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BEFORE THE ARIZONA CORPORATION COMMISSION

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2010 AUG 12 P 4: 38
AZ CORP COMMISSION
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IN THE MATTER OF THE APPLICATION
OF SOUTHEAST TRANSMISSION
COOPERATIVE, INC. FOR A HEARING
TO DETERMINE THE FAIR VALUE OF
ITS PROPERTY FOR RATEMAKING
PURPOSES, TO FIX A JUST AND
REASONABLE RETURN THEREON AND
TO APPROVE RATES DESIGNED TO
DEVELOP SUCH RETURN

DOCKET NO. E-04100A-09-0496

**MOHAVE ELECTRIC
COOPERATIVE'S NOTICE OF
FILING SURREBUTTAL TESTIMONY
OF CARL N. STOVER, JR.**

Mohave Electric Cooperative, Inc. ("Mohave") by and through undersigned
counsel, hereby submits the surrebuttal testimony of Carl N. Stover, Jr.

DATED this 12th day of August, 2010.

CURTIS, GOODWIN, SULLIVAN,
UDALL & SCHWAB, P.L.C.

By:

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Arizona Corporation Commission
DOCKETED
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2 I hereby certify that on this 12th day of August, 2010, I caused the foregoing document
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7 1200 West Washington
8 Phoenix, Arizona 85007

9 COPY of the foregoing hand delivered
10 this 12th day of August, 2010 to:

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12 Maureen Scott
13 Ayesha Vohra
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16 1200 West Washington
17 Phoenix, Arizona 85007

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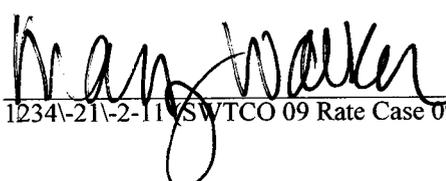
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BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF THE
SOUTHWEST TRANSMISSION COOPERATIVE, INC.
FOR A HEARING TO DETERMINE THE
FAIR VALUE OF ITS PROPERTY FOR
RATEMAKING PURPOSES, TO FIX A JUST AND
REASONABLE RETURN THEREON AND TO
APPROVE RATES DESIGNED TO DEVELOP SUCH
RETURN

Docket No. E-04100A-09-0496

SURREBUTTAL TESTIMONY
OF
CARL N. STOVER, JR.
ON BEHALF
OF
MOHAVE ELECTRIC COOPERATIVE, INC.

August 12, 2010

1 **Q. Have you testified before the Arizona Corporation Commission before?**

2 A. No.

3

4 **Q. Upon whose behalf are you appearing in this proceeding?**

5 A. I am appearing on behalf of Mohave Electric Cooperative, Inc. ("Mohave") an
6 intervenor in this proceeding.

7

8 **Q. Please describe your experience with Mohave Electric Cooperative, Inc.**

9 A. I began working with Mohave in 2002. My work primarily relates to power supply-
10 related activities including planning for power supply resources, integration of
11 resources, and wholesale rates.

12

13 **IMPACT OF SWTC APPLICATION ON MOHAVE**

14

15 **Q. What is the relationship between Mohave and Southwest Transmission
16 Cooperative, Inc. ("SWTC")?**

17 A. Mohave is a Member of SWTC. As a member, Mohave has a representative on the
18 SWTC Board of Directors. SWTC provides Network, Point-To-Point, and ancillary
19 services to Mohave.

20

21 **Q. How is Mohave impacted by the proposed SWTC rate filing?**

22 A. As a result of the SWTC rate application, Mohave will experience a substantial
23 increase in cost of transmission service. The increase is:

- 24 1. Based on SWTC Filed Case: \$2,209,382, or 35.7%
25 2. Based on ACC Staff Proposal: \$2,201,070, or 35.43%
26 3. Based on SWTC Rebuttal Proposal: \$1,976,476, or 31.82%

27

28 **SUMMARY OF TESTIMONY**

29

30 **Q. What is the purpose of your testimony in the proceeding?**

31 A. I am offering surrebuttal testimony for three purposes:

32

33 First, to support SWTC's proposed net margin of \$2,823,336 based upon a 1.35 Debt
34 Service Coverage ("DSC") for a revenue increase of \$6,823,195 as set forth in Mr.
35 Pierson's Rebuttal Testimony and summarized on his Exhibit GEP-2. In doing so, I

1 will also explain why the Commission should reject ACC Staff's proposed net margin
2 of \$3,722,264 based on a 1.45 DSC for a revenue increase of \$7,648,823.

3
4 Second, to support the Commission's rejection of Staff witness Ralph Smith's
5 \$73,300 "other Income" adjustment related to the gain on the sale of utility
6 property.

7
8 Third, to preserve the issue of whether Dr. Zarnikau's proposed modification of the
9 MEC2 rate is appropriate.

10
11 **MOHAVE SUPPORTS SWTC'S REBUTTAL POSITION**
12 **ON THE LEVEL OF RATE INCREASE**

13
14 **Q. Does Mohave Electric Cooperative support the \$6,823,195 increase in annual**
15 **revenues requested by SWTC in its Rebuttal Testimony?**

16 **A.** Yes. As noted by Mr. Ralph C. Smith at page 7 of his Direct Testimony, "SWTC's
17 actual recorded results for the test year ended March 31, 2009 do not indicate that a
18 revenue increase would be required." Under its mortgage agreement with the Rural
19 Utilities Service ("RUS"), SWTC is required to maintain a DSC of 1.0 and a Times
20 Interest Earned Ratio ("TIER") of 1.05 in two out of three consecutive years. (See
21 Direct Testimony of Randall Vickroy at page 3.) For the 12 months ended December
22 31, 2008 (a period including 9 months of the test year), SWTC achieved a TIER of
23 2.00, a DSC of 1.07 and net margins of \$4,934,059. (See Exhibit LCG-2 to Direct
24 Testimony of Randall Vickroy.)

25
26 However, as noted by SWTC and recognized by Staff, between December 2008 and
27 December 31, 2009 contracts representing \$8.6 million in annual revenue, about
28 24% of the SWTC's annual revenue, will expire. (See Direct Testimony of Randall
29 Vickroy at page 2.) Mohave understands that in the absence of new contracts, SWTC
30 must increase rates to its members and reduce operating expenses to offset this lost
31 revenue.

32
33 SWTC originally sought a net increase of rates of approximately \$7.65 million, or a
34 29.65% increase. As filed, the increased revenues provided SWTC with a TIER of
35 1.56, a DSC of 1.35 and net margins of \$2,823,336. See, Exhibit GEP-2 to Pierson

1 Rebuttal Testimony. Staff has identified \$830,226 in operating expense cost
2 reductions: \$730,000 is related to the significant work-force reduction SWTC has
3 already implemented and \$70,235 is related to incentive compensation. (See Direct
4 Testimony of Ralph C. Smith at pages 22-28.) But, instead of passing the majority of
5 those cost savings through to SWTC members, Staff has proposed SWTC increase its
6 net margin and cash from operations, based upon a higher DSC than requested by
7 SWTC (1.45 vs. 1.35). As a result, Staff proposed SWTC be permitted to increase
8 revenues approximately \$7.64 million, or 29.63%.

9
10 In contrast, SWTC's Rebuttal Testimony accepts all but one of Staff's proposed
11 expense adjustments and revises its proposed increase downward to \$6,823,195, a
12 26.43% increase in revenues over the adjusted test year level. As a result, Staff's
13 proposal represents an additional \$825,628 annual increase than now requested by
14 SWTC.

15
16 Mohave supports the SWTC revised revenue proposal. Recognizing these are
17 difficult economic times, SWTC appropriately seeks to minimize the adverse impacts
18 on its members from the significant rate increase necessitated by the expiring
19 service contracts. SWTC proposes revenues based upon a 1.35 DSC which, as
20 recognized by Mr. Vickroy, enables it to accumulate cash and build equity barring
21 unforeseen significant expenditures or revenue erosion.

22
23 **STAFF'S PROPOSED NET MARGIN AND DSC RESULTS**
24 **IN AN UNREASONABLE AND UNNECESSARY RATE INCREASE**

- 25
26 **Q. You reference the margin component of the total revenue requirement and**
27 **you reference DSC. Please explain the components that determine the total**
28 **revenue requirement in the SWTC filing and how margin and DSC are related.**
29 **A. The following will be helpful in understanding basic relationships that I will**
30 **reference later in my testimony.**

31
32 The total operating revenue requirements is the sum of:

- 33 1. Operating Expenses
34 a. Operating Expense
35 b. Depreciation & Amortization

- 1 c. Taxes
- 2 2. Interest & Other Deduction
- 3 3. Net Margin
- 4 4. Less: Non-Operating income

5 This format is used by both SWTC and Staff in identifying the SWTC revenue
6 requirement. For example, referencing Attachment RCS-2, page 2 to Ralph C. Smith's
7 Direct Testimony, the Operating Expense is shown on Line 2, the Interest and Other
8 Deduction value is shown on Line 4, the Net Margin (or Net Income) is shown on
9 Line 7, and Non-Operating income (or Other Non-Operating Income) is shown on
10 line 5.

11
12 Mr. Smith provides a summary of both SWTC and Staff values. In this case there is no
13 difference between SWTC and Staff recommended depreciation, interest on long-
14 term debt ("LTD"), or principal payments. As discussed above, there is a difference
15 in operation and maintenance expense ("O&M") in the amount of \$830,226 and
16 Non-Operating income of \$73,300. The total difference related to O&M adjustments
17 and Non-Operating income is \$903,526. SWTC Rebuttal Testimony accepts all but
18 the \$70,300 adjustment. Instead of flowing these adjustments through to the
19 revenue requirement as proposed by SWTC in its Rebuttal Testimony, Staff, based
20 on Mr. Vickroy's recommendation of a 1.45 DSC, increased the net margin
21 component of the revenue requirement by \$898,928. The margin adjustment
22 essentially offsets all of the Staff expense and Non-Operating income adjustments.

23
24 **Q. Mr. Vickroy references margin, cash flow, and DSC in his recommendations.
25 What is the relationship between margin, cash flow and DSC?**

26 **A.** Margin, cash flow and DSC are different measures of the financial health of an entity
27 at a particular revenue level. A particular margin, cash flow or DSC result can be
28 obtained simply by adjusting the revenue requirement, assuming all else is held
29 constant. Given a depreciation expense and debt service (principal + interest on
30 LTD), a particular DSC will result in a specific margin and cash flow.

31
32 **Q. What does the margin measure?**

33 **A.** The margin is a metric that measures the revenues remaining after paying operating
34 expenses. When the margin is calculated prior to considering interest on LTD and
35 other interest expense, it is referred to as the operating margin or operating

1 income/loss. When the margin is calculated after consideration of interest expense
2 and other non-operating expenses and credits, it is referred to as the net margin or
3 net income/loss.
4

5 **Q. What does cash flow measure?**

6 A. Cash flow is a metric that measures the cash available to the entity for operations.
7 For cooperatives, cash flow is generally derived by adding the non-cash operating
8 expenses of depreciation and amortization to the margin. The equation for Cash
9 Flow from operations after debt service is defined by the following formula:
10

$$11 \text{Cash Flow from Operations after DS} = \text{Margin} + \text{Depreciation} + \text{Interest} - \\ 12 \text{Debt Service}$$

13
14 **Q. What is measured by DSC?**

15 A. DSC is a metric that measures the cash available before debt as a ratio to debt
16 service. The equation for DSC at a given margin is defined as:
17

$$18 \text{DSC} = (\text{Margin} + \text{Depreciation} + \text{Interest}) / \text{Debt Service}$$

19
20 The margin required to produce a particular DSC is defined by the following
21 equation:
22

$$23 \text{Margin} = (\text{DSC}) * (\text{Debt Service}) - (\text{Interest LTD}) - (\text{Depreciation})$$

24
25 **Q: Using the values established for SWTC in this docket, can you demonstrate the**
26 **relationship between net margin, cash flow and DSC at both a 1.35 DSC, as**
27 **proposed by SWTC, and a 1.45 DSC, as proposed by Mr. Vickroy?**

28 A: Both Staff and SWTC use the following values as reflected on Attachment RCS-2,
29 page 2 of Mr. Smith's Direct Testimony and on Exhibit GEP-2 of Mr. Pierson's
30 Rebuttal Testimony:

31	Interest LTD:	\$4,999,328
32	Principal:	\$3,989,942
33	Debt Service:	\$8,989,270
34	Depreciation & Amort:	\$4,312,850

Using these values the net margin required to produce a specific DSC is:

Net Margin @ 1.35 = (1.35)*(8,989,270) - (4,999,328) - (4,312,850) = \$2,823,336

Net Margin @ 1.45 = (1.45)*(8,989,270) - (4,999,328) - (4,312,850) = \$3,722,264

Table 1 shows the development of Margin and Cash Flow calculations for SWTC at both a 1.35 DSC and a 1.45 DSC utilizing the foregoing figures.

			(A)	(B)	(C)
			Net Margin & Cash	Net Margin & Cash	
	Reference		DSC 1.35	DSC 1.45	Difference
	-----		-----	-----	-----
1	Net Margin		\$ 2,823,337	\$ 3,722,264	\$ 898,927
2	Plus: Interest	RCS-2, Line 17	\$ 4,999,328	\$ 4,999,328	\$ -
3	Plus: Depreciation	RCS-2, Line 18	\$ 4,312,850	\$ 4,312,850	\$ -
4	Cash Before Debt Service	L1 + L2 + L3	\$ 12,135,515	\$ 13,034,442	\$ 898,927
5	Debt Service	L 10	\$ (8,989,270)	\$ (8,989,270)	\$ -
6	Cash After Debt Service		\$ 3,146,245	\$ 4,045,172	\$ 898,927
7	DSC	L 4/L10	1.35	1.45	
	Debt Service				
8	Principal	RCS-2, Line 21	\$ 3,989,942		
9	Interest	RCS-2, Line 20	\$ 4,999,328		
10	Total	L8 + L9	\$ 8,989,270		

Table 1

Therefore, when referencing the margin component of the revenue requirement for SWTC using adjusted test year data developed in this proceeding a 1.35 DSC, a \$2.8 million net margin, and a \$3.1 million cash flow are all consistent references and will result in the same revenue requirement. Reference to a 1.45 DSC, a \$3.7 million net margin, and \$4.05 million cash flow are also all consistent references reflecting a revenue requirement \$898,927 greater than a 1.35 DSC.

1
2 **SUMMARY OF ISSUES WITH VICKROY TESTIMONY**
3

4 **Q. What are the primary issues with Mr. Vickroy's testimony?**

5 A. Mr. Vickroy summarizes his recommendations on page 9 beginning at line 12:
6

7 First, Mr. Vickroy identifies a range of appropriate DSC values of 1.35 – 1.55. While
8 acknowledging at pages 7-8 of his Direct Testimony that the Key Trend Ratio
9 Analysis ("KTRA") prepared by CFC had limited data on transmission entities, that
10 the only other pure transmission company "was many times the size of SWTC," and
11 that median DSC ratios for the transmission category was between 1.31 and 1.37,
12 Mr. Vickroy still relied on KTRA data to suggest SWTC is under performing
13 financially. He also underestimates the available cash after debt service available
14 under SWTC's rates, with Staff's adjustment, by a million dollars (2.1 million vs. 3.1
15 million). (See Vickroy Direct Testimony at page 9 vs. Table 1 above.) He also
16 apparently took into consideration the Staff's proposed operating expense
17 adjustments in setting the appropriated DSC range. (See Vickroy Direct Testimony at
18 page 9, line 16.) As noted, by taking these adjustments into consideration in setting
19 the DSC, Mr. Vickroy increased SWTC's margins so as to off-set the eliminated
20 expense dollars when the revenue requirement and rates paid by SWTC customers
21 could have been and should have been lowered, as subsequently proposed by SWTC
22 in its Rebuttal Testimony.
23

24 Second, he then picks the mid-point of the range as an appropriate
25 recommendation. The only explanation for picking the mid-point is as follows:
26 "Using the mid-point of this range, a DSC target of 1.45 times, would result in a net
27 margin of \$2.8 million and net cash flow after principal payments of \$3.0 million."
28 (See Vickroy Direct Testimony at page 9, line 16-18.) The problem is that a 1.45 DSC
29 corresponds to a net margin of \$3.7 million not \$2.8 million, and a cash after debt
30 service of \$4.05 million and not \$3.0 million.
31

32 **Q. What value is used by other Staff witnesses in developing the total revenue
33 requirement?**

34 A. Mr. Smith makes reference to Mr. Vickroy's recommendation of 1.45 DSC (see Smith
35 Direct Testimony at 8, line 19.) With a 1.45 DSC the resulting net margin of \$3.722

1 million is used to determine the total Staff recommended revenue requirement,
2 instead of the \$2.8 million net margin Mr. Vickroy testified would result from the
3 use of a 1.45 DSC.

4
5 **Q. If Mr. Smith had used a net margin of \$2.8 million as the reference from Mr.**
6 **Vickroy rather than the DSC reference, would the Staff recommended revenue**
7 **requirement change?**

8 A. Yes. The revenue requirement would be reduced by \$898,927.

9
10 **Q. If Mr. Smith had used a cash flow of \$3.0 million as the reference from Mr.**
11 **Vickroy, what would be the revenue requirement?**

12 A. The Staff revenue requirement would be reduced by approximately \$1.05 million.

13
14 **Q. It appears that Mr. Vickroy has provided three reference values in his**
15 **recommendation and that two of the metrics (net margin and cash flow) are**
16 **comparable in terms of the final revenue requirement, and the third (DSC) is**
17 **not consistent with the other two. How do you reconcile these differences?**

18 A. Clearly, the DSC reference of 1.45 is not consistent with the references to a net
19 margin of \$2.8 million or cash flow of \$3.0 million. If Mr. Smith had used either the
20 net margin or cash flow reference in Mr. Vickroy's Direct Testimony there would not
21 be a net margin requirement issue to address in rebuttal. The result would have
22 been a revenue requirement reflected in SWTC's Rebuttal Testimony because it
23 produces a net margin of \$2.8 million and a cash flow of \$3.1 million.

24
25 **Q. What other explanation does Mr. Vickroy give as to why he is proposing a DSC**
26 **level that requires approximately a \$900,000 greater revenue requirement**
27 **than his net margin or cash flow recommendation produces?**

28 A. Mr. Vickroy makes references to his concern that a margin of \$2.8 million is thin. He
29 also references that he considered the Staff expense adjustments of \$903,526 (page
30 9, line 16) in setting the DSC. By raising the DSC to 1.45 he effectively used the Staff's
31 expense adjustments as a cushion for economic uncertainty. He also references a
32 "large contingency" event could "consume most or all of such a small annual margin"
33 (see Vickroy Direct Testimony at page 8, lines 24-26). At this point he seems to be
34 saying that the margin component of the revenue requirement should reflect some
35 cushion or excess amount to cover future contingency. His proposed DSC

1 recommendation would then appear to quantify the contingency as the approximate
2 amount of the staff expense adjustments.
3

4 **Q. Do you believe this is appropriate?**

5 A. No. If there is some uncertainty as to the appropriate operating expense level for
6 ratemaking purposes, this would be addressed by the witnesses dealing with the
7 expense adjustments. A more basic question is the extent to which it is appropriate
8 to make adjustments when median DSC ratios for the transmission category are
9 between 1.31 and 1.37 (see Vickroy Direct Testimony at page 8, line 7), and no
10 evidence indicates a margin based on a 1.35 DSC is unreasonable.
11

12 **Q. Does Mr. Vickroy indicate the net margins and cash flow requested by SWTC
13 are sufficient to provide equity capital and cash balance?**

14 A. Yes. He states the margin of \$2.8 million would produce "... cash flow sufficient to
15 increase its cash balances to support working capital needs by about \$10 million
16 over three years." (See Vickroy Direct Testimony at page 4, lines 11-14.) He also
17 states, "SWTC has estimated that the increased rates would increase equity as a
18 percentage of capitalization to slightly over 10 percent (from 9 percent) at the end
19 of the test period." (See Vickroy Direct Testimony at page 4, lines 14-16.) Later in his
20 testimony he does state that the SWTC requested margin of \$2.8 million and a cash
21 flow after debt service of \$3.15 million to be "fairly thin and marginally sufficient"
22 (see Vickroy Direct Testimony at page 8, lines 23-24), but relies on purely
23 speculative future events to support his characterization.
24

25 **Q. At the top of page 9 of his Direct Testimony, Mr. Vickroy states the available
26 cash flow after debt service with the Staff adjustments would be \$2.1 million,
27 which you have indicated under-estimates the cash flow with a DSC of 1.35 by
28 \$1 million. Even assuming a \$2.1 million cash flow, does Mr. Vickroy indicate
29 there are conditions when this level of cash flow would be acceptable?**

30 A. Yes. He states that even assuming only \$2.1 million cash available after debt service,
31 "The cash flow could prove sufficient for SWTC in the future if the Cooperative does
32 not experience large lags between cash payments for capital expenditures and the
33 related draw down from FFB loans." (See Vickroy Direct Testimony at page 9, line 4.)
34
35

1 **Q. Does Mr. Vickroy indicate that this lag will in fact be a concern?**

2 A. He goes on to state that, "SWTC advises that it now has an interim financing facility
3 that should greatly reduce this potential cash flow lag." (See Vickroy Direct
4 Testimony at page 9, line 6.)
5

6 **Q. Did Mr. Vickroy reference any other evidence that supports a finding that a
7 1.35 DSC is reasonable and just for SWTC at this time?**

8 A. Mr. Vickroy's recommendation of 1.45 DSC results in a \$4.05 million cash flow from
9 operations after debt service. (See Table 1 above.) On page 10, line 17 of his Direct
10 Testimony, Mr. Vickroy indicates he asked SWTC for an updated financial forecast.
11 This appears to be a reference to Data Request response STF 3.5.
12

13 That response assumes the SWTC rates for 2011 and 2012 and then assumes rates
14 that will produce a 1.10 DSC each year 2013-2015. The balance sheet shows that
15 cash position increases to \$31.2 million by 2012 and continues to increase even
16 with a 1.10 DSC to \$43.7 million by 2015. This is compared to the stated objective of
17 establishing working capital of \$10 million. Given this projection it would appear to
18 me that the requested 1.35 DSC already allows for some cushion for uncertain
19 events.
20

21 **SUMMARY AS TO DSC**
22

23 **Q. Please summarize your conclusions as to an appropriate DSC for SWTC.**

24 A. Mr. Vickroy's recommended DSC of 1.45 is not consistent with the net margin and
25 cash flow he indicates, in the same sentence, will result if the 1.45 DSC is adopted.
26 (See Vickroy Direct Testimony at page 9, lines 16-18). Mr. Vickroy rejects SWTC's
27 recommendation of a 1.35 DSC based solely upon conjuncture and speculation about
28 potential contingencies, such as the loss of remaining point-to-point customers or
29 major operation and maintenance issues that "could consume most or all" of its
30 margin. (See Vickroy Direct Testimony at page 8, lines 24-26). Mr. Vickroy
31 acknowledges that the SWTC-requested margins allow SWTC to build both cash and
32 equity. (See Vickroy Direct Testimony at page 4, lines 11-16.) Staff provides no
33 affirmative evidence demonstrating that the net margin and cash flow realized with
34 a 1.35 DSC are insufficient or inadequate. SWTC's members must not be burdened
35 with a rate increase above the 26.43% requested by SWTC and supported by its

1 members. Staff has provided no evidence to support off-setting the operating
2 expense adjustments it has recommended with a higher DSC and net margin. Even
3 Mr. Vickroy testifies that barring unforeseen contingencies, the 1.35 DSC will
4 provide thin but sufficient margins and cash for working capital. (See Vickroy Direct
5 Testimony at page 8, lines 23-24.) It should also be noted that, even with a long-
6 term 1.10 DSC, the working capital increases to more than four times the stated
7 objective. Finally, the members should benefit from adjustments in operating
8 expenses deemed necessary by Staff. Such benefits should flow through to lower
9 rates rather than increase margins, unless it is demonstrated that the utility's
10 recommended rates will render it financially unhealthy. No such demonstration has
11 been made by Staff. Under such circumstances, SWTC's members should not be
12 burdened with a rate increase greater than the 26.43% increase requested by SWTC
13 in its Rebuttal Testimony and supported by its members.
14

15 For these reasons I believe SWTC's revenue requirement should be based on a 1.35
16 DSC and the corresponding net margin and cash flow, all as SWTC has requested in
17 its Rebuttal Testimony.
18

19 **STAFF'S ADJUSTMENT FOR GAIN IS INAPPROPRIATE**

20
21 **Q. Does Mohave support Staff's proposed adjustment of \$73,300 relating to
22 SWTC's gain on the sale of utility property?**

23 **A.** No. While Mohave agrees with Staff that 100% of the gain from the sale of SWTC's
24 utility property should flow to its members (see Smith Direct Testimony at page 31,
25 lines 10-13), Mr. Pierson correctly notes that the members are already credited with
26 the sale proceeds and any further adjustment would constitute a double credit. (See
27 Pierson Rebuttal Testimony at page 3, lines 1-3.)
28

29 **SWTC'S ADJUSTMENT IN THE MEC2 RATE**

30
31 **Q. Does Mohave support SWTC's modification of the MEC2 rate as proposed by
32 Dr. Jay Zarnikau in his Rebuttal Testimony?**

33 **A.** SWTC did not discuss Dr. Zarnikau's proposal to modify the MEC2 rate with Mohave
34 prior to filing its Rebuttal Testimony. Mohave is still reviewing the MEC2 agreement
35 and is in the process of requesting and reviewing the underlying documentation

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regarding the Apache Transformer and the Bicknell Substation Upgrade expenditures. Therefore, it reserves its right to object to the proposed modification.

Q. Does this conclude your testimony?

A. Yes, it does.



EDUCATION:

M.S., Industrial Engineering, The University of Oklahoma, 1969
B.S., Electrical Engineering, The University of Oklahoma, 1963
Stanford University School of Business Administration, "Leading Change and Organizational Renewal," Summer 2001.
Harvard Business School Executive Education, "What's Next & So What? - Leading in the 21st Century," January 2000.
Harvard Graduate School of Business Administration, "Leadership in Professional Service Firms," June 1995.

REGISTRATIONS:

Professional Engineer: Colorado - 12931, Iowa - 11754, Kansas - 6261, Oklahoma - 8526,
Texas - 67676, Wyoming - 1215

PROFESSIONAL ACTIVITIES / HONORS:

Associate Member, National Rural Electric Cooperative Association, 1998 - Present
Associate Member, American Public Power Association, 1997 - Present
Member, College of Engineering Board of Visitors, The University of Oklahoma, 1989 - Present
Member, Chairman; Electric Power Advisory Board, School of Electrical Engineering and Computer Science, The University of Oklahoma, 1985 - Present
Member, Institute of Electrical and Electronics Engineers, 1970 - Present
Distinguished Graduates Society Inductee, College of Engineering, The University of Oklahoma, 1998

EXPERIENCE RECORD:

1966 - Present C. H. Guernsey & Company, Oklahoma City, Okla.

2005-Present, Chairman of the Board
1990-2005, Chairman of the Board, CEO and President
1989-1990, President, Board of Directors
1980-1989, Executive Vice President, Board of Directors
1972-1980, Vice President, Board of Directors

Mr. Stover's primary areas of responsibility include preparation of retail and wholesale rate analysis for regulated and unregulated systems, strategic planning, financial analysis and forecasting, resource planning and power supply negotiations, and training for utility clients. Mr. Stover has appeared before the Arkansas, Colorado, Kansas, Oklahoma, Texas, Utah and Wyoming state commissions, as well as the Federal Energy Regulatory Commission.



1963 - 1966 USAF. Assigned to Inertial Guidance Laboratory at Holloman AFB, New Mexico.

Lt. Stover served as engineer in testing and evaluation of inertial guidance systems, and received an honorable discharge as 1st Lieutenant.

SPECIFIC CONSULTING EXPERIENCE:

Rate Proceedings – Distribution Cooperatives

Arkansas (Arkansas Public Service Commission)

- Ozarks Electric Cooperative Corporation, Fayetteville (Docket 86-162-U)

COLORADO (Colorado Public Utilities Commission)

- Delta-Montrose Electric Association, Delta
- Empire Electric Association, Inc., Cortez
- Gunnison County Electric Association, Inc., Gunnison
- Holy Cross Electric Association, Inc., Glenwood Springs
- Intermountain Rural Electric Association, Sedalia
- La Plata Electric Association, Inc., Durango
- Moon Lake Electric Association, Inc., Roosevelt, UT
- Poudre Valley Rural Electric Association, Inc., Ft. Collins
- San Isabel Electric Association, Inc., Pueblo
- San Luis Valley Rural Electric Cooperative, Inc., Monte Vista
- San Miguel Power Association, Inc., Nucla
- United Power, Inc., Brighton
- White River Electric Association, Inc., Meeker

Illinois

- Egyptian Electric Cooperative Association, Steeleville
- SouthEastern Illinois Electric Cooperative, Inc., Eldorado
- Southern Illinois Electric Cooperative, Dongola

Indiana (Indiana Public Service Commission)

- Clark County Rural Electric Membership Corporation, Sellersburg

Kansas (Kansas Corporation Commission)

- Ark Valley Electric Cooperative Association, Inc., Hutchinson
- C.M.S. Electric Cooperative, Inc., Meade
- D.S.&O. Rural Electric Cooperative Association, Inc., Solomon
- Lane-Scott Electric Cooperative, Inc., Dighton
- Ninnescah Rural Electric Cooperative Association, Inc., Pratt
- Sedgwick County Electric Cooperative Association, Inc., Cheney
- Sumner-Cowley Electric Cooperative, Inc., Wellington
- Victory Electric Cooperative Association, Inc., Dodge City
- Western Cooperative Electric Association, Inc., WaKeeney



Nebraska

- McCook Public Power District, McCook
- Panhandle Rural Electric Membership Corporation, Alliance
- Twin Valleys Public Power District, Cambridge

Oklahoma (Oklahoma Corporation Commission)

- Caddo Electric Cooperative, Binger
- Canadian Valley Electric Cooperative, Seminole
- Central Rural Electric Cooperative, Stillwater
- Cimarron Electric Cooperative, Kingfisher
- Cookson Hills Electric Cooperative, Inc., Stigler
- Cotton Electric Cooperative, Walters
- East Central Oklahoma Electric Cooperative, Inc., Okmulgee
- Harmon Electric Association, Inc., Hollis
- Indian Electric Cooperative, Inc., Cleveland
- Kay Electric Cooperative, Blackwell
- Kiwash Electric Cooperative, Inc., Cordell
- Lake Region Electric Cooperative, Inc., Hulbert
- Northeast Oklahoma Electric Cooperative, Inc., Vinita
- Northfork Electric Cooperative, Sayre
- Northwestern Electric Cooperative, Inc., Woodward
- Oklahoma Electric Cooperative, Norman
- Oklahoma Gas & Electric Company, Cause No. 29450
- People's Electric Cooperative, Ada
- Red River Valley Rural Electric Association, Marietta
- Rural Electric Cooperative, Inc., Lindsay
- Southwest Rural Electric Association, Inc., Tipton
- Sun Oil vs. Arkansas Louisiana Gas Company
- Verdigris Valley Electric Cooperative, Inc., Collinsville

South Dakota

- West Central Electric Cooperative, Inc., Murdo

Texas (Public Utility Commission of Texas)

- Bailey County Electric Cooperative Association (2915, 5003, 7900)
- Bandera Electric Cooperative, Inc. (2786, 4279)
- Bluebonnet Electric Cooperative, Inc. (266, 4070, 7415, 12126)
- Central Texas Electric Cooperative, Inc. (3170, 6363, 7661, 10325, 12127)
- Cherokee County Electric Cooperative Association (817)
- City of Austin (6560 - in behalf of Bergstrom AFB)
- Coleman County Electric Cooperative, Inc. (4875, 13335)
- Comanche County Electric Cooperative, Inc. (5272, 8272)
- Concho Valley Electric Cooperative, Inc. (3550, 4797, 6540, 9056, 13334)
- Cooke County Electric Cooperative Association (9240)
- CoServ Electric (3470, 4189, 5165, 9892, 21669)



- Deaf Smith Electric Cooperative, Inc. (4481, 5019, 8354)
- Department of Defense (Bergstrom AFB v. City of Austin (6560)
- Fannin County Electric Cooperative, Inc. (3747, 4940, 9992)
- Farmers Electric Cooperative, Inc. (3780, 4422, 5259, 6475)
- Fort Belknap Electric Cooperative, Inc. (4396, 6558, 9944)
- Grayson-Collin Electric Cooperative, Inc. (3945, 6510)
- Greenbelt Electric Cooperative, Inc. (5038, 9930, 10405)
- Guadalupe Valley Electric Cooperative, Inc. (398, 3397, 4516, 6338, 7550)
- Hamilton County Electric Cooperative Association (5971)
- HILCO Electric Cooperative, Inc. (7154)
- Houston Lighting and Power Company (5779 and 8425)
- Jackson Electric Cooperative, Inc. (2753, 4710, 10561)
- Lamb County Electric Cooperative, Inc. (3270)
- Lighthouse Electric Cooperative, Inc. (2995, 4612, 8097)
- Lyntegar Electric Cooperative, Inc. (2988, 4564)
- Magic Valley Electric Cooperative, Inc. (1991, 3212, 5477, 20281, 20314)
- Medina Electric Cooperative, Inc. (4113, 11048)
- Big County Electric Cooperative (formerly Midwest) (2717, 3711, 6983)
- Navarro County Electric Cooperative, Inc. (3116)
- Navasota Valley Electric Cooperative, Inc. (7355)
- North Plains Electric Cooperative, Inc. (2934, 4958, 5214)
- Nueces Electric Cooperative, Inc. (3936, 5203, 23454)
- Pedernales Electric Cooperative, Inc. (2247, 3437, 5109)
- Rio Grande Electric Cooperative, Inc. (521, 3681)
- Rita Blanca Electric Cooperative, Inc. (2527, 8422)
- Rusk County Electric Cooperative, Inc. (3383)
- San Bernard Electric Cooperative, Inc. (2699, 3692, 4534, 5467, 6218)
- South Plains Electric Cooperative, Inc. (2936, 4822, 6985)
- Southwest Texas Electric Cooperative, Inc. (5335)
- Swisher Electric Cooperative, Inc. (3062, 6796)
- Taylor Electric Cooperative, Inc. (3679, 5767, 9159)
- Victoria Electric Cooperative Company (770, 3949, 6680)
- Wharton County Electric Cooperative, Inc. (4541, 6685)

Utah (Utah Public Service Commission)

- Empire Electric Association, Inc., Cortez, Colo.
- Moon Lake Electric Association, Inc., Roosevelt

Wyoming (Wyoming Public Service Commission)

- Big Horn Rural Electric Company (9076)
- Bridger Valley Electric Association, Inc. (9447)
- Carbon Power & Light, Inc. (9022)
- Garland Power & Light, Inc. (9575)
- High Plains Power
- Niobrara Electric Association, Inc. (9572)
- Wheatland Rural Electric Association (9574)



- Wyrulec Company (9097)

Rate Proceedings – Municipal Utilities

- Altus, Okla.
- AWC of LCRA, Texas
- Blackwell, Okla.
- Braman, Okla.
- Bryan, Texas
- Chanute, Kans.
- Chatham, Ill.
- Cody, Wyo.
- Cushing, Okla.
- Fredericksburg, Texas (7661, Certification - Central Texas EC)
- Lamar, Mo. vs. SWPA
- Larned, Kans.
- New Braunfels Utilities, Texas
- Oklahoma Municipal Power Authority, Okla.
- Osborne, Kans.
- Piedmont Municipal Power Authority, S. Car.
- Ponca City, Okla.
- Raton, N. Mex.
- Riverton, Ill.
- Stillwater, Okla.
- Torrington, Wyo.
- Vernon, Texas
- Wellington, Kans.

Rate Proceedings - Wholesale

Arkansas (Arkansas Public Service Commission)

- Arkansas Electric Cooperative Corporation Docket Nos. U-3071, 83-023-U

Colorado

- Tri-State G&T Association, Inc. Docket No. 98A-511E

Illinois

- Southern Illinois Power Cooperative

Iowa

- Corn Belt Power Cooperative, Inc.
- Northwest Iowa Power Cooperative, Inc.

Kansas

- Kansas Electric Power Cooperative, Inc.

Louisiana

- Cajun Electric Power Cooperative, Inc. Docket No. U-17735

Minnesota

- Great River Energy

Missouri

- M & A Electric Power Cooperative



New Mexico

- Plains Electric G&T Cooperative, Inc. Merger with Tri-State G&T Assn.

Nebraska

- Nebraska Electric G&T Cooperative, Inc., Columbus

North Carolina

- North Carolina Electric Membership Corporation

North Dakota

- Basin Electric Cooperative, Inc.
- Central Power Electric Cooperative, Inc.

South Dakota

- Rushmore Electric Power Cooperative, Inc.

Texas (Public Utility Commission)

- Brazos Electric Cooperative Docket Nos. 4079, 8868, 12757, 13100, 22531
- Central and South West Corp. / American Electric Power Company
Docket No. 19265
- Golden Spread Electric Cooperative Docket Nos. 13444, 14980, 15100, 16738
- Lower Colorado River Authority Docket Nos. 366, 1521, 2503, 3522, 3838,
6027, 7512, 8032, 8400, 9427
- Rayburn Country Electric Cooperative Docket No. 7361
- San Miguel Electric Cooperative, Inc. Docket No. 4127, 5351
- South Texas Electric Cooperative, Inc. Docket Nos. 4128, 5077, 5387, 5440, 8952,
22344
- Southwestern Electric Service Company Docket No. 2817
- Southwestern Public Service Company Docket Nos. 4387, 6055
- Texas Electric Service Company Docket Nos. 527, 1903, 2606, 3250, 4097,
5200
- Texas Power & Light Company Docket Nos. 3006, 3780, 4321
- Texas Utilities Electric Company Docket Nos. 5640, 9300, 13100
- Texland Electric Cooperative, Inc. Docket No. 3896
- West Texas Utilities Company Docket No. 4716

Utah

- Deseret G&T Cooperative, Inc. Docket No. OA97-3-000; Docket No. 98-
2035-04 PacifiCorp / ScottishPower Merger

Rate Proceedings - Federal Power Commission (Federal Energy Regulatory Commission)

- Cajun Electric Power Cooperative vs. Gulf States Utilities Company
Docket Nos. EL87-051, ER88-477



- Central and South West Services Docket No. ER84-031
- Central Power & Light Company Docket Nos. ER77-331, ER81-387, ER86-721
- El Paso Electric Company Docket Nos. ER76-409, ER77-488, ER79-526,
ER81-426, ER84-236, ER86-368
- Golden Spread Electric Cooperative Docket Nos. ER87-396, EL89-050 EL95-24
- Oklahoma Gas & Electric Company Docket Nos. ER77-127, ER77-215, ER78-423,
ER80-421, ER82-256, ER84-541
- Public Service Company Colorado Docket Nos. ER76-381, ER76-687, ER78-507,
ER80-407
- Public Service Company Oklahoma Docket Nos. ER77-422, ER78-511, ER82-545
- Southwestern Public Service Co. Docket Nos. ER84-604, ER85-477, EL89-051
- West Texas Utilities Company Docket Nos. ER80-038, ER82-023, ER82-708,
ER83-694, ER84-236, ER85-081, ER87-065

Transmission Wheeling / Interconnection Analysis

- Central and South West Services, Inc. Docket No. EL79-008, ER82-545, et.al.
- LCRA Wheeling Case before the Texas PUC Docket No. 6995

Power Supply Planning

A. System Resource Planning:

- Golden Spread Electric Cooperative, Inc.: Notice of Intent (PUCT Docket No. 13444)
- Golden Spread Electric Cooperative, Inc.: Exempt Wholesale Generation Contract
Certification (PUCT Docket No. 15100)
- Holy Cross Energy and Yampa Valley Electric Association, Colorado
- South Texas Electric Cooperative, Texas

B. Long-Range Power Cost - 20-Year Forecast:

- Golden Spread Electric Cooperative, Inc. Southwestern Public Service Company
- Mid-Tex G&T Electric Cooperative, Inc. West Texas Utilities Company and Brazos
Electric Cooperative
- Magic Valley Electric Coop., Inc. South Texas Electric Coop., Inc.
- Rio Grande Electric Cooperative, Inc. Central Power & Light Company
- Magic Valley Electric Cooperative, Inc. City of Brownsville/Central Power & Light
Co.

C. Other Power Supply Planning Projects:

- Golden Spread Electric Cooperative, Inc., TX Mustang Station
- Magic Valley Electric Cooperative, Inc., TX Magic Valley Station

Training

Training - NRECA

“Financial Planning and Strategies Workshop,” presented for NRECA’s Management Internship Program, Madison, Wisconsin; Yearly in May: 2005, 2006, and 2007.



- "Financial Strategy and Rate Design for a Competitive World," presented for NRECA's Financial Planning and Strategies Workshop; Lincoln, Nebraska; Yearly in May: 2000, 2001, 2002 and 2004.
- "Rate Design in a Restructured Environment," presented for NRECA's Management Internship Program; Lincoln, Nebraska; Yearly: 1999-2001.
- "Financial Strategy and Rate Issues for the Changing Utility Industry," NRECA's Advanced Financial Planning; Lincoln, Nebraska; 1997-99.
- "Rate Issues and Strategy for the Changing Utility Industry," NRECA's Management Internship Program; Lincoln, Nebr., 1987-98.
- "Identifying Revenues and Costs Associated with Marketing Solutions," NRECA's Strategic Marketing Planning for Management Conference; Lincoln, Nebr., 1996-97.
- "Application of Market-Based Rates in a Competitive Utility Industry," presented to NRECA's Tech Advantage '97 Annual Meeting; Las Vegas, Nevada; March 15, 1997.
- "Rate Analysis," NRECA MIP Advanced Planning and Analysis Workshop; Lincoln, Nebr.; 1990-96.
- "Power Supply Issues in the U.S. and Abroad - Increasing Competition and Deregulation," for Management and Technical Issues Conference for International Guests at 1996 NRECA Annual Meeting; Houston, Texas; March 23, 1996.
- "Rates and Related Issues," for Management and Technical Issues Conference for International Guests at 1996 NRECA Annual Meeting; Houston, Texas; March 23, 1996.
- "Rate Issues and Philosophies," NRECA's Management Internship Program; Lincoln, Nebr.; 1986-96.
- "Competitive Strategies: The Economics of Serving Large Loads," NRECA's Summer School; New Orleans, La., June 30-August 1, and Hilton Head, S.C., July 18-19, 1995.
- "Competitive Strategies: The Economics of Serving Large Loads," NRECA G&T Rates Conference; Lincoln, Nebr., June 20-21, 1995.
- "Competitive Strategies: The Economics of Serving Large Loads," NRECA G&T Rates Conference; Lincoln, Nebr., June 14-15, 1994.
- "Competing in the '90s and Beyond," 1994 NRECA G&T Rates Conference; San Antonio, Texas; June 5-8, 1994.
- "Implementation of Demand-Side Component of IRP," NRECA's Finance for Marketing Professionals Workshop; Lincoln, Nebr.; 1993-95.
- "Competing for Retail Loads," NRECA's 1994 G&T Legal Seminar; New Orleans, La., November 10, 1994.
- "Transmission Access Revolution," NRECA's 1993 G&T Director's Update Conference; Nashville, Tenn.; December 2, 1993.
- "Coordination of IRP and Marketing Strategy with G&T Wholesale Rate Design," NRECA's G&T Rates & G&T Marketing Conference; Lexington, Ky.; June 8, 1993.
- "Rates as a Marketing Tool," NRECA's G&T Marketing Seminar; Denver, Colo.; September 10, 1992.
- "Development of a Rate Strategy for the Cooperative System," 1991 Rural Electric Expo for NRECA; New Orleans, La.; February 2-3, 1991.
- "Innovative Rate Forms," 1991 NRECA Engineering and Operations Conference; New Orleans, La.; January 31, 1991.



- "Making Sense of Your System's Rate Structure," NRECA 1990 Member Services Communication Conference; Charlotte, N.C.; July 31, 1990.
- "Service to Large Industrial Customers," NRECA's Rural Electric Management Council; Fargo, N. Dak.; May 17, 1989.
- "Rate Design for Attracting and Maintaining Loads," NRECA's Management Internship Program; Lincoln, Nebr.; October 1, 1986.
- "Preconference Workshop: Basic Issues in Rate Design," NRECA's 1986 National Accounting and Finance Conference; Tampa, Fla.; September 9, 1986.
- "Marketing: Distribution Benefits Through Sale of Surplus Power and Jointly Designed Marketing Rates," 1987 NRECA Engineering and Operations Conference; Denver, Colo.; November 20, 1987.

Training - International

- Rate Training Course presented for electric utility executives of Russia, coordinated through Institute of International Education; Moscow, Russia; November 1994.
- Rate Training Course presented for electric utility executives of India, coordinated through Institute of International Education; Hyderabad, India; November 1994.
- Rate Training Course presented for members of Bangladesh REB coordinated through NRECA; Oklahoma City, Okla.; October 28-November 8, 1991.
- "Development of Rate Schedules for an Electric Utility," CAST/CSEE/NRECA Workshop; Kunming, Republic of China; May 14-19, 1984.
- "A Planning Model for the Analysis of Long Range Distribution System Design Alternatives," IEEE PES Summer Meeting and EHV/UHV Conference; Vancouver, Canada; July 1973.

Presentations and Papers

- "Rate Analysis and Cost of Service Study," presented with Judy Lambert to Region VIII Electric Cooperative Accountants' Association, in Oklahoma City, Okla., April 12, 2002.
- "How to Position Cooperatives to Compete in a Customer-Choice Environment," presented to the Texas Statewide group in Austin, Texas; April 11, 2002.
- "Positioning The Member Distribution Cooperative to Deal with a Customer Choice Environment," Panel discussion at Brazos Electric Cooperative's Strategic Planning Workshop; Waco, Texas; October 5, 2001.
- "Restructuring Issues for the G&T," presented for G&T Accounting and Finance Association's 2000 Conference; Breckenridge, Colorado; June 19, 2000.
- "The Restructuring of the Electric Power Industry in Oklahoma and in the Southwest," Panel Discussion Participant; Institute for Energy Economics and Policy, et al; Sarkeys Energy Center, The University of Oklahoma, Norman; December 10, 1999.
- "Application of Leadership Skills," presentation for Dr. Jerry Holmes' engineering students at The University of Oklahoma, Norman; April 22 and December 2, 1999.
- "Rate Design and the Changing Electric Industry," WREA Annual Meeting; Cheyenne, Wyoming; September 24, 1998.
- "Rate Design and the Changing Electric Industry," CFC's Annual Meeting; Colorado Springs, Colorado; July 3, 1998.
- "Preparing for the Future Cooperative Electric Service in Texas," presented to Texas Electric Cooperatives' Managers' Conference; Austin, Texas; December 5, 1996.



- "Industry Restructuring Implications for Cooperatives," presented to Texas Electric Cooperatives' Government Relations Committee; Austin, Texas; July 1, 1996.
- "The Economics of Serving Large Loads," Electric Cooperatives of South Carolina's Competitive Strategies Workshop, Columbia, S.C., August 15-16, 1995.
- "Evolving Cooperative Structures," CFC's Cooperative Financing Forum; Chicago, Ill.; July 11, 1995.
- "Takeover Workshop," Texas Electric Cooperatives, Inc.; Lubbock and Cleburne, Texas; April 6-7, 1995.
- "The Power in the Partnership: Changing the Co-Op Power Supply," TEC 54th Annual Meeting; Fort Worth, Texas, August 2, 1994.
- "Implementation of Demand-Side Component of IRP," Georgia EMC in coordination with NRECA; Ga., April 27, 1994.
- "The Transmission Access Revolution," Special G&T Director's Update Program for Brazos Electric Power Cooperative, DFW Airport Marriott Hotel, Texas; March 21-22, 1994.
- "Buy-Out and Refinancing of REA Loans: Factors to Consider in Evaluation Analysis," Texas Electric Cooperatives, Inc.; Austin, Texas; December 3, 1993.
- "Update on Current Issues – Texas RECs and PUCT," Texas Electric Cooperatives, Inc.; Austin, Texas; November 15, 1993.
- "The Co-Op Power Picture in Texas," TEC's 52nd Annual Meeting; Houston, Texas; July 28, 1992.
- "Ratemaking Activities for Rural Electric Cooperatives," TEC's Seminar on Electric Cooperatives; Austin, Texas; October 18, 1991.
- "Cost of Service Major Points," TEC Accounting Association Annual Meeting; San Antonio, Texas; April 20, 1990.
- "Rate Design for Large Power Service and Options for Marketing and Incentive Rates," TEC Engineering Association; Austin, Texas; September 27, 1989.
- "Revenue Requirements and Cost of Service Considerations at the PUC," TEC Engineering Association; Austin, Texas; April 28, 1988.
- "Course 495.3 - Rate Issues and Philosophies," 1987 Wisconsin Electric Cooperative Association; Wisconsin Rapids, Wis.; December 1-3, 1987.
- "Cost Bases for Incentive Rates Applicable to Industrial Loads," 1987 Conference on Industrial Energy Technology; Houston, Texas; September 16-17, 1987.
- "Considerations in Cooperative Consolidations," with Martin Lowery at NRECA's 1987 Accounting and Finance Conference; Lexington, Ky.; September 9, 1987.
- "Rates to Attract Attractive Loads," Association of Louisiana Electric Cooperatives, in coordination with AHP Systems, Inc.; Baton Rouge, La.; July 1-2, 1987.
- "Rates to Attract Attractive Loads," Wisconsin Electric Cooperative Association in Coordination with AHP Systems, Inc.; Stephens Point, Wis.; February 12, 1987.
- "Rate Seminar," Indiana Statewide Association of REC, Inc., (Co-Presenter: David Hedberg); Indianapolis, Ind.; September 25, 1986.
- "Cost of Service and Rate Design Issues Affecting Industrial Customers in Retail Rate Proceedings," Public Utility Commission of Texas 1986 Industrial Energy Technology Conference; Houston, Texas; June 1986.



- "The Importance of the Impact of Rates," NRECA's Management Services Conference -- Preparing Now to Prevent a Takeover or Sellout; Denver, Colo.; April 17-18, 1986; and New Orleans, La.; May 14-15, 1986.
- "Energy Cost for Industrial Customers," (Co-Author: M.K. Moore) ACEC Research & Management Foundation's Industrial Energy Management Forum; Tempe, Ariz., March 26, 1986.
- "Analysis of Financial and Operating Ratios," REA National Conference; San Antonio, Texas; July 10, 1985.
- "Coordination of Wholesale/Retail Rate Design for Effective Marketing Strategy," NRECA's National Marketing Conference; Kansas City, Mo., June 5, 1985.
- "Development of a Rate Analysis," NRECA Management Quarterly; Washington, D.C.; Volume 24, No. 3; Summer 1983.
- "Cost Allocation Considerations for Rural Distribution Systems," NARUC Biennial Regulatory Information Conference; Columbus, Ohio; October 19, 1978.
- "Cost Allocation Considerations and Methods for Electric Rate Analysis and Design for Rural Distribution Systems," IEEE Transactions on Industry Application; Volume 1A-13, No. 2; 1977.
- "Design of Irrigation Rates Under Load Management Program," (Co-Authors: S.P. Patwardhan and B.E. Smith), presented at IEEE Rural Power Conference; Kansas City, Mo.; May 16, 1977.
- "Cost Allocation Considerations and Methods for Electric Rate Analysis and Design for Rural Distribution Systems," IEEE Rural Electric Power Conference; Omaha, Nebr.; April 1975.
- "A Financial Forecasting Model for Rural Electric Distribution Systems," IEEE PES Summer Power Meeting and Energy Resources Conference; Anaheim, Calif.; July 1974.
- "Transmission Substation Control Using On-Site Computer Directed Simulation and Closed Loop Control," (Co-Author: H.E. Michel).
- "The Development of Design Objectives for Electric Utility Rate Schedules," Master's Thesis; University of Oklahoma, Norman; 1969.