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ORIGINAL

MEMORANDUM

TO: Docket Control

FROM: Ernest G. Johnson
Director
Utilities Division

EA for EGJ

DATE: December 11, 2008

RE: INFORMATION IN RESPONSE TO COMMISSIONER PIERCE'S NOVEMBER 14, 2008 LETTER. NAVOPACHE ELECTRIC COOPERATIVE (DOCKET NO. E-01787A-07-0576)

The attached information is being filed in response to the letter of Commissioner Pierce filed on November 14, 2008. The information requested was "a table listing of Arizona utilities' (1) yearly kWhs, (2) projected renewable energy costs and (3) projected renewable energy costs per kWh."

Table 1 lists each utility subject to the Renewable Energy Standard and Tariff ("REST") rules, by 2007 kWh sales, with the corresponding 2009 REST kWh requirement, 2009 projected utility budget, and cost per kWh of meeting the 2009 REST requirement. Table 2 lists the same type of information for the distributed portion of the REST requirement. Table 3 includes information for the non-distributed portion of the REST requirement.

Table 4 includes a different approach to cost analysis. It is a system life kWh cost analysis, using information from the proposed 2009 implementation plan of Arizona Public Service.

EGJ:BEK:tdp

Originator: Barbara Keene

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Table 1

Renewable Energy Standard Costs

by kWh Sales

Utility	2007 kWh Sales (from Annual Reports)	2009 REST kWh Requirement (2 %)	2009 REST Cost (from Implementation Plans)	2009 REST Cost per kWh
APS-Compliance Plan	29,171,321,000	583,426,420	$78,400,000	$0.13438
Current Funding	29,171,321,000	583,426,420	$37,000,000	$0.06342
Alternate Funding	29,171,321,000	583,426,420	$47,200,000	$0.08090
TEP-Full Compliance Plan	9,634,406,796	192,688,136	$38,509,236	$0.19985
Best Value Plan	9,634,406,796	192,688,136	$17,010,199	$0.08828
Staff Proposed Plan	9,634,406,796	192,688,136	$29,686,056	$0.15406
Morenci (with mining load)	1,850,055,247	37,001,105	$2,408,469	$0.06509
(without mining load)	30,134,828	602,697	$158,169	$0.26244
UNS Electric-Full Compliance Plan	1,681,832,000	33,636,640	$6,460,086	$0.19206
Best Value Plan	1,681,832,000	33,636,640	$2,861,259	$0.08506
Staff Proposed Plan	1,681,832,000	33,636,640	$5,042,877	$0.14992
AEPCO	1,475,371,632	29,507,433	$1,364,058	$0.04623
Duncan Valley				
Graham County				
Mohave				
Trico				
Sulphur Springs Valley	796,093,821	15,921,876	$3,429,006	$0.21536
Navopache	410,360,000	8,207,200	$2,505,247	$0.30525
Ajo Improvement	12,630,592	252,612	$62,253	$0.24644

Table 2

Distributed Renewable Energy Standard Costs
by kWh Sales

Utility	2009 REST kWh Requirement	2009 Distributed REST kWh Requirement (15%)	2009 Distributed REST Cost	2009 Distributed REST Cost per kWh
APS-Compliance Plan[5]	583,426,420	87,513,963	$66,250,000	$0.75702
Current Funding[6] (80% of Distr. req.)	583,426,420	70,011,170	$25,000,000	$0.35709
Alternate Funding[5]	583,426,420	87,513,963	$35,050,000	$0.40051
TEP-Full Compliance Plan[1]	192,688,136	28,903,220	$30,992,444	$1.07228
Best Value Plan[1]	192,688,136	28,903,220	$9,671,567	$0.33462
Staff Proposed Plan[1]	192,688,136	28,903,220	$22,215,239	$0.76861
Morenci (with mining load)	37,001,105	5,550,166	$910,030	$0.16396
(without mining load)	602,697	90,404	$79,743	$0.88207
UNS Electric-Full Compliance Plan[3]	33,636,640	5,045,496	$5,736,533	$1.13696
Best Value Plan[3]	33,636,640	5,045,496	$2,147,706	$0.42567
Staff Proposed Plan[3]	33,636,640	5,045,496	$4,319,324	$0.85608
AEPCO[4]	29,507,433	4,426,115	$1,033,669	$0.23354
Duncan Valley				
Graham County				
Mohave				
Trico				
Sulphur Springs Valley[2]	15,921,876	2,388,281	$2,617,715	$1.09607
Navopache	8,207,200	1,231,080	$500,000	$0.40615
Ajo Improvement	252,612	37,892	$38,555	$1.01750

[1] The breakdowns for which budget line items are distributed and non-distributed were developed through discussions with TEP. Costs not related to just distributed or non-distributed activities were allocated 50/50 to each category. Costs for "Reporting" and "Outside Coordination and Support" were split 50/50 between categories. The costs for "Renewable Energy Hardware Development" were split 50/50, except the portion for "operation and maintenance of renewable generation systems cost, etc." which was allocated 100 % to non-distributed costs.

[2] Costs for "Loan Program," "Program Costs," and "CREB Bond Repayment" were allocated 50/50 between distributed and non-distributed categories.

[3] The breakdowns for which budget line items are distributed and non-distributed were developed through discussions with UNS Electric. Costs not related to just distributed or non-distributed activities were allocated 50/50 to each category. Costs for "Reporting" and "Outside Coordination and Support" were split 50/50 between categories.

[4] Distributed costs include "Rebate Program," "PV for Schools," "Habitat for Humanity," "Advertising," and 50% of "Administration."

[5] Costs of $1,500,000 for Research, Development, Commercialization, and Integration were allocated 50/50 between distributed and non-distributed categories.

[6] Costs of $1,200,000 for Research, Development, Commercialization, and Integration were allocated 50/50 between distributed and non-distributed categories.

Table 3

Non-Distributed Renewable Energy Standard Costs
by kWh Sales

Utility	2009 REST kWh Requirement	2009 Non-Distributed REST kWh (Total Dist.)	2009 Non-Distributed REST Cost	2009 Non-Distributed REST Cost per kWh
APS-Compliance Plan[1]	583,426,420	495,912,457	$12,150,000	$0.02450
Current Funding[2]	583,426,420	513,415,250	$12,000,000	$0.02337
Alternate Funding[1]	583,426,420	495,912,457	$12,150,000	$0.02450
TEP-Full Compliance Plan[3]	192,688,136	163,784,916	$7,516,792	$0.04589
Best Value Plan[3]	192,688,136	163,784,916	$7,338,632	$0.04481
Staff Proposed Plan[3]	192,688,136	163,784,916	$7,470,817	$0.04561
Morenci (with mining load)	37,001,105	31,450,939	$1,340,270	$0.04261
(without mining load)	602,697	512,292	$78,426	$0.15309
UNS Electric-Full Compliance Plan[5]	33,636,640	28,591,144	$723,553	$0.02531
Best Value Plan[5]	33,636,640	28,591,144	$713,553	$0.02496
Staff Proposed Plan[5]	33,636,640	28,591,144	$723,553	$0.02531
AEPCO[6]	29,507,433	25,081,318	$330,389	$0.01317
Duncan Valley				
Graham County				
Mohave				
Trico				
Sulphur Springs Valley[4]	15,921,876	13,533,595	$811,293	$0.05995
Navopache	8,207,200	6,976,120	$2,005,247	$0.28744
Ajo Improvement	252,612	214,720	$23,698	$0.11037

[1] Costs of $1,500,000 for Research, Development, Commercialization, and Integration were allocated 50/50 between distributed and non-distributed categories.

[2] Costs of $1,200,000 for Research, Development, Commercialization, and Integration were allocated 50/50 between distributed and non-distributed categories.

[3] The breakdowns for which budget line items are distributed and non-distributed were developed through discussions with TEP. Costs not related to just distributed or non-distributed activities were allocated 50/50 to each category. Costs for "Reporting" and "Outside Coordination and Support" were split 50/50 between categories. The costs for "Renewable Energy Hardware Development" were split 50/50, except the portion for "operation and maintenance of renewable generation systems cost, etc." which was allocated 100 % to non-distributed costs.

[4] Costs for "Loan Program," "Program Costs," and "CREB Bond Repayment" were allocated 50/50 between distributed and non-distributed categories.

[5] The breakdowns for which budget line items are distributed and non-distributed were developed through discussions with UNS Electric. Costs not related to just distributed or non-distributed activities were allocated 50/50 to each category. Costs for "Reporting" and "Outside Coordination and Support" were split 50/50 between categories.

[6] Non-distributed costs include "Large Scale Purchase Power Contract Program," "Large Scale Generating Program," "Educational Grant Program," "Research and Development," and 50% of "Administration."

A Different Approach to kWh Cost Analysis

APS REST Plan: System Life KWH Cost Analysis by Commission Staff

The attached analysis for the APS 2009 REST Plan shows the system life kWh cost for renewables, either installed in 2009 or contracted for in 2009. The assumption is a 30-year system life for systems installed and a 30-year contract for kWh purchases.

The key in this type of analysis is to ensure that a true "apple to apple" comparison is made between the utility options. For instance, if a utility chooses a kWh contract or offers a Production-Based Incentive ("PBI") for a renewable project, that utility will pay, EVERY YEAR FOR THE NEXT 30 YEARS, for the kWh produced each year.

Conversely, if a utility chooses to offer an Up-Front Incentive ("UFI") for the installation of a distributed solar generator, the utility will pay ONCE in 2009 for 30 years of future electricity. There will be no additional future payments for a UFI project, since the solar fuel is FREE.

An "apples to oranges" analysis would attempt to compare these two renewable payment options based on the utility cost in the first year, 2009. That would be a flawed analysis, neglecting to consider the following 29 years (2010-2038) of FREE electricity from the UFI project and also failing to consider the 29 years (2010-2038) of PBI payments that the utility would have to make for a PBI project or 30-year contract purchase.

Details of the Analysis for Table 4

Column B of the spreadsheet comes directly from the APS 2009 REST Plan, Exhibit 1. Column C comes directly from APS 2009 REST Plan, Exhibit 2. Column D shows the cost from 2010-2038 for annual purchases of contracted wholesale renewable kWh or for PBI incentives from 2010-2038. Column E is the sum of costs included in Column C plus Column D. Column F is the 30-year kWh output for each selected resource listed in Column A. Column G is the life-cycle cost per kWh for renewables procured in 2009 which is calculated by taking the total costs from Column E divided by the total kWh in Column F.

Table 4
APS 2009 REST PLAN: SYSTEM LIFE KWH COST ANALYSIS BY COMMISSION STAFF

A	B KWH	C COST YR 1 2009	D COST YR 2-30 2010-2038	E COST 30 YEARS	F 30-YEAR OUTPUT KWH	G COST PER KWH	
APS 2009 Retail Electric Sales	29,531,727,000						
APS 2009 REST Requirement	590,634,540						
Renewable Generation	502,039,359	$ 9,800,000	$ 284,200,000	$295,600,000	15,061,180,770	$ 0.020	Renewable Generation
Renewable Generation Admin		$ 1,600,000	0	$ 1,600,000			
Distributed Energy	88,595,181						
Existing DE Resources	26,033,000				780,990,000		
Up-Front-Incentive Projects		$ -					
Production-Based Incentives		$ 3,300,000	$ 95,700,000	$ 99,000,000			
New DE Resources	62,562,181				1,876,865,430	$ 0.075	Distributed Energy
Up-Front-Incentive Projects		$ 50,600,000	0	$ 50,600,000			
Production-Based Incentives		$ 1,100,000	$ 31,900,000	$ 33,000,000			
Contracts		$ 200,000	$ 5,800,000	$ 6,000,000			
DE Administration		$ 10,300,000		$ 10,300,000			
R & D, Comm. & Integration		$ 1,500,000		$ 1,500,000			
TOTALS:		$ 78,400,000		$497,600,000	17,719,036,200	$ 0.028	Average Cost/kwh

Notes:

Column B: From APS 2009 REST Plan, Exhibit 1

Column C: From APS 2009 REST Plan, Exhibit 2

Column G: Total from Column E divided by the Total from Column F