

Academic Background:

Ph.D., University of Illinois-Urbana/Champaign, 1977, Economics.
M.S., University of Illinois-Urbana/Champaign, 1975, Economics.
B.S., University of Illinois-Urbana/Champaign, 1973, Economics.

Positions Held:

Senior Consultant, Christensen Associates Energy Consulting, July 2003 – Date
Principal, Envision Consulting, October 2000 – June 2003
Director, Economics, Edison Electric Institute, February 1996 – October 2000
President, Center for Regulatory Studies, Illinois State University, 1991 – 1996
Vice President, Center for Regulatory Studies, 1985 – 1991
Director of Energy Forecasting, Central Illinois Light Company, 1991 – 1992
Special Term Appointment, Argonne National Laboratory, 1987 – 1992
Associate Professor of Economics, Illinois State University, 1983 – 1996
Assistant Professor of Economics, Indiana University, 1978 – 1983
Assistant Professor of Economics, Arizona State University, 1977 – 1978

Selected Professional Activities:

Research Advisory Committee, National Regulatory Research Institute, 1995-1996

Professional Experience:

I am a Senior Consultant at Christensen Associates. I have broad experience in the electric industry working on policy issues connected to all aspects of restructuring. I have worked on transmission congestion management and pricing systems, market power and market monitoring, market design and incentive regulation. Prior to joining Christensen Associates, I was Principal of Envision Consulting, which I founded in 2000. I served as Chief Economist with the Edison Electric Institute from 1996 to 2000. I guided the development of EEI's positions on economic and regulatory policy pertaining to the restructuring of the industry's wholesale and retail markets. I shaped EEI's economic framework for efficient pricing and practices within competitive and regulated markets, transmission and distribution pricing and rate design, including congestion pricing practices, merger and market power policies at the federal and state level, and energy business development. I have testified before state and federal regulatory agencies and state legislative bodies on a wide range of industry issues including stranded costs, market power, affiliate codes of conduct, modeling fuel costs in fuel adjustment cases, costs and benefits of Regional Transmission Organizations, utility-affiliate transfer pricing rules, cost of service studies in retail rate cases and regulatory policy regarding the design of distribution and transmission rates.

Major Projects:

Assisted the Commonwealth of Puerto Rico with the development of an open access transmission system, including development of an open access transmission tariff, operating agreements, generator interconnection procedures and agreements, setting transmission access charges and rates for the full set of ancillary services.

Assisted industrial customers with assessment of utility requests to increase base rates and assessments of requests to adjust fuel cost recovery tariffs.

Assisted a national trade association with the analysis of RTO and regional LMP-based market performance.

Assisted a coalition of market participants in the PJM RTO markets about the implications of the implementation of the PJM Reliability Pricing Model, intended to ensure resource adequacy.

Assisted an investor-owned electric utility with evaluation of feasible options to membership in a Regional Transmission Organization.

Assisted an independent transmission company with the evaluation of the costs and benefits of transmission expansion options.

Conducted a review of federal and state experience with utility codes of conduct and affiliate transaction pricing rules in the U.S. for a Canadian utility.

Conducted a review of how stranded cost issues were addressed in the U.S. at the State and Federal levels for a Canadian utility.

At the request of a state regulatory agency, performed a critique of a cost-benefit study of a utility's membership in the PJM RTO and prepared direct testimony about the critique.

Assisted the National Rural Electric Cooperative Association with comments to the Federal Energy Regulatory Commission on the analysis of market power as it relates to the granting of market-based rate authority.

Performed critiques for the National Rural Electric Cooperative Association of various studies of the costs and benefits of restructuring of the wholesale and retail power markets.

Performed analysis for LGE Energy Corporation of the costs and benefits of alternative regional transmission organizational arrangements and assisted the company in its process of exiting from the Midwest Independent Transmission System Operator.

Assisted Detroit Edison Company and DTE Energy Trading, Inc. with issues related to transmission pricing that arise from the elimination of through and out rates and the application of the Seams Elimination Cost Adjustment (SECA) charges.

Conducted a review for a large Canadian energy firm of the proposed congestion management principles for operation of the Alberta transmission system and improvements in the design of the Alberta wholesale energy market, and prepared testimony on the basis of that analysis.

Assisted an independent transmission company with development of comments on the FERC Standard Market Design Notice of Proposed Rulemaking and advised on transmission pricing and performance-based regulation for transmission companies.

Performed a study for the Independent System Operator of New England on transmission congestion management and market power issues as they pertain to implementation of a Standard Market Design.

Consultant to a national trade association on electric industry restructuring issues including market design and market power, transmission congestion management, transmission regulation, RTO design and impacts of federal energy legislation.

Assisted a utility with assessing options for satisfying FERC Order Nos. 888 and 2000 while continuing to provide reliable service to its native load customers at a reasonable cost.

Assisted a New York investment firm in assessing risks associated with power supply contracts.

Publications:

"Managing Transmission Risk in Wholesale Power Markets," with Laurence D. Kirsch, *The Electricity Journal*, Volume 22, Issue 9, October 2009, pp. 26-37.

"Electricity Price Impacts of Alternative Greenhouse Gas Emission Cap-and-Trade Programs," with Bruce Edelston, Dave Armstrong, and Laurence Kirsch, *The Electricity Journal*, Volume 22, Issue 6, July 2009, pp. 37-46.

"Efficient Allocation of Reserve Costs in RTO Markets," with Laurence D. Kirsch, *The Electricity Journal*, Volume 19, Issue 8, October 2006, pp. 43-51.

"RTOs and Electricity Restructuring: the Chasm Between Promise and Practice," with B. Kelly Eakin and Laurence D. Kirsch, *The Electricity Journal*, Volume 18, Number 1, January/February 2005, pp. 1-21.

"How Can FERC Find Its Way Out of the SMD Cul-de-Sac? Stimulate the Transmission Sector!" with Christina C. Forbes, *The Electricity Journal*, Volume 16, Number 7, August/September 2003, pp. 74-85.

"Performance-based Regulation for Independent Transmission Companies: 'Delivering' the Promise of Standard Market Design," *The Electricity Journal*, Volume 16, Number 5, June 2003, pp. 35-51.

"The Role of the Independent Transmission Company in Wholesale Electricity Markets," with Eric Hirst, *The Electricity Journal*, Volume 16, Number 4, May 2003, pp. 31-45.

"ITP Building Blocks: Functions and Institutions," with Eric Hirst, *The Electricity Journal*, Volume 16, Number 3, April 2003, pp. 29-41.

"The Ties That Bind," with Julia Valliere, *Electric Perspectives*, March/April 2001, pp. 35-43.

"House of Cards," with Russell Tucker and Liz Stipnieks, *Electric Perspectives*, March/April, 1999, pp. 27-34.

"The Efficient Utility: Labor, Capital and Profit," letter to the editor of Public Utilities Fortnightly on an article by Taylor and Thompson in the September 1, 1995 issue of PUF, with L. Dean Hiebert, *Public Utilities Fortnightly,* January 1996.

"Sudden Oil Price Changes: The Effect on U.S. Gasoline Demand," with R.K. Goel, *Opec Review*, Autumn 1995, pp. 203-218.

"The Interdependence of Cigarettes and Liquor Demand," with R.K. Goel, *Southern Economic Journal*, September 1995, pp. 451-459.

"Trans-Atlantic Lessons in Electric Energy Market Development: Impressions from the U.S. and U.K.," *TB&A inforum,* Volume 1, Issue 4, May-June 1994 and Volume 2, Issue 2, September-October 1994.

"A Cross-Country Comparison of Consumer Discount Rates," with W. V. Weber and J. K. Highfill, *The Changing Environment of International Financial Markets: Issues and Analysis*, New York: Macmillan, 1993, pp. 56-68.

"The Impact of the 1973 Oil Embargo: A Nonparametric Analysis," with R.K. Goel, *Energy Economics*, January 1993, pp. 39-48.

"How Effective are Conservation Brochures," with J.L. Carlson, in *Public Utilities Fortnightly*, Volume 128, Number 4, August 15, 1991.

"The Economic Contribution of Women in the Household: Evidence from an African LDC," with R.D. Singh, in *Economic Development and Cultural Change*, 1987, pp. 743-765.

"MicroTSP: A Review," *The American Statistician*, Vol. 41, No. 2, May 1987, pp. 143-145.

"Bootstrapping the Durbin-Watson Statistic," with Sejong Wang, in the *Proceedings of the American Statistical Association, Business Statistics Section*, Fall 1985.

"Robustifying the Durbin-Watson Test for Serial Correlation," in the *Proceedings of the American Statistical Association, Business Statistics Section*, Fall 1985.

"Small Sample Behavior of Bootstrapped and Jackknifed Regression Estimates," with Leslie M. Schenk, in the *Proceedings of the American Statistical Association, Business Statistics Section*, Fall 1984.

"The Statistical Implications of Preliminary Specification Error Testing," *Journal of Econometrics*, 25, 1984.

"A Time Series Extension of a Specification Error Test Due to Ramsey," with David Spencer, in *Applied Time Series Analysis*, O.D. Anderson ed., North-Holland, 1982.

"The Statistical Implications of Spurious Response in Sample Surveys," with Robert Schmitz, in the *Proceedings of the American Statistical Association, Business Statistics Section*, Fall 1980.

"Pooled Cross-Section Time Series Education Evaluation: Source, Result and Correction of Serially Correlated Errors," with William Becker, *American Economic Review*, May 1980.

"Autocorrelation Pre-Test Estimators," Chapter 7 in *The Statistical Consequences of Pre-Test and Stein Rule Estimators in Economics*, with G.G. Judge and M.E. Bock, North-Holland, 1978.

Professional Papers:

"Economic Impacts of Alternative Resources: East Kentucky Power Cooperative," with Robert Camfield, Bruce Chapman, Jeremy Morton, and Michael Welsh, February 1, 2010.

"Overcoming Barriers to Efficient Investment in Generation: Regulatory vs. Competitive Based Approaches," with Laurence D. Kirsch, prepared for the National Rural Electric Cooperative Association, September 2009.

"Measuring the Impacts of State and Federal Electric Utility Policies on Retail Rates," with Laurence Kirsch, April 2009.

"Analysis of the Electricity Price Impacts of Alternative Carbon Emission Cap-And-Trade Programs In the Midwest," with Bruce L. Edelston, Laurence D. Kirsch, and David Armstrong, prepared for Indiana Municipal Power Agency, Madison Gas and Electric Company, Missouri Joint Municipal Electric Utility Commission, Missouri River Energy Services, Southern Minnesota Municipal Power Agency, and WPPI Energy, March 31, 2009.

"The Regional Transmission Organization Report Card: Wholesale Electricity Markets and RTO Performance Evaluation," 3rd Edition, prepared for the National Rural Electric Cooperative Association, with Laurence D. Kirsch, Brad Wagner, Bruce Chapman, February, 2009.

"Managing Transmission Risk Through Forecasts of Transmission Loading Relief Calls," with Laurence Kirsch, Brad Wagner, and Dave Armstrong, Electric Power Research Institute, EPRI Report ID #1015871, November, 2008.

"The Compete Coalition Oversells Independent Study Findings," with Laurence D. Kirsch, prepared for the American Public Power Association and the National Rural Electric Cooperative Association, December, 2007.

"Forecasting Transmission Loading Relief Calls With Publicly Available Information," with Laurence Kirsch, Brad Wagner, and Dan Hansen, Electric Power Research Institute, EPRI Report ID # 1013775, November, 2007.

"The Regional Transmission Organization Report Card: Wholesale Electricity Markets and RTO Performance Evaluation," 2nd Edition, prepared for National Rural Electric Cooperative Association, with Laurence D. Kirsch, Brad Wagner, Bruce Chapman, Emilie McHugh, August, 2007.

"Analysis of Issues in Estimating a Comparable Regional Average Firm Full Requirements Service Price," prepared for the Connecticut Department of Public Utility Control, with Robert J. Camfield, Daniel G. Hansen, and Laurence D. Kirsch, June, 2007.

"The Regional Transmission Organization Report Card: Wholesale Electricity Markets and RTO Performance Evaluation," prepared for National Rural Electric Cooperative Association, with Laurence D. Kirsch, Brad Wagner, Bruce Chapman, Emilie McHugh, October, 2006.

"Efficient Allocation of Reserve Costs in RTO Markets," with L.D. Kirsch, working paper, August, 2006.

"Hedging Long-term Transmission Price Risks Associated With Generation Investments," with Laurence D. Kirsch, prepared for the Electric Power Research Institute, December, 2005.

"Beyond Belief: A Critique of the Cambridge Energy Research Associates' Special Report," with Laurence D. Kirsch, prepared for the National Rural Electric Cooperative Association, November 17, 2005.

"Transmission Price Risk Management," with L.D. Kirsch, Electric Power Research Institute, Product ID# 1012475, October, 2005.

"Global Energy Decision's 'Putting Competitive Power Markets to the Test': An Alternative View of the Evidence," with Laurence D. Kirsch, prepared for the National Rural Electric Cooperative Association, August 2005.

"Critique of the Charles River Associates Study 'The Benefits And Costs In North Carolina Of Dominion North Carolina Power Joining PJM'," with Laurence D. Kirsch, prepared for the Public Staff of the North Carolina Utilities Commission, September 30, 2004.

"Supplemental Investigation Into the Costs and Benefits to Louisville Gas and Electric Company and Kentucky Utilities Company in the Midwest Independent Transmission System Operator, Inc.," with Laurence D. Kirsch, prepared for LGE Energy Corporation, September 29, 2004.

"Preliminary Blueprint for Addressing Generation Market Power Issues," with B. Kelly Eakin, prepared for the National Rural Electric Cooperative Association, February 1, 2004.

"Erecting Sandcastles from Numbers: The CAEM Study of Restructuring Electricity Markets," with Laurence D. Kirsch, Steven Brathwait, and Kelly Eakin, December 3, 2003, prepared for National Rural Electric Cooperative Association.

"A Cost-Benefit Analysis of RTO Options for LGE Energy Corporation," prepared for LGE Energy Corporation, with Laurence D. Kirsch, Robert J. Camfield, Blagoy Borissov, September 22, 2003.

"Performance-based Regulation for Independent Transmission Companies," prepared for TRANSLink Transmission Company, LLC, January 2003.

"Economic Regulation and Transmission," prepared for TRANSLink Transmission Company, LLC, January 2003.

"Congestion Management System (CMS) Implementation Studies Related to Congestion," with F. L. Alvarado, B. Borrisov, R. C. Hemphill, L. D. Kirsch, R. Rajamaran, Laurits R. Christensen Associates, Inc., prepared for the Independent System Operator of New England, January 14, 2003.

"Transmission Business Models: The Role of Independent Transmission Companies in Competitive Wholesale Electricity Market," with Eric Hirst, submitted as a comment in FERC Docket RM01-12-000, November 2002.

"Regional Transmission Organizations: Who Does What to Whom," with Eric Hirst, July 2002.

"Ensuring Sufficient Generation Capacity During the Transition to Competitive Electricity Markets," prepared for Edison Electric Institute, appended to EEI

Comments in FERC Docket No. EX01-1-000, Ensuring Sufficient Capacity Reserves in Today's Energy Markets, November 2001.

"Power Market Auction Design: Rules and Lessons in Market-based Control for the New Electricity Industry," prepared for Edison Electric Institute, September 2001.

"The Truth About the HVAC Industry: Why Utility Participation is Good for Consumers," with Russell Tucker and Liz Stipnieks, 1999.

"Putting Demand Back In Demand-Side Management," paper prepared for presentation to the Mid-America Regulatory Conference, Session on Electric DSM/IRP: Fact or Fiction in the Brave New World of Electricity Competition, Milwaukee, WI, June 21, 1994, 8 pp.

"636 To The Burnertip: Effects of Pipeline Industry Restructuring on LDCs and How State Regulators are Responding," with Duane Abbott, paper prepared for presentation at gas industry conferences sponsored by the Institute for Gas Technology, fall 1994, 40 pp.

"Preliminary Estimates of Price Sensitivity for Customers on NMPC's SC-3 and SC-3A Tariffs," with Carl Peterson, prepared under contract with Niagara Mohawk Power Corporation, February 1994, 75 pp.

Presentations:

"Managing Transmission Curtailment Risk," with L. Kirsch, B. Wagner, and D. Armstrong, Electric Power Research Institute, Advisory Group Meeting, September 8, 2008.

"Forecasting TLRs: An Application to a Problematic Flowgate," with L. Kirsch and B. Wagner, Electric Power Research Institute, Advisory Group Meeting, February 18, 2008.

"Electricity Market Performance and Reform Options: Participant Perspectives," Institute of Public Utilities, 39th Annual Regulatory Policy Conference, Charleston, S.C., December 5, 2007.

"Wholesale Electricity Market Risks," Utility Basics Course, Wisconsin Public Utilities Institute, University of Wisconsin, October 16, 2007.

"Forecasting TLRs With Publicly Available Information," with L. Kirsch, Electric Power Research Institute, Advisory Group Meeting, Washington, D.C., September 24, 2007.

"Wholesale Electricity Costing and Pricing," Camp NARUC, Institute of Public Utilities, Michigan State University, August 9, 2007.

"Managing Transmission Risk in Illiquid Markets," with L. D. Kirsch, Electric Power Research Institute, Advisory Group Meeting, Charlotte, North Carolina, August 24, 2006.

"Wholesale Electricity Costing and Pricing," Camp NARUC, Institute of Public Utilities, Michigan State University, August 10, 2006.

"Managing Transmission Price Risk," with Laurence Kirsch, Electric Power Research Institute, Interest Group Meeting, Washington, D.C., July 27, 2006.

"Installed Capacity Market Reforms: Assessing Risk for Generation," Electric Power Research Institute, Advisory Meetings, San Diego, California, February 6, 2006.

"The Costs and Benefits of Regional Transmission Organizations," Large Public Power Council Rates Committee Seminar, San Antonio, Texas, October 2, 2005.

"The Trials and Tribulations of a Fuel Cost Adjustment Mechanism," Large Public Power Council Rates Committee Seminar, San Antonio, Texas, October 2, 2005.

"Governance Structures for Transmission Networks: Addressing the Conflicts in Independence, Ownership and Functionality," EUCI Conference – Organization and Governance of the Market Agent, Washington, DC, March 30, 2005.

"Developing Transmission Through Performance-based Regulation," presented to the Center for Business Intelligence, Transmission Expansion: Investment, Incentives and Regional Approaches to Transmission Opportunities, Alexandria, VA, October 8, 2003.

"Incentive Regulation for Transmission," presented to the EEI Market Design Workshop, Madison, WI, July 29, 2003.

"Audit of OATi MECS 2002 Tag Data," presented to a Settlement Conference in FERC Docket No. EL02-111-000, May 6, 2003.

"Congestion Management," presented to the EEI Transmission Business School, Philadelphia, PA, March 19, 2002.

"Wholesale Electricity Market Design," presented to the EEI Transmission Business School, Philadelphia, PA., March 19, 2002.

"RTO Formation: Where Are We, What Have We Learned, Where Do We Go From Here?" presentation to EEI's *The RTO's Filings Conference*, Washington, D.C. November 2, 2000.

"Are Utilities Gaming the System," presentation to the EEI Strategic Issues Conference, Washington, D.C., October 1, 2000.

"Affiliate Transaction Pricing Rules or How To Swim Upstream With One Arm Tied Behind Your Back," presented to the EEI Property Accounting Committee Spring meeting, Dallas, TX, June 8, 2000.

"Distributed Generation: Is It the Wave of the Future?" presentation to the Spring Meeting of the National Association of State Utility Consumer Advocates, Portland, ME, June 5, 2000.

"An Analysis of Regional Wholesale Power Markets: Market Fundamentals," presentation made to staff at Constellation Power Source, Baltimore, MD, January 20, 2000.

"Codes of Conduct: Impacts on Utility Profitability," presented to the Chief Accounting Officers annual meeting, New Orleans, LA, September, 1999.

"A Market Economist's Perspective on Market Power in the Electric Industry," presented at the Electric Utility Business Environment Conference, Denver, CO, May 17, 1999.

"Transmission Market Design Principles," presented to the NARUC Subcommittee on Accounts, Winter Meeting, New Orleans, LA, March 22, 1999.

"Electric Industry Restructuring and Market Power," presented to the Joint Energy Council, Washington, D.C., February 28, 1999.

"Affiliate Transactions Pricing Issues," presented to EEI/AGA Corporate Accounting/Property Accounting Committee Meeting, New Orleans, LA, December 7, 1998.

"Market power principles and affiliate transaction pricing issues," presented to the NARUC Subcommittee on Accounts, Indianapolis, IN, October 13, 1998.

"Review of restructuring in the states," presented to the Financial Accounting Standards Board, Stanford, CN, June 23, 1998.

"Pricing Transmission and Congestion: The Role of Congestion Contracts," presented at Infocast conference, January 23, 1998.

Prepared Testimony, Expert Testimony:

- Before the Federal Energy Regulatory Commission, on behalf of the American Public Power Association and the National Rural Electric Cooperative Association, "Affidavit of Dr. Laurence D. Kirsch and Dr.Mathew J.Morey On Behalf of the American Public Power Association and the National Rural Electric Cooperative Association," Docket Nos. ER09-701-000 and ER09-701-001, May 19, 2009.
- Before the North Carolina Public Utilities Commission, on behalf of Nucor Steel-Hertford, In the Matter of Application of Dominion North Carolina Power for Authority to Adjust Its Electric Rates Pursuant to G.S. 62-133.2 and NCUC Rule R8-55, Docket No. E-22 Sub. 451, November 3, 2008.
- Before the Virginia State Corporation Commission, on behalf of Steel Dynamics, Inc. – Roanoke Bar Division, Case No. PUE-2008-00046, September 26, 2008, with R. Camfield.
- Before the Virginia State Corporation Commission, on behalf of Steel Dynamics, Inc. – Roanoke Bar Division, Case No. PUE-2008-00045, August 6, 2008.
- Before the North Carolina Public Utilities Commission, on behalf of Nucor Steel-Hertford, In the Matter of Application of Dominion North Carolina Power for Authority to Adjust Its Electric Rates Pursuant to G.S. 62-133.2 and NCUC Rule R8-55, Docket No. E-22 Sub. 444, October 26, 2007.

- Before the North Carolina Public Utilities Commission, on behalf of Nucor Steel-Hertford, In the Matter of Application of Dominion North Carolina Power for Authority to Adjust Its Electric Rates Pursuant to G.S. 62-133.2 and NCUC Rule R8-55, Docket No. E-22 Sub. 436, October 23, 2006.
- Before the Federal Energy Regulatory Commission, on behalf of the Detroit Edison Company and DTE Energy Trading, Inc., "Prepared Cross-Answering Testimony of Mathew J. Morey on Behalf of Detroit Edison Company and DTE Energy Trading, Inc.," in Docket No. EL02-111 *et al*, December 13, 2005.
- Before the Kentucky Public Service Commission, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company, "Prepared Direct Testimony of Mathew J. Morey," in the matter of the application of Louisville Gas and Electric Company and Kentucky Utilities Company To Transfer Functional Control of Their Transmission System," Case No. 2005.
- Before the Federal Energy Regulatory Commission, on behalf of the Detroit Edison Company and DTE Energy Trading, Inc., "Prepared Answering Testimony of Mathew J. Morey," in Docket No. EL02-111 *et al*, October 21, 2005.
- Before the Federal Energy Regulatory Commission, on behalf of the PJM Industrial Customer Coalition, "Affidavit of Mathew J. Morey and Laurence D. Kirsch," in Docket No. ER05-1410 and EL05-148, on the critique of the PJM Reliability Pricing Model proposal, October 19, 2005.
- Before the Federal Energy Regulatory Commission, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company, "Testimony of Mathew J. Morey," in Docket No. EL05-99-000, on the matter of the formation of an independent coordinator of transmission as an alternative to membership in the Midwest Independent Transmission System Operator, October 7, 2005.
- Before the Federal Energy Regulatory Commission, on behalf of the National Rural Electric Cooperative Association, "Affidavit of Dr. Laurence D. Kirsch and Dr. Mathew J. Morey, in Docket No. EL03-236-000, on the subject of the PJM market monitor's three-pivotal supplier test for determining whether offer caps should be imposed in hours when the market is deemed not to be competitive.
- Before the Kentucky Public Service Commission, on behalf of LGE Energy Corporation, Additional Supplemental Rebuttal Testimony in the matter of "Investigation into the Membership of Louisville Gas and Electric Company and Kentucky Utilities Company in the Midwest Independent Transmission System Operator, Inc.," Case No. 2003-00266, filed April 1, 2005.
- Before the Federal Energy Regulatory Commission, on behalf of the National Rural Electric Cooperative Association, "Remarks of Mathew J. Morey On Behalf of the National Rural Electric Cooperative Association," Technical Conference on Generation Market Power and Affiliate Abuse, Docket No. RM04-7-000, January 27, 2005.

- Before the Federal Energy Regulatory Commission, on behalf of The Detroit Edison Company, in Docket No. ER05-6-000 et al, filed January 10, 2005, on problems with the use of OATI e-tag data in determining the SECA liability of Detroit Edison.
- Before the Kentucky Public Service Commission, on behalf of LGE Energy Corporation, Supplemental Rebuttal Testimony in the matter of "Investigation into the Membership of Louisville Gas and Electric Company and Kentucky Utilities Company in the Midwest Independent Transmission System Operator, Inc.," Case No. 2003-00266, filed January 10, 2005.
- Before the North Carolina Public Utilities Commission, on behalf of the Public Staff of the North Carolina Public Utilities Commission, in the matter of "Application of Dominion North Carolina Power for Authority to Transfer Functional Control of Transmission Assets to PJM, Interconnection, L.L.C.; Virginia Electric and Power Company, d/b/a/ Dominion North Carolina Power, Docket No. E22, SUB 418, filed September 30, 2004.
- Before the Kentucky Public Service Commission, on behalf of LGE Energy Corporation, in the matter of "Investigation into the Membership of Louisville Gas and Electric Company and Kentucky Utilities Company in the Midwest Independent Transmission System Operator, Inc.," Case No. 2003-00266, filed September 29, 2004.
- Before the Federal Energy Regulatory Commission, on behalf of the National Rural Electric Cooperative Association, "Remarks of Mathew J. Morey on Behalf of the National Rural Electric Cooperative Association," Technical Conference Initiation of Rulemaking Proceeding on Market-based Rates, June 9, 2004.
- Before the Kentucky Public Service Commission, on behalf of LGE Energy Corporation, in the matter of "Investigation into the Membership of Louisville Gas and Electric Company and Kentucky Utilities Company in the Midwest Independent Transmission System Operator, Inc.," Case No. 2003-00266, September 22, 2003.
- Before the Federal Energy Regulatory Commission, affidavit on behalf of The Detroit Edison Company in Docket No. ER03-262-000 on the appropriateness of transitional transmission rates to accommodate lost revenue of the New PJM companies, May 2003.
- Before the Federal Energy Regulatory Commission, Comments of Mathew J. Morey and Christina C. Forbes on Proposed Pricing Policy for Efficient Operation and Expansion of the Transmission Grid, Docket No. PL03-1-000, March 13, 2003.
- Before the Alberta Energy and Utilities Board, on behalf of Canadian Natural Resources Limited, File No. 1804-4, ESBI Alberta Ltd, Application No. 1248859, 2002 Congestion Management Principles Application.

- Before the California Public Utilities Commission on behalf of Edison Electric Institute, Phase II of the California Public Utilities Commission Rulemaking 99-10-025, Distributed Generation Standby Rate Design, 2000.
- Before the Michigan Public Service Commission on behalf of Consumers Energy Company, Case No. U-12134, Code of Conduct for Consumers Energy Company and the Detroit Edison Company, 2000.
- Before the Missouri Public Utility Commission on behalf of Edison Electric Institute on behalf of EEI and its member companies in Missouri Public Utility Commission Case No. EX-99-442 on affiliate rules for electric, gas and steam heating affiliates that included affiliate pricing, non-discriminatory access to essential facilities, access to books and records and audits, 1999.
- Before the Illinois Commerce Commission on behalf of Illinois Power Company, Case No. 99-0114 on Services and Facilities Agreement Between Illinois Power Company and Illinova Corporation, and other Illinova Entities, 1999.
- Before the Michigan Public Service Commission on behalf of Michigan Gas Utilities, Case No. U-11648, in the matter of the application of Michigan Gas Utilities for approval of transportation standards of conduct and complaint procedures, 1998.
- Before the Massachusetts Department of Telecommunications and Energy on behalf of Edison Electric Institute concerning whether to extend the affiliate transactions rules to utility affiliates participating in non-energy services or energy-related services markets, 1998.
- Before the Maine Public Utilities Commission on behalf of Edison Electric Institute, Docket No. 98-099, In the Matter of Joint Marketing and Advertising, 1998.
- Before the Maine Public Utilities Commission on behalf of Edison Electric Institute, Docket No. 98-457, Standards of conduct for transmission and distribution utilities and affiliated competitive electric providers," 1998.
- Before the Illinois Commerce Commission on behalf of Edison Electric Institute, Docket Nos. 98-0147 and 98-0148 (consolidated) on functional separation standards for utility distribution and merchant operations, 1998.
- Before the Illinois Commerce Commission on behalf of Edison Electric Institute, Docket Nos. 98-0013 and 98-0035 (consolidated) on affiliate codes of conduct and transaction rules, 1998.
- Before the Connecticut Department of Public Utility Control on behalf of Edison Electric Institute, Docket No. 98-06-11 on affiliate codes of conduct. This proceeding addressed nondiscriminatory access and cost allocation methods of preventing cross-subsidization, 1998.
- Before the Maine Public Utilities Commission on behalf of Edison Electric Institute, Docket No. 97-877 on the Maine Attorney General's report on market power in Maine, 1997.

- Before the Massachusetts Department of Telephone and Energy Supplied on behalf of Edison Electric Institute concerning affiliate codes of conduct and transaction rules, 1997.
- Before the Illinois Legislative Task Force on behalf of Edison Electric Institute concerning industry restructuring issues, 1997.
- Before the Mississippi Public Service Commission on behalf of Edison Electric Institute concerning industry restructuring issues, 1997.
- Before the Illinois Legislative Task Force on behalf of Edison Electric Institute concerning electric industry restructuring issues, 1996.
- Before the Kansas Legislature on behalf of Edison Electric Institute on electricity restructuring issues, 1996.
- Before the Illinois General Assembly, Citizens Energy Council, on behalf of Edison Electric Institute concerning electricity restructuring issues, 1996.