

Case Study
ABC Electric Company
Allocation & Rate Design Phase

Robert Manning
Public Utility Commission of Texas
Briefing for the NARUC/INE Partnership

ABC ELECTRIC COMPANY
PRO FORMA STATEMENT OF ELECTRIC OPERATING INCOME AND REVENUE REQUIREMENT DEFICIENCY

		<u>Pro Forma Adjustments</u>			Additional	Test Period
		Test Year	Adjustments	Test Period	Revenue	with Rate
		Actual		Pro Forma	Requirement	Increase
1	OPERATING REVENUES	\$ 21,026,000	\$ (14,800) (6)	\$ 21,011,200	\$ 3,315,530	\$ 24,326,730
OPERATING EXPENSES						
2	Electricity purchased for resale	2,901,000		2,901,000		2,901,000
3	Fuel used in production	3,173,000		3,173,000		3,173,000
4	Other operation	6,325,000	800,000 (5)	7,125,000		7,125,000
5	Maintenance	1,132,000		1,132,000		1,132,000
6	Depreciation	1,430,000	300,000 (2)	1,730,000		1,730,000
7	Rate Case Expense		150,000 (1)			-
8	Depreciation on Service Center		14,000 (3)	14,000		14,000
9	Depreciation on Pollution Ctrl Equipment		7,000 (4)	7,000		7,000
10	Pension Expense		50,000 (7)	50,000		50,000
11	Computer Programming Expense		\$ (5,300) (8)	(5,300)		(5,300)
12	Taxes other than income taxes	4,130,000		4,130,000		4,130,000
13	Income taxes	300,200			1,110,210	1,110,210
14	Total operating expense	19,391,200	1,250,000	20,256,700	1,110,210	21,366,910
15	Operating income	<u>\$ 1,634,800</u>				<u>\$ 2,959,820</u>
16	Rate Base (Line 10,Exh 1-4)					\$ 37,007,000
17	RATE OF RETURN					8.00%

ABC ELECTRIC COMPANY
Functionalization of Revenue Requirement – Schedule A

		Adjusted Electric	Factor	Production	Transmission	Customer Service
1	Fuel	3,173,000				
2	Purchased Power	2,901,000				
3	Operations	7,169,700				
4	Maintenance	1,132,000				
5	O&M Expense	14,375,700				
6	Depreciation	1,751,000				
7	Taxes other than Income	4,130,000				
8	Income Taxes	1,110,210				
9	Total Taxes	5,240,210				
10	Rate Case Expenses	0	(Rider RB)			
11	Total Operating Expense	21,366,910				
12	Rate Base	37,007,000				
13	Return on Rate Base	8.00%				
14	Operating Income	2,959,820				
15	Total Cost of Service	24,326,730				
16	Less: other revenues					
17	TOTAL REVENUE REQ.	24,326,730				

ABC ELECTRIC COMPANY
Functionalization of Revenue Requirement – Schedule A

		Adjusted Electric	Factor	Production	Transmission	Customer Service
1	Fuel	3,173,000	Production			
2	Purchased Power	2,901,000	Production			
3	Operations	7,169,700	Direct Allocation			
4	Maintenance	1,132,000	Rate Base (12)			
5	O&M Expense	14,375,700				
6	Depreciation	1,751,000	Net Plant in Service			
7	Taxes other than Income	4,130,000	O&M Expense			
8	Income Taxes	1,110,210	Rate Base			
9	Total Taxes	5,240,210				
10	Rate Case Expenses Total Operating					
11	Expense	21,366,910				
12	Rate Base	37,007,000	See Sched B			
13	Return on Rate Base	8.00%				
14	Operating Income	2,959,820				
15	Total Cost of Service	24,326,730				
16	Less: other revenues					
17	TOTAL REVENUE REQ.	24,326,730				

ABC ELECTRIC COMPANY
Functionalization of Revenue Requirement – Schedule A

		Adjusted Electric	Factor	Production	Transmission	Customer Service
1	Fuel	3,173,000	Production	3,173,000	0	0
2	Purchased Power	2,901,000	Production	2,901,000	0	0
3	Operations	7,169,700	Direct Allocation	2,867,880	3,584,850	716,970
4	Maintenance	1,132,000	Rate Base (12)			
5	O&M Expense	14,375,700				
6	Depreciation	1,751,000	Net Plant in Service (B)			
7	Taxes other than Income	4,130,000	O&M Expense (5)			
8	Income Taxes	1,110,210	Rate Base (12)			
9	Total Taxes	5,240,210				
10	Rate Base					
11	Total Operating Expense	21,516,910				
12	Rate Base	37,007,000	See Sched B			
13	Return on Rate Base	8.00%				
14	Operating Income	2,959,820				
15	Total Cost of Service	24,326,730				
16	Less: other revenues					
17	TOTAL REVENUE REQ.	24,326,730				

ABC Electric Company
Computation of Rate Base

	<u>Test Year/Period</u>
<u>Utility Property, Plant & Equipment:</u>	
1 Plant in Service	\$ 57,148,000
2 Accumulated Depreciation	<u>(19,799,000)</u>
3 Net Plant in Service	37,349,000
<u>Additions to Rate Base:</u>	
4 Average materials and supplies and fuel inventories	484,000
5 Regulatory assets - deferred expenses	800,000
6 Cash working capital	932,125
7 Additional request related to cash-working capital	515,875
8 Unrecovered cost of extraordinary retirement	400,000
9 New Service Center	400,000
10 Pollution Control Equipment	200,000
<u>Reductions to Rate Base:</u>	
11 Accumulated deferred income taxes	(3,967,000)
12 Customer Deposits	<u>(107,000)</u>
13 Total Rate Base	<u><u>\$ 37,007,000</u></u>

Schedule B – Rate Base

	Description	Electric Adjusted	Functionalization
1	Plant In Service:		
2	Total Production Plant	30,200,000	
3	Total Transmission Plant	5,000,000	
4	Total Distribution Plant	15,000,000	
5	Customer Service Center	400,000	
6	Total General Plant	7,148,000	
7	Total Plant In Service	57,748,000	
8	Less Accumulated Depreciation	(19,799,000)	
9	Net Total Plant In Service	37,949,000	
10	Total Construction Work In Progress	-	
	Plus:		
11	Fuel, Materials & Supplies	484,000	
12	Cash Working Capital	1,448,000	
13	Regulatory Asset - Deferred Expenses	800,000	
14	Unrecovered cost of extraordinary retirement	400,000	
	Minus		
15	Accumulated Deferred Income Tax	(3,967,000)	
16	Customer Deposits	(107,000)	
17	NET RATE BASE	37,007,000	
18	Requested Rate of Return		8.00%
	RETURN ON RATE BASE	2,959,820	

Schedule B – Rate Base

	Description	Electric Adjusted	Functionalization
1	Plant In Service:		
2	Total Production Plant	30,200,000	Production
3	Total Transmission Plant	5,000,000	Transmission
4	Total Distribution Plant	15,000,000	Distribution
5	Customer Service Center	400,000	Customer Service
6	Total General Plant	7,148,000	Plant in Service (7)
7	Total Plant In Service	57,748,000	
8	Less Accumulated Depreciation	(19,799,000)	Direct
9	Net Total Plant In Service	37,949,000	
10	Total Construction Work In Progress	-	
	Plus:		
11	Fuel, Materials & Supplies	484,000	Direct
12	Cash Working Capital	1,448,000	Rate Base
13	Regulatory Asset - Deferred Expenses	800,000	Direct
14	Unrecovered cost of extraordinary retirement	400,000	Direct (FTE)
	Minus		
15	Accumulated Deferred Income Tax	(3,967,000)	Rate Base
16	Customer Deposits	(107,000)	Customer Service
17	NET RATE BASE	37,007,000	
18	Requested Rate of Return		8.00%
	RETURN ON RATE BASE	2,959,820	

Schedule B - Rate Base

	Description	Electric Adjusted (1 + 2)	Functionalization	Production	Transmission & Distribution	Customer Service
1	Plant In Service:					
2	Total Production Plant	30,200,000	Production			
3	Total Transmission Plant	5,000,000	Transmission			
4	Total Distribution Plant	15,000,000	Distribution			
5	Customer Service Center	400,000	Customer Service			
6	Total General Plant	7,148,000	Plant in Service (7)			
7	Total Plant In Service	57,748,000				
8	Less Accumulated Depreciation	(19,799,000)	Direct			
9	Net Total Plant In Service	37,949,000				
10	Total Construction Work In Progress	-				
	Plus:					
11	Fuel, Materials & Supplies	484,000	Direct			
12	Cash Working Capital	1,448,000	Rate Base			
13	Regulatory Asset - DE	800,000	Direct			
14	Cost of Extra. Retirement	400,000	Direct (FTE)			
	Minus					
15	ADIT	(3,967,000)	Rate Base			
16	Customer Deposits	(107,000)	Customer Service			
17	NET RATE BASE	37,007,000				
18	Requested Rate of Return	8.00%		8.00%	8.00%	8.00%
	RETURN ON RATE BASE	2,959,820				

Schedule B - Rate Base

	Description	Electric Adjusted (1 + 2)	Functionalization	Production	Transmission & Distribution	Customer Service
1	Plant In Service:					
2	Total Production Plant	30,200,000	Production	30,200,000	-	-
3	Total Transmission Plant	5,000,000	Transmission	-	5,000,000	-
4	Total Distribution Plant	15,000,000	Distribution	-	15,000,000	-
5	Customer Service Center	400,000	Customer Service	-	-	400,000
6	Total General Plant	7,148,000	Plant in Service (7)			
7	Total Plant In Service	57,748,000		34,466,198	22,825,296	456,506
8	Less Accumulated Depreciation	(19,799,000)	Direct	(10,000,000)	(9,779,000)	(20,000)
9	Net Total Plant In Service	37,949,000		24,466,198	13,046,296	436,506
10	Total Construction Work In Progress	-				
	Plus:					
11	Fuel, Materials & Supplies	484,000	Direct	400,000	83,000	1,000
12	Cash Working Capital	1,448,000	Rate Base			
13	Regulatory Asset - DE	800,000	Direct	200,000	500,000	100,000
14	Cost of Extra. Retirement	400,000	Direct (FTE)	100,000	100,000	200,000
	Minus					
15	ADIT	(3,967,000)	Rate Base			
16	Customer Deposits	(107,000)	Customer Service	-	-	(107,000)
17	NET RATE BASE	37,007,000		23,562,351	12,854,326	590,324
18	Requested Rate of Return	8.00%		8.00%	8.00%	8.00%
	RETURN ON RATE BASE	2,959,820		1,884,517	1,028,089	47,214

Schedule B - Rate Base

	Description	Electric Adjusted (1 + 2)	Functionalization	Production	Transmission & Distribution	Customer Service
1	Plant In Service:					
2	Total Production Plant	30,200,000	Production	30,200,000	-	-
3	Total Transmission Plant	5,000,000	Transmission	-	5,000,000	-
4	Total Distribution Plant	15,000,000	Distribution	-	15,000,000	-
5	Customer Service Center	400,000	Customer Service	-	-	400,000
6	Total General Plant	7,148,000	Plant in Service (7)	4,266,198	2,825,296	56,506
7	Total Plant In Service	57,748,000		34,466,198	22,825,296	456,506
8	Less Accumulated Depreciation	(19,799,000)	Direct	(10,000,000)	(9,779,000)	(20,000)
9	Net Total Plant In Service	37,949,000		24,466,198	13,046,296	436,506
10	Total Construction Work In Progress	-				
	Plus:					
11	Fuel, Materials & Supplies	484,000	Direct	400,000	83,000	1,000
12	Cash Working Capital	1,448,000	Rate Base	921,941	502,961	23,098
13	Regulatory Asset - DE	800,000	Direct	200,000	500,000	100,000
14	Cost of Extra. Retirement	400,000	Direct (FTE)	100,000	100,000	200,000
	Minus					
15	ADIT	(3,967,000)	Rate Base	(2,525,788)	(1,377,931)	(63,280)
16	Customer Deposits	(107,000)	Customer Service	-	-	(107,000)
17	NET RATE BASE	37,007,000		23,562,351	12,854,326	590,324
18	Requested Rate of Return	8.00%		8.00%	8.00%	8.00%
	RETURN ON RATE BASE	2,959,820		1,884,517	1,028,089	47,214

ABC ELECTRIC COMPANY
Functionalization of Revenue Requirement – Schedule A

	Adjusted Electric	Factor	Production	Transmission	Customer Service	
1	Fuel	3,173,000	Production	3,173,000	0	0
2	Purchased Power	2,901,000	Production	2,901,000	0	0
3	Operations	7,169,700	Direct Allocation	2,867,880	3,584,850	716,970
4	Maintenance	1,132,000	Rate Base (12)	720,744	393,198	18,057
5	O&M Expense	14,375,700		9,662,624	3,978,048	735,027
6	Depreciation	1,751,000	Net Plant in Service	1,128,892	601,967	20,141
7	Taxes other than Income	4,130,000	O&M Expense			
8	Income Taxes	1,110,210	Rate Base	706,871	385,730	17,710
9	Total Taxes	5,240,210		3,482,850	1,528,585	228,876
10	Rate Case Expenses	150,000	Rate Base	100,209	42,882	6,908
11	Total Operating Expense	21,516,910		14,274,365	6,108,502	984,044
12	Rate Base	37,007,000	See Sched B	23,62,351	3,741,638	9,112,688
13	Return on Rate Base	8.00%		8.00%	8.00%	8.00%
14	Operating Income	2,959,820		1,884,517	1,028,089	47,214
15	Total Cost of Service	24,326,730		16,158,882	7,136,590	1,031,258
16	Less: other revenues					
17	TOTAL REVENUE REQ.	24,326,730		16,258,882	7,136,590	1,031,258

ABC ELECTRIC COMPANY
Functionalization of Revenue Requirement – Schedule A

	Adjusted Electric	Factor	Production	Transmission	Customer Service	
1	Fuel	3,173,000	Production	3,173,000	0	0
2	Purchased Power	2,901,000	Production	2,901,000	0	0
3	Operations	7,169,700	Direct Allocation	2,867,880	3,584,850	716,970
4	Maintenance	1,132,000	Rate Base (12)	720,744	393,198	18,057
5	O&M Expense	14,375,700		9,662,624	3,978,048	735,027
6	Depreciation	1,751,000	Net Plant in Service	1,128,892	601,967	20,141
7	Taxes other than Income	4,130,000	O&M Expense	2,775,979	1,142,855	211,166
8	Income Taxes	1,110,210	Rate Base	706,871	385,730	17,710
9	Total Taxes	5,240,210		3,482,850	1,528,585	228,876
10	Rate Case Expenses					
11	Total Operating Expense	21,366,910		14,274,365	6,108,501	984,044
12	Rate Base	37,007,000	See Sched B	23,62,351	3,741,638	9,112,688
13	Return on Rate Base	8.00%		8.00%	8.00%	8.00%
14	Operating Income	2,959,820		1,884,517	1,028,089	47,214
15	Total Cost of Service	24,326,730		16,158,882	7,136,590	1,031,258
16	Less: other revenues					
17	TOTAL REVENUE REQ.	24,326,730		16,158,882	7,135,590	1,031,258

Allocation of Production Plant

	Description	Electric Adjusted	Allocation Factor	Residential	Allocation General Service	Lighting
12	Plant In Service:	-				
13	Total Production Plant	30,200,000	Demand	8,913,813	21,107,910	178,276
14	Total Transmission Plant	-	Demand	-	-	-
15	Total Distribution Plant	-	Demand	-	-	-
16	Customer Service Center	-	Customer Count	-	-	-
17	Total General Plant	4,266,198	Plant in Service	870,551	2,061,464	17,411
18	Total Plant In Service	34,466,198		9,784,364	23,169,374	195,687
19	Less Accumulated Depreciation	(10,000,000)	Plant in Service	(2,040,577)	(4,832,087)	(40,812)
20	Net Total Plant In Service	24,466,198		7,743,787	18,337,287	154,876
21	Total Construction Work In Progress	-				
	Plus:	-				
22	Fuel, Materials & Supplies	400,000	Energy - Plant	100,731	295,240	4,029
23	Cash Working Capital	921,941	Energy - Meter	230,485	682,237	9,219
24	Regulatory Asset - Deferred Expenses	200,000	Energy - Meter	50,000	148,000	2,000
25	Unrecovered cost of extra. retirement	100,000	Energy - Meter	25,000	74,000	1,000
	Minus	-				
26	Accumulated Deferred Income Tax	(2,525,788)	Energy - Meter	(631,447)	(1,869,083)	(25,258)
27	Customer Deposits	-	Customer Count	-	-	-
28	NET RATE BASE	23,562,351		7,518,556	17,667,680	145,866
29	Return on Rate Base	1,884,517		601,334	1,413,061	11,666

	Description	Electric Adjusted	Allocation Factor	Residential	Allocation General Service	Lighting
12	Plant In Service:					
13	Total Production Plant	30,200,000				
14	Total Transmission Plant	5,000,000				
15	Total Distribution Plant	15,000,000				
16	Customer Service Center	400,000				
17	Total General Plant	7,148,000				
18	Total Plant In Service	57,748,000				
19	Less Accumulated Depreciation	(19,799,000)				
20	Net Total Plant In Service	37,949,000				
21	Total Construction Work In Progress	-				
	Plus:	-				
22	Fuel, Materials & Supplies	484,000				
23	Cash Working Capital	1,448,000				
24	Regulatory Asset - Deferred Expenses	800,000				
25	Unrecovered cost of extraordinary retirement	400,000				
	Minus	-				
26	Accumulated Deferred Income Tax	(3,967,000)				
27	Customer Deposits	(107,000)				
28	NET RATE BASE	37,007,000				
29	Return on Rate Base	2,959,820				

Simplified Allocation – Rate Base

	Description	Electric Adjusted	Allocation Factor	Residential	Allocation General Service	Lighting
12	Plant In Service:					
13	Total Production Plant	30,200,000	Demand			
14	Total Transmission Plant	5,000,000	Demand			
15	Total Distribution Plant	15,000,000	Demand			
16	Customer Service Center	400,000	Customer Count			
17	Total General Plant	7,148,000	Plant in Service			
18	Total Plant In Service	57,748,000				
19	Less Accumulated Depreciation	(19,799,000)	Plant in Service			
20	Net Total Plant In Service	37,949,000				
21	Total Construction Work In Progress	-				
	Plus:	-				
22	Fuel, Materials & Supplies	484,000	Energy			
23	Cash Working Capital	1,448,000	Energy			
24	Regulatory Asset - Deferred Expenses	800,000	Energy			
25	Unrecovered cost of extraordinary retirement	400,000	Energy			
	Minus	-				
26	Accumulated Deferred Income Tax	(3,967,000)	Energy			
27	Customer Deposits	(107,000)	Customer Count			
28	NET RATE BASE	37,007,000				
29	Return on Rate Base	2,959,820				

Simplified Allocation – Rate Base

	Description	Electric Adjusted	Allocation Factor	Residential	Allocation General Service	Lighting
12	Plant In Service:					
13	Total Production Plant	30,200,000	Demand	8,913,813	21,107,910	178,276
14	Total Transmission Plant	5,000,000	Demand	1,475,797	3,494,687	29,516
15	Total Distribution Plant	15,000,000	Demand	4,427,391	10,484,061	88,548
16	Customer Service Center	400,000	Customer Count	320,000	80,000	-
17	Total General Plant	7,148,000	Plant in Service	2,138,326	4,967,812	41,862
18	Total Plant In Service	57,748,000		17,275,327	40,134,471	338,202
19	Less Accumulated Depreciation	(19,799,000)	Plant in Service	(5,922,875)	(13,760,171)	(115,953)
20	Net Total Plant In Service	37,949,000		11,352,452	26,374,299	222,249
21	Total Construction Work In Progress	-				
	Plus:	-				
22	Fuel, Materials & Supplies	484,000	Energy	121,000	358,160	4,840
23	Cash Working Capital	1,448,000	Energy	362,000	1,071,520	14,480
24	Regulatory Asset - Deferred Expenses	800,000	Energy	200,000	592,000	8,000
25	Unrecovered cost of extraordinary retirement	400,000	Energy	100,000	296,000	4,000
	Minus	-				
26	Accumulated Deferred Income Tax	(3,967,000)	Energy	(991,750)	(2,935,580)	(39,670)
27	Customer Deposits	(107,000)	Customer Count	(85,600)	(21,400)	-
28	NET RATE BASE	37,007,000		11,058,102	25,734,999	213,899
29	Return on Rate Base	2,959,820		884,427	2,058,285	17,108

Allocation to Class

	Description	Electric Adjusted	Allocation Factor	Allocation		
				Residential	General Service	Lighting
1	Fuel and Purchased Power	3,173,000	Energy - Plant	799,047	2,341,991	31,962
2	Purchased Power	2,901,000	Energy - Plant	730,550	2,141,228	29,222
3	Operations	2,867,880	Demand	846,482	2,004,469	16,930
4	Maintenance	720,744	Demand	212,734	503,755	4,255
5	OPERATIONS & MAINTENANCE EXP	9,662,624		2,588,813	6,991,443	82,368
6	DEPRECIATION	1,128,892	Demand	333,203	789,025	6,664
7	Taxes Other Than Income	2,775,979	Revenues	472,346	1,227,700	13,330
8	Income Taxes	706,871	Rate Base	143,612	337,470	2,786
9	TOTAL TAX EXPENSE	3,482,849		615,958	1,565,170	16,116
11	TOTAL OPERATING EXPENSE	14,274,365		3,537,974	9,345,637	105,148
28	NET RATE BASE	23,562,351		7,518,556	17,667,680	145,866
29	Return on Rate Base	1,884,517		601,334	1,413,061	11,666
30	TOTAL REVENUE REQUIREMENT	16,158,882		4,139,308	10,758,699	116,815

Rate Design

Revenue
Requirement

Billing
Determinants

Residential

Customer Charge	234,400 Per Customer	12,000
Energy Charge (Summer)	3,801,078 Per kwh	45,000,000
Energy Charge (Winter)	2,046,734 Per Kwh	30,000,000
Fuel Charge	799,047 per kwh	45,000,000
	6,881,259	

General Service

Customer Charge	58,600 per customer	3,000
Energy Charge	5,226,727 per kwh per NCP kw (80%)	222,000,000
Demand Charge	9,644,640 12 mo. Ratchet)	38,000
Fuel Charge	2,341,991 per kwh	222,000,000
	17,271,958	

Lighting

Various depending on bulb wattage and usage

Rate Design

	Revenue Requirement	Billing Determinants	Rate
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Residential

Customer Charge	234,400 Per Customer	12,000	\$1.63
Energy Charge (Summer)	3,801,078 Per kwh	45,000,000	\$.08447
Energy Charge (Winter)	2,046,734 Per Kwh	30,000,000	\$.06822
Fuel Charge	799,047 per kwh	45,000,000	\$.01776
	6,881,259		

General Service

Customer Charge	58,600 per customer	3,000	\$1.63
Energy Charge	5,226,727 per kwh per NCP kw (80%)	222,000,000	\$.02354
Demand Charge	9,644,640 12 mo. Ratchet)	38,000	\$21.15
Fuel Charge	2,341,991 per kwh	222,000,000	\$.01055
	17,271,958		

Lighting

Various depending on bulb wattage and usage

Rate Design

	Revenue Requirement		Billing Determinants	Rate	Proof of Revenue	Surplus or Deficit
Residential						
Customer Charge	234,400	Per Customer	12,000	\$1.63	234,720	
Energy Charge (Summer)	3,801,078	Per kwh	45,000,000	\$.08447	3,801,150	
Energy Charge (Winter)	2,046,734	Per Kwh	30,000,000	\$.06822	2,046,600	
Fuel Charge	799,047	per kwh	45,000,000	\$.01776	799,200	
	6,881,259				6,881,670	411

General Service						
Customer Charge	58,600	per customer	3,000	\$1.63	58,680	
Energy Charge	5,226,727	per kwh per NCP kw (80%)	222,000,000	\$.02354	5,225,880	
Demand Charge	9,644,640	12 mo. Ratchet)	38,000	\$21.15	9,644,400	
Fuel Charge	2,341,991	per kwh	222,000,000	\$.01055	2,342,100	
	17,271,958				17,271,060	(898)

Lighting Various depending on bulb wattage and usage

Questions?