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BEFORE THE ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF SOUTHWESTERN ELECTRIC POWER COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION OWNERSHIP, OPERATION AND MAINTENANCE OF THE PROPOSED 345 KV TRANSMISSION LINE BETWEEN THE SHIPE ROAD STATION AND THE PROPOSED KINGS RIVER STATION AND ASSOCIATED FACILITIES TO BE LOCATED IN BENTON, CARROLL AND/OR MADISON AND WASHINGTON COUNTIES, ARKANSAS	**DOCKET NO: 13-041-U**

PETITIONER SAVE THE OZARKS' SURREPLY ON SWEPCO'S NOTICE OF WITHDRAWAL OF SWEPCO'S APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

Intervenor Petitioner not-for-profit corporation Save the Ozarks (STO) hereby, by counsel, respectfully submits its Surreply on SWEPCO's Notice of Withdrawal of SWEPCO'S Application for a Certificate of Environmental Compatibility and Public Need (CECPN) for construction of a new 345 kV transmission line project. For the reasons stated herein, STO requests that the Commission not allow SWEPCO to simply withdraw its application but rather issue an order denying SWEPCO's application, and set a briefing schedule on STO's anticipated motion for attorney fees and litigation costs, or award STO its fees and costs and set a time for submission of STO's fee petition.

I. SWEPCO, SPP, AND AECC ASSERT AND RELY ON PURPORTED RULES OF LAW AND COMMISSION PRECEDENT WITHOUT CITATION TO ANY STATUTORY OR CASE AUTHORITIES OR COMMISSION DECISIONS

A. SWEPCO, SPP, and AECC in Their Joint Reply Fail to Cite Any Legal Authority for their Assertion that Dismissal of SWEPCO's Application for a CECPN at a Late Stage in the Proceedings and in the Face of Opposition from Other Parties is a Matter of Right

In their Joint Reply, Southwest Electric Power Company (SWEPCO), Southwest Power Pool (SPP), and Arkansas Electric Cooperative Corporation (AECC) assert, in regard to their request for a dismissal here, that:

> This situation is akin to a circuit court proceeding being resolved by final order and appealed, reversed and remanded for further proceedings. In that situation the argument would not be closed and the plaintiff would be entitled to a voluntary nonsuit as a matter of right.

See, SWEPCO, SPP, and AECC Joint Reply (Joint Reply) at 3. Given the context, this assertion by SWEPCO, SPP, and AECC clearly is intended to represent to the Commission that an Application for a CECPN may, as a matter of right, be withdrawn unilaterally by an applicant even at a late stage of the proceedings and even if opposed by other parties, simply by the filing of a Notice, and the Commission has no option but to accept the withdrawal of the application and close the docket without further proceedings or orders.

However, SWEPCO, SPP, and AECC cite to no Commission precedent or case law recognizing such a right where a party withdrew an application for a CECPN at a late stage of a proceeding in the face of opposition from other parties. To STO's knowledge, there is no such Commission precedent or case law.

Further, SWEPCO, SPP, and AECC cite to no case law establishing a party's entitlement to a voluntary nonsuit as a matter of right where a circuit court proceeding was resolved by final order and appealed, reversed and remanded for further proceedings.

B. SWEPCO, SPP, and AECC in Their Joint Reply Fail to Cite Any Legislative History or Other Legal Authority for their Assertion Regarding the Reason the Arkansas General Assembly Removed from a Bill Certain Language Providing that the Commission Could Award Attorney Fees

In their Joint Reply, SWEPCO, SPP, and AECC assert that:

> House Bill 393 of 1985 provided for both utilities and/or complainants being awarded attorneys' fees upon prevailing, The General Assembly recognized that authorizing the Commission to award attorneys' fees to "prevailing parties" would in actuality place a chilling effect on ratepayers, environmental groups, and special organizations such as STO participating in Commission proceedings. The prospect of losing a contested case against a utility and then being exposed to covering the utilities' legal fees would curtail the number of contested cases before the APSC. Thus the attorney's fees provisions were removed from House Bill 393 prior to its passage.

Joint Reply at 9. SWEPCO, SPP, and AECC, and their counsel, unless they are asserting that they have the benefit of psychic abilities, must have seen some document constituting authoritative legislative history to make this assertion but they neither cite to nor attach any such legislative history to support their assertion. Absent such documentation of the asserted legislative history, the Commission should not rely on this assertion as other interpretations of legislative intent for such action are certainly possible.

C. SWEPCO, SPP, and AECC in Their Joint Reply Fail to Cite Any Legal Authority for Their Assertion that the Principles Set Out in the *Brandon* Decision of the Arkansas Court of Appeals that Supported the Conclusion There that Attorneys' Fees Could Not be Awarded by the Commission in that Case Apply to All Actions Before the Commission Including Applications for a CECPN

In their Joint Reply, SWEPCO, SPP, and AECC assert that:

> This is a distinction without a difference because the principles set out in Brandon and other Arkansas case law regarding the award of attorneys' fees, as discussed below, apply to all actions at the Commission, and not just to consumer complaint actions.

Joint Reply at 6. Again, SWEPCO, SPP, and AECC cite to nothing to support their assertion. If there is an Arkansas court case deciding explicitly that the rationale discussed in the *Brandon* case by the Court as supporting the Court's conclusion that the Commission lacked authority to award fees in consumer complaint cases applies to all cases including non-consumer complaint cases such as CECPN cases as here, STO would be very interested in seeing those cases. STO has found none. Unfortunately, SWEPCO, SPP, and AECC while asserting the existence of such cases fails to cite to any. It would be very unlikely that such cases exist because the Court's rationale in *Brandon* was centered on the fact that the General Assembly had removed from a proposed Bill a provision for the award of attorney fees by the Commission in the statutory provision relating to consumer complaints. There has been no such legislative history for the statutory provisions relating to applications for a CECPN.

D. SWEPCO, SPP, and AECC in Their Joint Reply Fail to Cite Any Legal Authority for Their Assertions that the Commission Performs Only Legislative Functions and Not Judicial or Quasi-Judicial Functions and that Therefore the Commission, Like the Legislature, May Not Award Attorney Fees

In their Joint Reply, SWEPCO, SPP, and AECC assert that:

> The Commission possesses the same powers as the General Assembly while acting within its legislatively delegated powers. Although it has very broad discretion in exercising those powers, the Commission was created to act for the General Assembly. As a creature of the legislature, it performs, by delegation, legislative functions. However, the General Assembly does not possess the Constitutional right to award attorneys' fees, nor has it ever attempted to do so. The Commission certainly has no more powers than its creating body.

Joint Reply at 9-10. Again, SWEPCO, SPP, and AECC offer no citation to case law or the Arkansas Constitution for this proposition. This assertion is inconsistent with the Court's opinion in *Brandon* which makes clear that the Court's rationale in *Brandon* for concluding that the Commission lacked the power to award attorney fees in that (consumer complaint) case was

that the General Assembly had withdrawn, by deleting proposed attorney fee award language by amendment of a proposed Bill, the power to award such fees in consumer complaint cases. If the General Assembly was of the view that it lacked power under the Arkansas Constitution to grant an agency power to award fees that power would never have found its way into the proposed Bill in the first place, and if the Court in *Brandon* was of this view it would have simply noted that the General Assembly lacked constitutional power to grant agencies the right to award attorney fees and that would have been the end of the analysis.

II. SWEPCO'S, SPP'S, AND AECC's JOINT REPLY CONTAINS MATERIAL MISREPRESENTATIONS

A. SWEPCO's, SPP's, and AECC's Joint Reply Misrepresents by Clear Implication that the Commission Has in the Past Allowed Numerous Applicants for a CECPN to Withdraw Their Application by a Simple Notice

In their Joint Reply, SWEPCO, SPP, and AECC assert that:

> The dismissal is a matter of right and is effective upon entry of an order dismissing the action. The Commission has followed this process and has allowed numerous applicants to provide notice of withdrawal of various applications for many years. In practice, after a notice of withdrawal was filed, the docket would be closed by Commission order soon thereafter.

Joint Reply at 3. However, SWEPCO, SPP, and AECC do not cite to any CECPN case where an application for a CECPN was withdrawn by simple notice and they go out of their way in making this assertion to word it ambiguously referring to "various applications" rather than stating "applications for a CECPN." STO concludes that this ambiguity is not accidental and results from the fact that SWEPCO, SPP, and AECC could not locate any CECPN case where an application was withdrawn by a simple notice.

SWEPCO, SPP, and AECC cite to Commission decisions in the Joint Reply at 3-4 for the proposition that a voluntary withdrawal of an "application" has been allowed even where

intervening parties objected, and after discovery had commenced. However, these Commission decisions cited by SWEPCO, SPP, and AECC in the Joint Reply were not cases involving applications for a CECPN, a material fact that SWEPCO, SPP, and AECC fail to mention.

B. SWEPCO's, SPP's, and AECC's Joint Reply Misrepresents by Clear Implication that the *Brandon* Decision by the Arkansas Court of Appeals Has Been Cited by the Arkansas Courts Several Times as Legal Precedent that the Commission Does Not Have Authority to Award Attorneys' Fees in Any Type of Case Including Applications for a CECPN

In their Joint Reply, SWEPCO, SPP, and AECC assert that:

> *Brandon* has been cited several times by Arkansas courts and the Commission for the precedent that the Commission does not have authority to award attorneys' fees. *See, e.g., CenterPoint Energy, Inc. v. Miller County Circuit Court*, 370 Ark. 190, 203, 258 S.W.3d 336, 345 (2007); *Arkansas Tech University v. CenterPoint Energy Arkla*, Docket No. 04-009-C, Order No. 3, p. 5 (Arkansas Public Service Commission, 2004); *Tyson Foods, Inc. v. Woodruff Electric Cooperative Corporation*, Docket No. 07-148-C, Order No. 7, p. 2 (Arkansas Public Service Commission, 2009); *Maverick USA, Inc. v. First Electric Cooperative Corporation*, Docket No. 08-148-C, Order No. 3, pp. 10-11 (Arkansas Public Service Commission, 2009); and *In the Matter of a Class Action Complaint by Diane Schumacher and Gordon Watkins Against Carroll Electric Cooperative*, Docket No. 11-077-C, Order No. 3, pp. 15-16.

Joint Reply at 5. *And see*, Joint Reply at 9. However, none of the SWEPCO, SPP, and AECC cited cases are a CECPN case and SWEPCO, SPP, and AECC do not represent that any of them are. Any holding in a Commission decision or court decision in a consumer complaint case, which these cases are, regarding the Commission's power to award attorney fees, regardless of how broadly stated, would be *dicta* in regard to the power of the Commission to award attorney fees in a CECPN case. The fact that the instant STO case is a CECPN case distinguishes it from *Brandon*.

C. SWEPCO's, SPP's, and AECC's Joint Reply Misrepresents that They Complied with NERC Standards

In their Joint Reply, SWEPCO, SPP, and AECC assert that: "SPP's studies were performed in a manner consistent with its OATT and NERC standards." Joint Reply at 12. In their Joint Reply, SWEPCO, SPP, and AECC also assert that:

> Contrary to STO's statement, SPP did not apply an N-2 standard as the sole basis for the project. Furthermore, the allegation that there is no concrete record of SPP applying criteria beyond N-1 other than in the 2013 reevaluation is not correct. NERC Standards require both N-1 and N-2 analyses. SPP does and has done both types of analyses in its review to maintain system reliability for the future overloads described above.

Joint Reply at 12. In their Joint Reply, SWEPCO, SPP, and AECC also assert that:

> SPP must follow NERC standards and the FERC-approved planning process set forth in its OATT as part of its obligations as an RTO and did so, in good faith, with its performance of the 2007 Ozark Study, the 2007 SPP Transmission Expansion Plan, the 2013 reevaluation, and again with the latest reevaluation.

Joint Reply at 13. However, as made clear in the attached affidavit of STO Expert Dr. Hyde Merrill, SPP did depart significantly from NERC standards in their conduct of the studies purporting to justify the need for the new 345kV line project, and such departures and the representations SWEPCO and SPP made to the Commission regarding compliance with NERC standards were inaccurate, misleading, and in bad faith. *See*, Exhibit 1, Affidavit of STO Expert Dr. Hyde Merrill.

D. SWEPCO's, SPP's, and AECC's Joint Reply Misrepresents that STO Has Taken issue with NERC Standards When in Fact STO Has Been Asking the Commission to Enforce Those Standards

In their Joint Reply, SWEPCO, SPP, and AECC assert that:

> STO may not agree with the NERC standards and FERC-approved planning process defined in SPP's OATT or how SPP applied these requirements, but there was certainly no misrepresentation or omission of material facts.

Joint Reply at 13. SWEPCO, SPP, and AECC cite to nothing in the record where STO has disagreed with NERC standards and they know full well that STO's arguments, and the supporting opinions of STO's expert Dr. Merrill, have focused on SPP's non-compliance with NERC standards.

CONCLUSION AND RELIEF RQUESTED

For all of the foregoing reasons, SWEPCO's application to the Commission for the CECPN should be denied, Intervenors including STO should be found to be the prevailing parties in the above captioned docket, and Intervenors, including STO, should be provided a reasonable time in which to submit their motion(s) for attorney fees and litigation costs prior to closing of this docket, or in the alternative, the Commission should award STO its attorney fees and costs and set a time for submission of STO's fee petition.

Respectfully submitted,

/s/ Mick G. Harrison
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CERTIFICATE OF SERVICE

The undersigned certifies that on March 17, 2015, a true and correct copy of the foregoing STO Surreply on SWEPCO's Notice of Withdrawal was served on all parties of record by electronic mail and first class mail.

/s/ Mick G. Harrison
Mick G. Harrison, Esq.

BEFORE THE ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF SOUTHWESTERN ELECTRIC POWER COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION OWNERSHIP, OPERATION AND MAINTENANCE OF THE PROPOSED 345 KV TRANSMISSION LINE BETWEEN THE SHIPE ROAD STATION AND THE PROPOSED KINGS RIVER STATION AND ASSOCIATED FACILITIES TO BE LOCATED IN BENTON, CARROLL AND/OR MADISON AND WASHINGTON COUNTIES, ARKANSAS	)	**DOCKET NO: 13-041-U**

AFFIDAVIT OF HYDE M. MERRILL

I, Hyde M. Merrill, being duly sworn, depose and say:

My name is Hyde M. Merrill. I am the proprietor of Merrill Energy, LLC, an independent consulting engineering firm with seat at 379 Sandy Land Lane, Sandy Utah 84047. My curriculum vitae is included as Attachment A. I have forty years' experience in electric power system planning, operations, economics and regulatory matters.

I make this affidavit for Save the Ozarks ("STO") in connection with the request by Southwestern Electric Power Company ("SWEPCO") to withdraw its Application for a Certificate of Environmental Compatibility and Public Need "(CECPN").

Exh. 1

Contents

Conclusions

In my opinion, SWEPCO and the Southwest Power Pool ("SPP") engaged in serious misconduct throughout this proceeding. This misconduct includes but is not limited to:

1. Deliberate and clear-cut misapplication of NERC and SPP planning criteria in identifying the need cited for transmission reinforcement.
2. Misleading representations and lack of candor in sworn testimony, and
3. Failure to consider alternatives to the proposed project ("Shipe Road – Kings River project" or "project") to meet the alleged need.

The misconduct by SWEPCO and SPP was egregious – the worst I recall having seen in my long career.

Some Antecedents

I base my conclusions on, among other things, the following.

1. SPP studies carried out in 2006 and published in 2007 ("Ozark Transmission Study").[1]
2. My direct (29 June 2013) and surrebuttal (7 August 2013) testimony.[2]
3. A study by SPP ("SPP's June 2013 study"), reported in direct testimony by Lanny Nickell (28 June 2013).[3]
4. SWEPCO's "Notice of Withdrawal" of 30 December 2014.[4]
5. STO's response to SWEPCO Notice of Withdrawal ("STO's Response") of 12 January 2015.[5]
6. SWEPCO's Reply to STO's Response ("SWEPCO's Reply") of 20 January 2015.[6]
7. SPP Staff (Lanny Nickell, *et al*) recommendations to SPP Board of Directors ("SPP Board Recommendations") dated 27 January 2015.[7]

Misconduct by SWEPCO and SPP

Paragraph 9 of the Joint Reply makes this claim: "there has been no misconduct [by SWEPCO or SPP] in this docket."[8] This statement is not true. Errors by SWEPCO

[1] APSC 13-041-u_4_2 Ozark Transmission Study.
[2] APSC 13-041-u_181_1 Direct Testimony by Merrill, and APSC 13-041-u_312_1_Surrebuttal Testimony by Merrill.
[3] APSC 13-041-u_212_1 Direct Testimony by Nickell
[4] APSC 13-041-u_445_1 Notice of Withdrawal by SWEPCO
[5] APSC 13-041-u_446_1 Response by STO
[6] APSC 13-041-u_447_1 Reply by SWEPCO
[7] Southwest Power Pool, Inc. Markets and Operations Policy Committee Recommendation to the Board of Directors, January 27, 2015. January 27, 2015, Shipe Road-Kings River 345 kV Reevaluation. To be found at pp. 763-768 of http://www.spp.org/publications/BOD%20MC%20Materials%20012715_Final.pdf (accessed Jan. 21, 2015)

and SPP in applying NERC standards were beyond simple incompetence (though there was incompetence, too). Certain misleading testimony clearly was designed to defend an unsupportable position.

Five-year horizon

The supposed need for the project was absolutely unsubstantiated in the Application for CECPN. It was supported only by the Ozark Transmission Study. This study was performed in 2006-2007 and published in 2007. It identified a single problem which SPP cited as establishing the need for the project in 2016 – nine or ten years out at the time of the study. However, NERC states that a nine- or ten-year out study is invalid as a basis for justifying a transmission line.

Paragraph R.1.3.4 of the NERC standards says that studies are to: "Be conducted beyond the five-year horizon only as needed to address identified conditions that may have longer lead-time solutions."[9]

SWEPCO filed in 2013 for a CECPN for the project, alleged to become needed in 2016. Clearly NERC's longer-lead time exception did not apply. SWEPCO apparently judged three years to be ample time to permit and build this project, so needing to rely on a ten-year-out study was not justified. No one has claimed that NERC's exception should be applied.

[8] APSC 13-041-u_447_1 Joint Reply by Southwestern Electric Power Company, Southwest Power Pool, and Arkansas Electric Cooperative Corporation.
[9] E.g., see "Standard TPL-003-0 – System Performance Following Loss of Two or More BES Elements." http://www.nerc.com/files/tpl-003-0.pdf (accessed 21 Jan. 2015).

The reason for the five-year limit is obvious. Forecasting is imprecise and conditions change – as demonstrated by the facts in this case. And once a transmission line is built, the ratepayers and neighbors have it forever.

Mr. Hassink claimed that the single contingency identified in the Notice to Construct (NTC) was simply the worst contingency, implying that there were others. Yet he failed to identify any additional relevant contingencies.[10]

I realize that the Ozark Transmission Study identified many problems in the area. However, the NTC ordered construction of many other projects, which covered a number of the identified problems. I am not aware of any pre-2013 study in the record identifying the continued need for the Shipe Road – Kings River project, taking into account the implementation of the other projects, other than (presumably)[11] the flow gate identified in the NTC.

Later annual studies did not demonstrate need

What later annual studies apparently did

SWEPCO and SPP witnesses claimed that annual planning studies since 2006 continued to justify the Shipe Road – Kings River project. I believe that this was deliberately misleading. In models used in SPP's annual studies, facilities previously approved (by SPP) generally are assumed built. Apparently studies since 2007 noted no problems due to having the Shipe Road – Kings River project in place.

[10] APSC 13-041-u_62_1 Surrebuttal testimony by Hassink, p. 4
[11] I say "presumably" because the record does not establish that, even with the 2006 assumptions, there would still be a need once all of the other projects identified in the NTC were implemented.

What later annual studies should have done

This is a far cry from re-checking what would happen if the Shipe Road – Kings River project were not built. Without the project, would problems continue to be evident? There is no record that this question was addressed between 2007 and the filing for the CECPN.

Mr. Hassink disagrees with this characterization

Mr. Hassink claims that SPP's Near Term study (IPT-NT) process considers changes of assumptions, considers potential improvements to the plan, and has uncovered changes that "caused project NTCs to be withdrawn."[12]

Yet there is no evidence of any such study for the Shipe Road – Kings River project

Notwithstanding his strong assertions, I have not found any shred of evidence that such studies were undertaken for the Shipe Road – Kings River project before June 2013.

SWEPCO knew that Mr. Hassink's claim was misleading

In my opinion, SWEPCO and SPP knew that this claim -- that later studies continued to justify the high voltage transmission line -- was misleading. In my opinion, this is why SPP did a quick study in June 2013 with updated data, after the Application was filed, to test system performance without the Shipe Road – Kings River project.

At the same time SPP was doing the June 2013 study with updated data, SWEPCO witness Hassink, in his rebuttal, made the most unbelievably foolish statement I have ever heard from a planning engineer: "Since the transmission grid in northern Arkansas and southern Missouri has not fundamentally changed, it would be wasteful and

[12] APSC 13-041-u_62_1 Surrebuttal testimony by Hassink, p. 6.

ineffective to reevaluate whether the line should be the next bulk transmission system upgrade."[13] (Notwithstanding NERC's five-year rule.)

This of course contradicts his claim (above) that retool or tune-up studies are performed in the ITP-NT process.

I characterized this statement as "unbelievably foolish," but I probably err. Based on work with planning engineers around the world spanning forty years, I cannot believe that Mr. Hassink is that foolish. I think his statement reflects misconduct, not incompetence. I believe that his objective in making this statement was to do whatever it took to get the project built.

The June 2013 study did not demonstrate need under n-1

My studies (reported in my direct testimony)[14] as well as SPP's June 2013 studies[15] showed that with updated data, the original flow gate (contingency + overload) problem, identified in the NTC as the sole justification of need that was to be met by the Shipe Road – Kings River project, was no longer a problem.

Other n-1 problems were identified by SPP in June 2013.[16] I pointed out that these were either remote and only lightly helped by the project, or otherwise easily solvable through alternative means without the project, or both. Most were on lower voltage equipment and should have been solved there. See my surrebuttal testimony.[17] This is true for dry years as well as normal years.

[13] APSC 13-041-u_270_1 Rebuttal testimony by Hassink, p. 20.
[14] APSC 13-041-U_181_1 Direct testimony by Merrill.
[15] APSC 13-041-U_313_1 Surrebuttal by Nickell, Attachments 1 and 2.
[16] APSC 13-041-U_313_1 Surrebuttal by Nickell, Attachments 1 and 2
[17] APSC 13-041-u_312_1 Surrebuttal by Merrill.

SWEPCO did not respond to my alternatives with candor

In Cross Examination, SWEPCO and SPP witnesses rejected my conclusions and my proffered alternatives vigorously.[18,19]

SPP's most recent studies, referred to briefly in the Notice of Withdrawal,[20] were described by Messrs. Nickell *et al* in more detail in the SPP Board Recommendations.[21]

These studies found the same types of n-1 overloads, of about the same magnitudes that were identified in the June 2013 studies, though not always for the same flow gates. But the new recommendations by Messrs. Nickell, *et al* to the SPP Board were just the opposite of what they had said in the summer of 2013.

Their current recommendations are: "The Project . . . only provides minor relief [because overloads are far away] . . . lower voltage solutions [are] more cost effective . . . non-transmission solutions [are the] most effective mitigations . . . these issues are not extreme and could be solved with solutions that are less expensive" than the Shipe Road – Kings River project, etc.[22] These match closely my findings as presented in my testimony,[23] which they rejected.

Furthermore, SWEPCO and SPP persisted in attempting to discredit me by attacking a straw man of their own making, claiming that I would not consider low hydro conditions. I never said this. The analysis I did and reported in my direct testimony was based on normal hydro conditions for two reasons.

[18] Transcript, Aug. 26, 2013. Hassink, pp. 294-297.
[19] Transcript, Aug. 29, 2013. Nickel, pp. 1851-1862.
[20] APSC 13-041-U_445_1 SWEPCO notice of withdrawal.
[21] Southwest Power Pool, Inc. Markets and Operations Policy Committee Recommendation to the Board of Directors, January 27, 2015. January 27, 2015, Shipe Road-Kings River 345 kV Reevaluation. To be found at pp. 763-768 of http://www.spp.org/publications/BOD%20MC%20Materials%20012715_Final.pdf (accessed Jan. 21, 2015)
[22] *Id.*
[23] APSC 13-041-U_181_1 Direct testimony by Merrill.

First, it appeared that the overloads identified in the Ozark Transmission Study were under normal hydro conditions. The highest loading reported for the original flow gate in Mr. Nickell's direct testimony, which he found in SPP's June 2013 study, were also under normal hydro conditions.[24] By analyzing normal hydro conditions, I was operating in the same arena SPP and SWEPCO had chosen. I analyzed the conditions that most favored the Shipe Road – Kings River project, for the only problematic flow gate that was on the record when I did my studies.

Second, the power flow base case SPP provided to me was for normal hydro conditions. I did not know how SPP had changed the dispatch for low hydro conditions and did not want to argue my low hydro assumptions against theirs. It is also true that low hydro conditions could arguably be considered a first contingency, but nowhere did I insist on this interpretation, and my conclusions did not depend on considering only normal hydro.

Neither NERC nor SPP has an applicable n-2 criterion

NERC does not have an n-2 criterion that is important in this case. It has the following:

- Category A (n-0, or all elements in service),
- Category B (n-1, or one element out of service),
- Category C (including n-1-1, one element out of service, followed by operator response to forestall problems should a second element fail, followed by a second failure), and

[24] APSC 13-041-u_212_1 Direct testimony by Nickell.

- Category D (extreme events, including n-2).[25]

SPP identifies needs by studying Category B (n-1) conditions. See my surrebuttal testimony[26] and Mr. Nickell's testimony under cross examination.[27] I believe that Entergy also relies mainly on n-1 analyses.

NERC allows loss of load under Category C (including n-1-1) conditions, as long as cascading does not jeopardize the bulk interconnected system. Planners should routinely check to determine if Category C events would jeopardize the bulk system by causing cascading wide-area blackouts.

SPP's n-2 studies did not find bulk system problems

SPP's June 2013 studies were n-2 (Category D), not n-1-1, because SPP did not model operator adjustments to the system after the first contingency. This is common practice in planning studies.[28] Category C (n-1-1) only becomes an issue if a contingency will cause a wide-area blackout. Under Category C controlled or planned loss of load is acceptable.

NERC requires that Category C conditions not cause cascading blackouts over a large area. SPP failed to show that even the more rigorous n-2 conditions would have this result. In fact, the results of the n-2 events they tested were local and on lower voltage lines. Therefore the n-2 conditions tested do not justify a new high voltage

[25] The NERC testing criteria are summarized on pp. 9-10 of APSC 13-041-u_312_1_Surrebuttal by Merrill.
[26] APSC 13-041-u_312_1_Surrebuttal by Merrill.
[27] Transcript, Aug. 29, 2013. Nickell, p. 1787.
[28] If n-2 conditions will not cause cascading failures, then the less-stringent Category C (n-1-1) conditions, which require more effort to model, won't either. It is rare for a study to find an n-2 condition that will cause cascading failures.

transmission line and neither would the n-1-1 conditions which were neither tested nor evaluated.

I believe SPP planners know that this adjustment is spelled out in the NERC criteria. I believe that they know that n-2 is more stringent than Category C, and that loss of load is allowed for Category C conditions.

Claiming that local overloads due to n-2 events (without the adjustment permitted for n-1-1 events, and without bulk system implications) required the construction of the Shipe Road – Kings River project was therefore deliberately misleading.

To further emphasize the point, most of the n-2 flow gates identified in Mr. Nickell's direct testimony, found in the June 2013 studies, involved Entergy 161-kV transmission lines east of Eureka Springs. Entergy witness Dr. Melinda K. Montgomery confirmed under cross examination that the n-2 issues found by SPP were not of concern to Entergy, and were not a problem that Entergy was trying to solve, presumably because they did not violate NERC or Entergy criteria.[29]

SWEPCO and SPP did not consider other alternatives

The public does not have any working knowledge of transmission planning. Only specialized engineers are experts in this arcane field. For planners to state, armed with claims of a higher knowledge, that a problem has only one solution when they know otherwise is misconduct, not incompetence. Likewise, claiming that a particular solution is "best" when others have not been considered is also misconduct.

[29] Transcript, Aug. 27, 2013. Montgomery, p. 406.

My direct and surrebuttal testimony described simple, cheap, unobtrusive and reliable fixes which were readily accessible and should be contained in any competent planners' standard toolboxes, yet which SPP refused to consider. For SPP, the mission clearly had become: "Build an obsolete solution to a no-longer-existing problem," rather than "Identify and meet the real needs of the system."

Planning is done in two major steps:

1. Identify a need, and
2. Find the best way to resolve it.

One can't find the best way to solve a problem by considering only one solution. True, SPP witness Nickell mentioned that SWEPCO had originally proposed a 161-kV rebuild solution, without giving details, but that SPP had over-ruled it.[30] Only vague reasons were cited. No comparison of its cost to the cost of the project were given.

Mr. Nickell commented that 161-kV reinforcements that "would have been required to compete with the project" would be much more expensive than the project.[31] This of course is true, but is beyond silly and is yet another deliberately misleading statement. It would not require a rebuild but four or five new 161-kV lines from Shipe Road to Kings River to compete with (have the same capacity as) the project. Yes, these four or five new 161-kV lines would be more expensive than a single 345-kV line. But no one has claimed that SWEPCO's 161-kV solution that SPP rejected was of this magnitude. No one has claimed that so much additional transmission capacity was needed. My testimony and SPP's Notice of Withdrawal clearly show that it is not.

[30] Transcript, Aug. 29, 2013. Nickell, p. 1843: 7-11.
[31] Transcript, Aug. 29, 2013. Nickell, p. 1844: 1-5.

I presented six alternatives to the high voltage transmission line – there are more – in my direct testimony.[32] I presented others, responding to the new flow gates identified in Mr. Nickell´s direct testimony, in my surrebuttal testimony.[33]

STO has pointed out that none of these alternatives, even SWEPCO's own proposed 161 kV alternative, were included in the EIS presented in support of SWEPCO's Application. The record also fails to show any real consideration by SWEPCO or SPP of the alternatives I proposed.

SPP and SWEPCO were disingenuous in rejecting my alternatives, as discussed above. By not considering, assessing and addressing these proposed alternatives, SPP and SWEPCO were not acting in the best interest of ratepayers, and, in fact, were engaging in misconduct.

Bad and misleading load forecasts

SWEPCO states that the project is no longer needed because recent updated demand forecasts and transmission service reservations are lower than before.[34] The concept "recent" is not justified. SWEPCO and SPP are trying to avoid responsibility by attempting to blame their reversal on something over which they had no control and which they only learned recently.

It is true that, as SPP says, load growth is the major driver for generation and transmission expansion. SWEPCO's request to withdraw reflects this but deliberately hides the fact that they knew about the drop in load growth earlier than they are willing to admit.

[32] APSC 13-041-U_181_1 Direct testimony by Merrill.
[33] APSC 13-041-u_312_1 Surrebuttal by Merrill.
[34] APSC 13-041-u_445_1 Notice of Withdrawal by SWEPCO.

My surrebuttal testimony shows that their load growth results were made obscure to hide the known drop in load growth. The first three rows of data shown in Exhibit HMM-A-1 represent data presented by witness Hassink in his rebuttal testimony.[35] He claims that his 2012 forecast, for 2013-2023, is lower than the historic actual load growth. His statement is untrue for the most relevant history, the previous five years. It took a modest amount of work to calculate the actual average load growth from 2007 to 2012 (fourth row) from the first two. This should have been presented by Mr. Hassink without forcing the reader to tease it out. It is both important and germane to the issue at hand.

One cannot tell what the numbers in Exhibit HMM-A-1 mean just by looking at them. Exhibit HMM-A-2 casts some light on what the data means. The demand growth rate used in the 2006-2007 Ozark Transmission Study was apparently about 2.34% per year.[36] At this rate, the load in 2016 would be about 26% higher than the load in 2006.

Exhibit HMM-A-1[37]

Compound Demand Growth Rate		
		NW Arkansas
Hassink Actual	1997-2007	4.60%
	1997-2012	3.40%
Forecast	2013-2023	2.20%
HMM Actual	2007-2012	1.04%

According to Mr. Hassink, the forecasted demand growth rate in early 2013 (probably developed late in 2012) was 2.2% per year. But this forecast must be applied

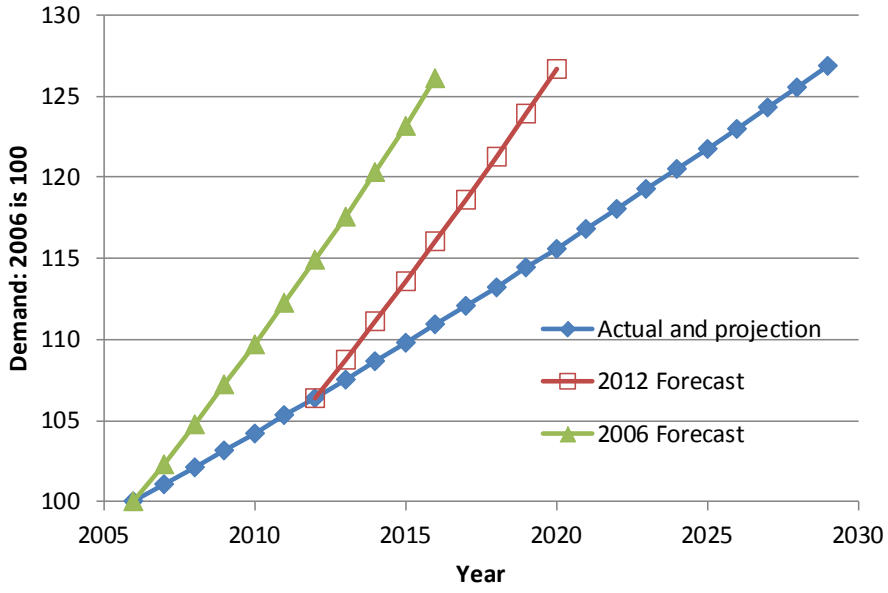
[35] APSC 13-041-u_270_1 Rebuttal testimony by Hassink.
[36] The Ozark Transmission Study did not give the annual load growth rate used in 2006-2007. I estimated 2.34% by taking a simple average of the data on p. 5 – admittedly a rough estimate, but the best I could do with the data available, which ranged from 1.00% to 3.75% among various zones.
[37] APSC 13-041-u_312_1_Surrebuttal by Merrill, p. 22.

to 2012 actual data as a starting point, as in the curve labeled "2012 Forecast." It would be foolish to recognize that the load actually grew by about 6% (1.04% per year) from 2006 to 2012, and then to assume that it would grow by an additional 20% (implying an annual growth rate of about 4%) from 2012 to 2016. Implicitly, this was what was done by assuming that the studies for 2016 that were done in 2006-2007 were still valid in 2013.

With the "2012 Forecast" at more than double the actual growth rate in recent years, it wouldn't be until 2019 or 2020 that the demand would reach the level that was forecasted for 2016 in 2006. So any transmission problem would likely occur three or four years later than what was expected in 2006-2007.

Unfortunately, the story gets worse. If we use the actual demand growth rate from 2006 to 2012 to project the demand for 2013 and beyond, then the demand would not be 26% higher than its 2006 level until 2028 or 2029, twelve or thirteen years after 2016.

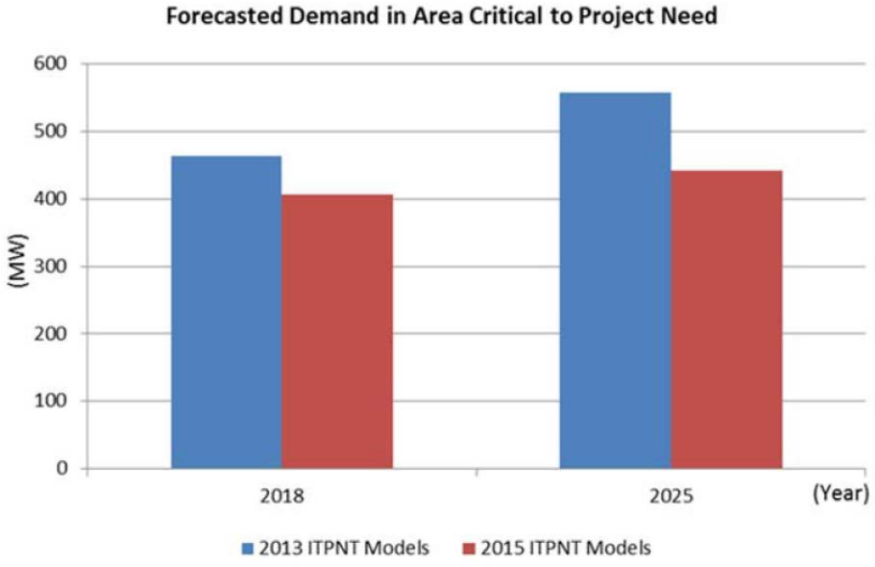
Exhibit HMM-A-2
Actual and projected demand growth, NW Arkansas



All of these facts were known to SWEPCO and SPP before they were known to me. It is disingenuous of SPP to claim that the drop in demand growth was not noted before SWEPCO applied for the CEPCN.

The information recently presented in SPP Markets and Operations Policy Committee Recommendations to the Board of Directors[38] dramatically and undeniably supports my analyses. In Exhibit HMM-A-3 (with late-2014 numbers) the demand currently forecasted for 2025 in the area of interest is 43 MW (9%) lower than the demand forecasted for 2018 in 2012. The current forecast for 2025 is just 2.7 MW (0.65%) higher than the 2014 peak load that was forecasted in 2013.[39]

Exhibit HMM-A-3



[38] Southwest Power Pool, Inc. Markets and Operations Policy Committee Recommendation to the Board of Directors, January 27, 2015. January 27, 2015, Shipe Road-Kings River 345 kV Reevaluation. To be found at pp. 763-768 of http://www.spp.org/publications/BOD%20MC%20Materials%20012715_Final.pdf (accessed Jan. 21, 2015).

[39] I recognize that the area for which the load was forecasted in the SPP Board Recommendations is not the same area represented in my Exhibit HMM-A-1, which came from Mr. Hassink's Rebuttal Testimony. I am not sure that the area reported by Mr. Hassink is the same as the area described in the Ozark Transmission Study, either. SWEPCO and SPP have not been consistent in their presentation of load forecasts. But it is clear that both load growth and forecasts of load growth in northern Arkansas are declining. It is also clear that they have been declining since before 2013.

Sloppiness

The table of results of analysis presented by Mr. Nickell in June 2013[40] contained errors which seemed to reinforce the need for action. One of them should have been immediately obvious to any planner. A second result cited in the table seemed not credible, but the data provided by Mr. Nickell did not permit me to prove that it was in error.

I pointed these out in my surrebuttal testimony.[41] Once the cat was out of the bag, in his cross examination Mr. Nickell admitted the two errors.[42] He claimed that they hadn't spotted them before I pointed them out. He also identified other more minor errors in the table. He called all of these typographical errors.

Apparently, Mr. Nickell didn't even read his table before submitting it. It would be remarkable if, in the interval between submission of his testimony in June 2013, and the submission in August of my surrebuttal, no one at SPP reviewed his testimony. Anything this important should have been carefully scrutinized, even if after the fact.

A darker possibility remains that the errors may have been noticed, but not corrected, to avoid embarrassment or because correcting them would be perceived to weaken the case for the project.

[40] APSC 13-041-U_313_1 Surrebuttal by Nickell, Attachments 1 and 2.
[41] APSC 13-041-u_312_1 Surrebuttal by Merrill.
[42] Transcript, Aug. 29, 2013. Nickel, pp. 1791-1795

Motive for Misconduct

Paragraph 9 of the Joint Reply by SWEPCO, SPP and AECC to STO's Response states: "STO offers no motive for any 'misconduct' by either SWEPCO or SPP." [43]

The Joint Reply's immediately preceding sentence reads in part: "STO has [said] that . . . SWEPCO and SPP have intentionally set upon a course to build a transmission line solely for *utility purposes and profit* . . . [emphasis added]." That is, this sentence cites a motive offered by STO for SWEPCO and SPP misconduct.

I will quantify the magnitude of part of this motive. The only significant profit earned by SWEPCO's transmission business is return on its equity investments (ROI) in its transmission facilities. All operation and maintenance activities are performed on a cost-reimbursement basis under the tariff structure. SWEPCO's transmission business makes money by owning transmission facilities.

Recently the FERC has allowed ROI in the neighborhood of 12%. If SWEPCO's investment in transmission were funded by, hypothetically, 50% equity and 50% debt, then 12% equity return on a $115 million project would be $6.9 million per year.[44]

Now, 12% return and $6.9 million are not inconsequential amounts. They constitute one significant motive for SWEPCO to strain somewhat to build this project. It is correct that SWEPCO is required to build transmission lines as ordered by SPP. Nonetheless, SWEPCO has no need to bemoan such orders.

Materials presented by SPP and SWEPCO imply that these two entities are independent. In reality, they are symbiotic. SWEPCO is a participating member of SPP,

[43] APSC 13-041-u_447_1 Joint Reply by Southwestern Electric Power Company, Southwest Power Pool, and Arkansas Electric Cooperative Corporation.
[44] The actual annual return on unrecovered investor's capital declines over the lifetime of the transmission line to reflect recovery of the investment through depreciation, which the customers of course also pay.

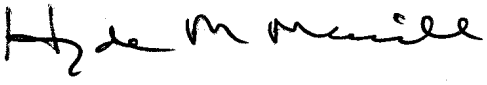
has an active role in SPP's decision-making processes, and provides SPP with data, such as demand growth, that SPP relies on in planning SWEPCO's expansion of transmission lines. Given the intimacy of their relationship and strong common interests, it is entirely reasonable to conclude that neither SWEPCO nor SPP is truly independent, one from the other, or fully disinterested.

Transmission owners are not non-profit organizations. The "Averch–Johnson effect" is the tendency of regulated utilities to engage in excessive investment or over-design in order to increase their profits. [45]

In this case, SWEPCO certainly would profit from a project which had once been contemplated but was no longer needed. SWEPCO resorted to improper, misleading and inaccurate data and tactics in an attempt to justify the indefensible, while SPP was either complicit or intentionally ignorant.

I hereby declare under penalty of perjury that the foregoing statements are true and correct to the best of my information and belief.

Further affiant sayeth not.



[45] Averch, Harvey; Johnson, Leland L. (1962). "Behavior of the Firm Under Regulatory constraint". *American Economic Review* **52** (5): 1052–1069. JSTOR 1812181.

HYDE M. MERRILL

Principal
Merrill Energy LLC

Dr. Merrill earned degrees in mathematics and electrical engineering from the University of Utah (BA 1967, MS 1968) and electrical engineering from MIT (PhD 1972). He was elected to the Tau Beta Pi, Eta Kappa Nu, and Sigma Xi honor societies. He is fluent in Spanish, comfortable in French, and reads Portuguese. He has worked in about 40 countries.

Dr. Merrill is a registered professional engineer in New York State. A fellow of the IEEE, he has been active on several committees. He chaired the 1995 PICA (Power Industry Computer Applications) Conference and chaired the PICA Policy Committee for four years. He is author of more than 80 technical papers.

Merrill Energy, LLC (1998 – Present)

Dr. Merrill founded Merrill Energy LLC to provide advanced risk, engineering, and economic analyses for participants in modern energy markets.

He supervised a 30-year national energy strategy study for the Ministry of Energy and Mines of Peru and the Inter-American Development Bank. He advised the Ministry on a draft agreement to pursue integration of the Peruvian and Brazilian electric systems. He testified on transmission lines before state commissions in Arizona and Maryland. He did studies and testified to the US DOE and Virginia Corporate Commission on National Interest Electric Transmission Corridors and a related transmission line. He testified to the FERC on behalf of power plants having difficulty getting interconnected in Maine and Nevada. He led a major study of power plant reliability and market behavior for a US ISO. In several projects, he developed transmission plans and advised the Peruvian tariff commission and ISO on transmission planning criteria, methods, and economic and institutional issues in a competitive power market. He led an operational audit of the Peruvian power system and developed a new transmission tariff for Peru. He helped develop a grid code and market structure (including transmission tariff) in Pakistan. He developed and compared alternative transmission tariffs for Venezuela.

He helped reduce planning risks for an international consortium seeking to build an IPP in the US. The target region was swamped with IPPs. The region wanted to be responsive, but it ended up with a planning and licensing procedure that Dr. Merrill described to the FERC as "arbitrary . . . makes unreasonably burdensome assumptions . . . [and] is largely irrelevant and ineffectual in determining the transmission costs." The FERC granted the relief sought, agreeing that the "procedures are based on unrealistic assumptions, produce unreliable cost estimates, and are not otherwise justified."

He organized a team that assessed market risks in four US regions. He advised a Quebec commission charged with investigating massive power losses in the January 1998 ice storm. He was part of an international consortium guiding the creation of a power pool in southern China. He advised a leading utility in developing a position and a FERC affidavit on IPP governors. He did production simulations to assess market risks for a cogenerator in Mexico. He did a risk assessment and economic analysis for a company considering building a merchant transmission line. He organized and led a team that did an assessment of operating risks for the public utility regulator of Panama. He did a market and risk assessment for power plants in the Philippines.

Dr. Merrill was an adjunct professor at Rensselaer Polytechnic Institute. He develops and teaches seminars on transmission access and wheeling, competitive markets, utility planning and operations, utility economics and finance, and other topics.

Power Technologies, Inc. (1980 – 1998)

At Power Technologies, Inc. (PTI) he carried out dozens of assignments on economic, engineering, and regulatory issues associated with transmission services access and pricing in restructured power sectors. One was an early application of economic theory to the efficient allocation of New York's transmission system to contenders. He testified on retail wheeling before the Michigan PUC. He led a project that developed a practical approach to pricing transmission access and ancillary services for the Malaysian grid. This included an elegant but easy-to-use way to calculate long-run marginal costs of transmission. As part of a commission-sponsored working group, he studied marginal costs of transmission for the New York system. He contributed to the landmark US Congress Office of Technology Assessment study on competition in power, "Electric Power Wheeling and Dealing." He led two major Inter-American Development Bank studies of the proposed SIEPAC Central American interconnection, redesigning this important link.

He was principal investigator for an Electric Power Research Institute (EPRI) project to develop transmission transfer capability objectives in the presence of risk (TRADE software). He led a second EPRI project on strategic planning and decision making with risk and conflicting objectives; his RISKMIN program became part of the EGEAS system. He extended the decision-analysis work done at MIT and for EPRI, and was the principal developer of the trade off/risk method and of PTI's TO/R computer program.

He was principal developer of other commercial software: PP/MS (power plant maintenance scheduling), Quick Corporate Model, and TOPS (transmission oriented production simulation).

He contributed to the development of least-cost planning. He was project manager for a number of least-cost planning studies, including World Bank studies in Hungary and in Costa Rica.

He did studies to assess risks of coal supply interruption and to set target inventory levels. He analyzed battery storage on the New York subway system. He did a number of strategic planning studies, including a market assessment for power produced in one country and sold in another.

MIT Energy Laboratory (1979 – 1980)

He was a senior visiting scientist at MIT. He helped teach a graduate course on strategic planning and was technical director of a major research project on energy strategies. He developed powerful new methods for strategic planning in the presence of conflicting objectives and risk.

Dopazo, Merrill, and Sasson (1975 – 1980)

Dr. Merrill was a member of a partnership consulting to power companies, engineering firms, and research organizations, on real-time control of electric power systems and development of control centers.

American Electric Power Service Corporation (1972 – 1979)

He was an engineer, senior engineer and section head. He developed software for operations, planning, and management of the AEP System. One was a pioneering power plant maintenance scheduling program. He contributed to state estimation for electric power systems as a graduate student and at AEP. He developed analytic tools to support the storing and shipping of coal at AEP. He evaluated nuclear turbine risks.

HYDE M. MERRILL

Technical Publications

1. "A Pattern Recognition Technique for System Error Analysis," IEEE Trans. on Reliability, Vol. R-20, No. 3, August 1971, pp. 148-153, (co-author: W.J. Hankley).

2. "Bad Data Suppression in Power System Static State Estimation," *IEEE Trans. on Power Apparatus and Systems*, Vol. PAS-90, No. 6, Nov./Dec. 1971, pp. 2718-2725, (co-author: F.C. Schweppe).

3. "Design of Communication Systems Using Short-Constraint-Length Convolutional Codes," National Telecommunications Conference, Houston, TX, December 1972, (co-author: G.D. Thompson, Jr.).

4. On-Line System Model Error Correction," Paper No. C 73 106-2, presented at IEEE Winter Power Meeting, New York, January 1973, (co-author: F.C. Schweppe).

5. "Failure Diagnosis Using Quadratic Programming," *IEEE Trans. on Reliability*, Vol. R-22, No. 4, October 1973, pp. 207-213.

6. "Some Applications of Optimization Techniques to Power Systems Problems," *Proceedings IEEE*, Vol. 62, No. 7, July 1974, pp. 959-971, (co-author: A.M. Sasson).

7. "Optimal Generator Maintenance Scheduling Using Integer Programming," *IEEE Trans. on Power Apparatus and Systems*, Vol. PAS-94, No. 5, Sept./Oct. 1975, pp. 1537-1545, (co-author: J.F. Dopazo).

8. "Power Plant Maintenance Scheduling with Integer Programming," IEEE Paper No. 76 CH 1107-2-PWR, presented at IEEE Winter Power Meeting, New York, January 1976.

9. "Objective Criteria for Power Plant Maintenance Scheduling," 3rd Annual Reliability Engineering Conference for the Electric Power Industry, Montreal, September 1976, (co-authors: J.F. Dopazo, D.E. Tuite, and E.L. Stein).

10. "Bus Voltage and Injection Measurements in Power System State Estimation," presented at IEEE PICA Meeting, 1979, (co-authors: A. Aguilar, J.F. Dopazo, and A.M. Sasson).

11. "Power Plant Maintenance Scheduling--A Survey," presented at 42nd American Power Conference, Chicago, April 1980, (co-author: J.F. Dopazo).

12. "Multi-Objective Analysis--A New Methodology for Strategic Planning Applied to Electric Utilities," presented at 8th IFAC Conference, Kyoto, Japan, August 1981, (co-authors: D.C. White, F.C. Schweppe, M.F. Mettler, and D. Aperjis).

13. "Energy Strategy Planning for Electric Utilities, Part I, the SMARTE Methodology," IEEE Trans. on Power Apparatus and Systems, Vol. PAS-101, No. 2, February 1982, pp. 340-346, (co-authors: F.C. Schweppe, and D.C. White).

14. "Energy Strategy Planning for Electric Utilities, Part II, SMARTE Methodology Case Study," IEEE Trans. on Power Apparatus and Systems, Vol. PAS-101, No. 2, February 1982, pp. 347-355, (co-authors: D. Aperjis, D.C. White, F.C. Schweppe, and M. Mettler).

15. "Cogeneration - A Strategic Evaluation," *IEEE Trans. on Power Apparatus and Systems*, Vol. PAS-102, No. 2, February 1983, pp. 463-471.

16. "Strategic Planning for Electric Utilities: The Application of the SMARTE Methodology," Tenth IMACS World Congress on System Simulation and Scientific Computation, August 8-13, 1982, Montreal, (co-author: F.C. Schweppe).

17. "Electric Utility Strategic Planning: Problems and Analytic Methods," presented at ORSA/TIMS Joint National Meeting, San Diego, October 25-27, 1982, (co-author: F.C. Schweppe).

18. "Strategic Planning for Electric Utilities: Problems and Analytic Methods," *Interfaces*, Vol. 14, No. 1, January & February 1984, pp. 72-83, (co-author: F.C. Schweppe). Also published in *Readings on Strategic Management* (editor: A.C. Hax), Bellinger Publishing Co., Cambridge, MA, 1984.

19. "Strategic Planning: Why do we need it?" *IEEE Trans. on Power Apparatus and Systems*, Vol. PAS-103, No. 7, July 1984, pp. 1592-1598, (co-authors: D. Geraghty, J.W. Lathrop, D.A. Smith, M.D. Whyte).

20. "Transfer Capability Objectives: A Strategic Approach," *IEEE Trans. on Power Apparatus and Systems*, Vol. PAS-104, No. 5, May 1985, pp. 1067-1074, (co-author: M.P. Bhavaraju).

21. "Quick Spreadsheet Corporate Models for Strategic Planning," *IEEE Trans. on Power Systems*, Vol. PWRS-1, No. 3, August 1986, pp. 244-250, (co-author J.W. Feltes).

22. "Trade Off Methods: Resolving Conflicting Objectives," Annual Conference on Business Forecasting, Queens, NY, December 1986.

23. "A Perspective on Planning using Least Cost Techniques," NARUC Winter Meeting, Washington, DC, February 1987, (co-author: W.J. Burke).

24. "Optimizing Plant and System Coal Inventories," *IEEE Transactions on Power Systems*, Vol. 3, No. 1, February 1988, pp. 337-342.

25. "Trade Off Methods in System Planning," *IEEE Transactions on Power Systems*, Vol. 3, No. 3, August 1988, pp. 1284-1290, (co-authors: W.J. Burke, F.C. Schweppe, B.E. Lovell, M.F. McCoy, and S.A. Monohon).

26. "Multiple Objective Trade Off Analysis in Power System Planning," 9th Power Systems Computation Conference, Cascais, Portugal, August-September 1987, (co-author: F.C. Schweppe).

27. "If Pandora's Box is Opened: Pricing Network Access," Joint Meeting, IEEE Power Engineering Society and Gulf Coast Cogeneration Society, Houston, TX, 11 September 1987.

28. "Wheeling - A Primer for Engineers," *Transmission & Distribution*, Vol. 39, No. 10, October 1987, (co-author: F.C. Schweppe).

29. "Creating Data Bases for Power System Planning Using High Order Linear Interpolation," *IEEE Transactions on Power Systems*, Vol. 3, No. 4, November 1988, (co-authors: R. Mukerji, W.J. Burke, and B. Lovell).

30. "Wheeling of Electric Power," Proc. of ESAEI Conference, Wellington, New Zealand, September 1988, (co-authors: A.J. Wood and J.W. Wilson).

31. "The Search for Robust Solutions in Power Expansion Plans," World Bank II Energy Retreat, Arlington, VA, October 1988.

32. "The Trade Off/Risk Method in Power System Planning," presented at the World Bank Seminar, Washington, DC, March 27, 1989.

33. "Least Cost Planning: Issues and Methods," *Proc. of the IEEE*, Vol. 77, No. 6 June 1989, (co-authors: F.C. Schweppe and W.J. Burke).

34. "The Need for a 'Busy' Signal," National Science Foundation Workshop on Research Needs in Power System Operations and Planning, Atlanta, GA, September 1989, (co-author: A.J. Wood).

35. "Risk and Uncertainty in Strategic Planning," National Science Foundation Workshop on Research Needs in Power System Operations and Planning, Atlanta, GA, September 1989, (co-author: A.J. Wood).

36. "Power Plant Maintenance Scheduling for Developing Countries: Reliability and Economic Issues," CIGRE Symposium on Operation of Electric Power Systems in Developing Countries, Bangkok, Thailand, November 1989, (co-author: R. Mukerji).

37. "Wheeling Rates Based on Marginal-Cost Theory," *IEEE Transactions on Power Systems*, Vol. 4, No. 4, November 1989, (co-author: B.W. Erickson).

38. "A Busy Signal for Electric Power," *The Electricity Journal*, Vol. 3, No. 3, April 1990, pp. 50-57, (co-author: A.J. Wood).

39. "Decision Analysis in Maintenance Scheduling: Reliability and Economic Effects," Conference on Decision Support Methods for the Electric Power Industry, Cambridge, MA, May 29-31, 1990, (co-authors: R. Mukerji and B.W. Erickson).

40. "Power Plant Maintenance Scheduling: Optimizing Economics and Reliability," *IEEE Trans. Power Systems*, Vol. 6, No. 2, May 1991, (co-authors: R. Mukerji, B.W. Erickson, J.H. Parker, and R. Friedman).

41. "Risk and Uncertainty in Power System Planning," 10th PSCC Conference, Graz, Austria, August 1990, and *Electrical Power & Energy Systems*, Vol. 13, No. 2, April 1991, (co-author: A.J. Wood).

42. "Multi-Objective Optimization," Tutorial on Advanced Optimization Techniques, Power Industry Computer Applications Conference, May 6, 1991.

43. "What's a PICA, Daddy?" Guest editorial, *IEEE Computer Applications in Power*, Vol. 4, No. 3, July 1991.

44. "Outlook for Electrical Energy from Utilities: 1991-1999," IEEE Petroleum and Chemical Industry Conference, Toronto, Canada, September 1991, (co-authors: R.P. Stratford and C.K. Duffey).

45. "Have I Ever Got a Deal for You . . . Economic Principles in Pricing of Services," Tutorial on Engineering Economic Analysis, IEEE Winter and Summer Power Meetings, 1992. Published in IEEE publication 91EH0345-9-PWR.

46. "The Trade Off/Risk Method: A Strategic Approach to Power Planning," Energy Series Paper No. 52, The World Bank Industry and Energy Department, Washington, DC, May 1992, (co-author: E. Crousillat).

47. "Conflicting Objectives and Risk in Power System Planning," *IEEE Trans. Power Systems*, Vol. 8, No. 3, Aug. 1993, (co-authors: E.O. Crousillat, P. Dörfner, and P. Alvarado).

48. "Playing Leapfrog with a Unicorn: Risk and Uncertainty in Power System Planning," Minnesota Power Systems Conference, St. Paul, MN, October 1992, (co-author: P.D. Fuller).

49. "Least-Cost Planning in Developing Countries," *Public Utilities Fortnightly*, Vol. 131, No. 3, February 1, 1993, (co-authors: E.O. Crousillat, P. Dörfner, and P. Alvarado).

50. "Theoretical Aspects of Interutility Electricity Pricing," Southern Africa Development Community Seminar on Interutility Exchange and Pricing Policies, Lilongwe, Malawi, Aug. 30 - Sept. 1, 1993.

51. "Interutility Electricity Pricing: Theory Versus How to Do It," *Public Utilities Fortnightly*, January 15, 1994.

52. "Electric Power System Planning," *Encyclopedia of Science & Technology*, McGraw-Hill, Inc. (8^{th}, 9^{th}, 10^{th} (2007) Edition).

53. "Costos y Tarifas para Transacciones Multilaterales de Transmisión," VII COTARE (Latin American and Caribbean Conference on Economic Tariffs for Electrical Energy), San Jose, Costa Rica, March 14-19, 1994.

54. "Engineering Issues in Transmission Access and Wheeling," presented at the Transmission & Distribution Conference and Summit Meeting, Arlington, VA, May 23-24, 1994.

55. "Transmission Services under Increased Competition and Privatization," presented at the Probability Methods Applied to Power Systems (PMAPS) Conference, Rio de Janeiro, Brazil, September 26-29, 1994.

56. "The Temple of Doom: Six Paths to Disaster through Mishandling Risk," presented at the Probability Methods Applied to Power Systems (PMAPS) Conference, Rio de Janeiro, Brazil, September 26-29, 1994.

57. "Confessions of a PICAholic," Guest Editorial, *IEEE Computer Applications in Power*, Vol. 8, No. 1, Jan. 1995.

58. "Transmission Access and Wheeling," *Transmission & Distribution*, Vol. 47, No. 2, February 1995.

59. "Open Access and Network Services - A Global Approach," Proceedings of the 57th American Power Conference, Chicago, IL, April 1995, (co-author: A.S. Cook).

60. "System Operating Impacts of FACTS Technologies," 4th IEEE Conference on Control Applications, Albany, NY, September 1995, (co-authors: J.W. Feltes, B.B. Fardanesh, M.I. Henderson, and R. Adapa).

61. "The Walrus and the Carpenter: Two Views on Network Services for Virtual Utilities," Proceedings of the Symposium on the Virtual Utility, March 31-April 2, 1996, Saratoga Springs, NY, (co-authors: R. Nadira and S.J. Balser). Also published in *The Virtual Utility* (S. Awerbuch and A. Preston, editors), Kluwer Academic Publishers, Boston, MA 1997.

62. "New Age Power System Planning: Risk and Uncertainty in a Competitive Market," presented at Edison Electric Institute Planning Meeting, Las Vegas, NV, April 30, 1996.

63. "Transmission Planning under Uncertainty," presented at CIGRE working group meeting, Paris, France, 10 Oct. 1997.

64. "Probabilistic Available Transfer Capability," presented at IEEE PES Winter Meeting, Tampa, FL, 4 Feb. 1998.

65. "Deregulation, Privatization, and Competition: Transmission Planning under Uncertainty," *IEEE Trans. Power Systems* Vol. 14, No. 2, May 1999 (co-authors: T. De la Torre, J. W. Feltes, and T. Gómez).

66. "Exploiting the Random Nature of Transmission Capacity," *Public Utilities Fortnightly*, Vol. 136, No. 17, Sept. 15, 1998.

67. "Techniques for Power System Planning under Uncertainty," CIGRE TF 38-05-08 Report, November 1998 (co-authors: P. Sandrin, Convener, *et al*).

68. "A Framework for Risk Management," Tutorial on Managing Risk in the New Power Business, IEEE PICA Conf., Santa Clara, CA, May 1999.

69. "Power System Planning," *Electric Power Engineering Handbook*, (L. L. Grigsby, Ed.) CRC Press, 2001.

70. "Wrangling Over RTOs," *Public Utilities Fortnightly*, December 1999.

71. "The RTO Debate," *IEEE Power Engineering Review*, Feb. 2000.

72. "Managing Risk in the New Power Business," *Computer Applications in Power*, April 2000 (co-authors: M. V. F. Pereira and M. F. McCoy).

73. "Regional Transmission Organizations: FERC Order 2000," *IEEE Power Engineering Review*, July 2000.

74. "How Availability Changed in a Competitive Market," *IEEE Power Engineering Review*, Jan 2002 (co-authors: J. A. Natour, C. P. Sedlacek).

75. "Thriving on Risk," *IEEE Computer Applications in Power*, Vol. 15, No. 2, April 2002.

76. "Pieces of the Action," Guest editorial, *IEEE Pwr & Energy Mag.*, Vol. 1 No. 1, Jan/Feb 2003.

77. "Thoughts from Telemachus," Guest editorial, *IEEE Pwr & Energy Mag.*, Vol. 1 No. 4, July/Aug 2003.

78. "Evaluation of Transmission Tariff Methods in Restructured Power Markets," presented at IEEE PES Summer Mtg., July 2003 (co-authors, N. Bacalao, R. Nadira, and C. A. Dortolina).

79. "Developing Power: International Equity, Economics and Electricity," *IEEE Pwr & Energy Mag.*, Vol. 3 No. 2, March/April 2006.

80. "Transmission Icing: A Physical Risk with a Physical Hedge," Invited paper presented at the IEEE PES Gen'l Mtg., Montreal, Canada, June 2006 (coauthor: J. W. Feltes).

81. "Transmission Planning Criteria and their Application under Uncertainty," Invited paper presented at IEEE T&D Conference (pre conference seminar), Bogota, Columbia, 12 August 2008 (coauthors: D. Cámac, R. Bastidas, R. Nadira, C. Dortolina).

82. "Networks, Networks, and Blackouts," Keynote lecture, IEEE T&D Conference, Bogota, Columbia, 14 August 2008.

83. "Transmission Tariffs by Use of System and Economic Benefits," Hawaii Int'l Conf. on System Sciences, Waikoloa, Hawaii, 5-8 January 2009 (coauthors: D. Cámac, R. Bastidas, W. Sifuentes, and R. Tabors).

84. "Expansión del Sistema Eléctrico en Mercados Competitivos (Power System Expansion in Competitive Markets)," Invited paper, 2nd International Meeting on Regulation, CIER, Lima, Peru, 21-22 September 2009.

85. "Transmission Planning in Developing Countries: Criteria and Risks," Presented at panel session on "Transmission Planning and Pricing," IEEE PES 2009 General Meeting, Calgary, Canada, 28 July 2009 (coauthors: D. Cámac, R. Bastidas, R. Nadira, C. Dortolina).

86. "Lecciones Aprendidas en Apagones y su Aplicación en Nuevos Criterios de Planificación (Lessons Learned in Blackouts and their Application in New Planning Criteria)," CEIR Latin America Workshop on Emergency-state Operation of Power Systems, Cuernavaca, Mexico, 27-28 August 2009 (coauthors: J. W. Feltes, D. J. Eckenfelder).

87. "Transmission Planning Criteria and their Application under Uncertainty," *IEEE Trans. Power Systems* Vol. 25, No. 4, Nov. 2010 (coauthors: D. Cámac, R. Bastidas, R. Nadira, C. Dortolina).

88. "Jorge F. Dopazo," 2011 IEEE PES Power Systems Conf. & Exposition, Phoenix, AZ, USA, 20-23 March 2011 (coauthor, A. M. Sasson).

89. "Transmission Technical Analysis: Risks and Conflicts," FERC/RTO Training Meeting, Institute for Policy Integrity, NY University School of Law, New York, NY, 14-15 June 2011.

90. "Learning to Love Congestion," *Public Utilities Fortnightly*, Vol. 150, No. 7, July 2012, pp. 16-23 (coauthor, R. D. Tabors).