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BEFORE THE ARIZONA CORPORATION COMMISSION

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AZ CORP COMMISSION
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SUSAN BITTER SMITH

IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A HEARING TO DETERMINE THE FAIR VALUE OF THE UTILITY PROPERTY OF THE COMPANY FOR RATEMAKING PURPOSES, TO FIX A JUST AND REASONABLE RATE OF RETURN THEREON, TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP SUCH RETURN

DOCKET NO. E-01345A-11-0224

STAFF'S NOTICE OF FILING DIRECT TESTIMONY

The Utilities Division Staff ("Staff") of the Arizona Corporation Commission ("Commission") hereby files the Direct Testimony of Staff Witnesses Dennis M. Kalbarczyk and James Letzelter (redacted).

RESPECTFULLY SUBMITTED this 19th day of June 2014.

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Arizona Corporation Commission
DOCKETED
JUN 19 2014

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BEFORE THE ARIZONA CORPORATION COMMISSION

BOB STUMP
Chairman
GARY PIERCE
Commissioner
BRENDA BURNS
Commissioner
BOB BURNS
Commissioner
SUSAN BITTER SMITH
Commissioner

IN THE MATTER OF THE APPLICATION OF THE ARIZONA PUBLIC SERVICE COMPANY FOR A REQUEST TO APPROVE A FOUR CORNERS RATE RIDER AS DEFINED IN APPROVED SETTLEMENT AGREEMENT AT DECISION NO. 73183 TO ALSO INCLUDE AMORTIZATION OF RELATED DEFERRALS AUTHORIZED IN DECISION NO. 73130	DOCKET NO. E-01345A-11-0224

DIRECT

TESTIMONY

OF

DENNIS M. KALBARCZYK

CONSULTANT

ON BEHALF OF THE STAFF OF THE

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

JUNE 19, 2014

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EXHIBITS

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Dennis M. Kalbarczyk. My business address is 910 Piketown Road, Harrisburg, Pennsylvania 17112.

Q. By whom are you employed and in what capacity?

A. I am the principal of Utility Rate Resources, and work frequently with the Liberty Consulting Group, Inc., ("Liberty"). Liberty has been engaged by the Utilities Division ("Staff") of the Arizona Corporation Commission ("ACC" or "Commission") in the review of the Arizona Public Service Company's ("APS" or "Company") application for approval of a Four Corners Rate Rider ("Rider"). This application was contemplated by two Commission Decisions: 1) Decision No. 73138 (May 24, 2012) which approved a settlement agreement in APS's last rate case providing for possible rate treatment related to any acquisition by APS of Southern California Edison's ("SCE") share of Four Corners Units 4 and 5; and 2) Decision No. 73130 (April 24, 2012) which authorized associated cost deferrals, as part of APS's application for authorization for the purchase of generating assets from SCE. In brief, the Rider would include the revenue requirement associated with APS's: (1) acquisition of the SCE interest in Four Corners Units 4 and 5; and (2) recovery of the cost deferrals authorized in Decision No. 73130.

Q. Have you prepared a detailed summary of your qualification?

A. Yes. Exhibit DMK-2 provides it.

Q. What is the purpose of your testimony?

A. I am addressing, on behalf of Staff, APS's revenue requirement request and the associated Rider designed to recover that revenue requirement, as submitted by APS witnesses Jeffrey B. Guldner and Elizabeth A. Blankenship. Mr. James Letzelter of Liberty addresses the prudence of the transaction and related issues on behalf of Staff.

II. INTRODUCTION AND BACKGROUND

Q. Briefly state your understanding of the nature of this proceeding.

A. In Decision No. 73183, the settlement agreement approved by the Commission provided for the rate case to be held open for the sole purpose of allowing APS to file a request, no later than December 31, 2013, for adjustment of its rates to reflect the proposed Four Corners transaction. On December 30, 2013, APS filed an application with the Commission, requesting an overall revenue increase of approximately $62,529,000, in order to recover the costs associated with its acquisition of the interest of SCE in Four Corners Units 4 and 5. APS also requests a revenue increase due to its acquisition of an auxiliary boiler, and associated operating costs not currently reflected in rates. The APS application also seeks recovery of costs associated with the closure and retirement of Units 1-3 and the removal of certain expenses currently being recovered through ACC-approved rates, but that will no longer be incurred as a result of these generating facility acquisitions. Mr. Guldner's testimony provides a general overview of the application and Commission Decision Nos. 73130 and 73183. Ms. Blankenship's testimony provides support for the development of the overall revenue requirement proposed by APS and for the associated change in rates.

Q. Please state your understanding of the requested change in rates.

A. APS seeks approval of an acquisition-related surcharge to be billed to its customers in addition to billing its currently approved retail rates. This Rider would consist of a 2.22 percent monthly surcharge to be applied to revenues billed under existing rates, effective as of July 1, 2014. Ms. Blankenship's testimony at Attachment EAB-9, Schedule 5, discusses the application of the proposed Rider. Mr. Guldner's testimony describes the typical bill impact by customer class, should the Rider be approved as filed.

III. SUMMARY OF RECOMMENDATIONS

Q. How did APS calculate the proposed revenue requirements?

A. APS based its request on the historic test year data used in its last rate case, making adjustments on a pro forma basis to reflect known and measurable changes to plant-in-service and accumulated reserves for depreciation to determine net book value. APS also included an acquisition adjustment, which it reflected in the value of rate base that it attributes to APS's acquired interest in Four Corners Units 4 and 5. These values are not reflected in APS's current rates. The sum of the net book value and the acquisition adjustment is the value that APS proposes to add to its rate base as the fair value of Units 4 and 5.

APS based its annual depreciation and amortized amounts for these two values upon a 24-year remaining life. APS is also seeking recovery of associated operating costs, and made adjustments on a pro forma basis to reflect known and measurable changes to the operating expenses associated with Units 4 and 5 that current rates do not reflect. APS also calculated costs associated with the closure and retirement of Units 1, 2, and 3. These costs comprise remaining book value and closing cost, which APS proposes to amortize over a 10-year period. The APS revenue requirement and surcharge calculation also considered changes in income taxes.

Q. Briefly explain your understanding of the deferrals authorized by the Commission in Decision No. 73130.

A. Commission Decision No. 73130 authorized an accounting order allowing APS to defer the non-fuel costs associated with APS's acquisition of SCE's interest in Units 4 and 5 and the retirement of Units 1-3. Decision No. 73130 at footnote 122, on page 37, described the "non-fuel costs" authorized for deferral as: depreciation, amortization of the acquisition adjustment, decommissioning costs, operations and maintenance costs, property taxes, final coal reclamation costs, the documented debt costs of acquiring SCE's interest in Units 4 and 5, and miscellaneous other costs. The footnote also referenced estimated Units 1-3 wind down costs that would be incurred between the acquisition date of Units 4 and 5 through 2016.

Q. Please summarize Liberty's overall review process.

A. Liberty undertook the following work tasks in reviewing APS's proposed revenue requirement and associated surcharge:

- Reviewing the testimony submitted with the application
- Reviewing supporting schedules and workpapers submitted with application
- Testing supporting schedules and workpapers for reasonableness and accuracy
- Reviewing and verifying the calculation of the revenue requirement
- Reviewing and verifying the calculation of the Rider
- Reviewing and verifying the impact on the overall rate of return before and after the Rider
- Reviewing the proposed Rider's structure and administration.

As part of our review and verification process, Liberty interviewed responsible representatives of APS, submitted more than 100 data requests, and conducted an on-site visit to test the accuracy and reasonableness of information supporting APS's calculation of the revenue requirement underlying the Rider.

Liberty was able to identify and verify the accuracy of all key elements comprising the $62,529,000 proposed revenue requirement and the proposed 2.22 percent monthly Rider surcharge.

Q. Does Liberty recommend approval of the $62.53 million revenue requirement and the 2.22 percent monthly Rider surcharge as-filed?

A. No. Liberty does not agree with APS's use of 8.33 percent as a fair value rate of return on rate base. APS included an 8.33 percent return on the proposed rate base value of Units 4 and 5.

Decision No. 73183 adopts a Fair Value Rate of Return ("FVROR") of 6.09 percent, which is applied to APS's fair value rate base. We consider that rate to be the proper determinant of the return on fair value rate base, which would include the acquisition adjustment.

Q. Describe the nature of, reasons for, and amount of the acquisition adjustment proposed by APS.

A. APS proposes to include a $255 million acquisition adjustment, which reflects the premium the Company paid above the net book value of the asset acquired.[1] In our experience, traditional ratemaking generally does not allow inclusion of acquisition adjustments as a rate base element when determining an overall revenue requirement.

The settlement agreement adopted in Decision No. 73183 did not expressly address the ratemaking treatment for the acquisition adjustment proposed by APS. Decision No. 73130, however, did acknowledge the possibility for recognizing an acquisition adjustment in rates.

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[1] A net rate base value of $127,629,000 results when associated Asset Retirement Obligations and Coal Reclamation costs of $34,123,498 and $92,950,926, respectively, are removed from rate base consideration, as APS appropriately reflected in its Schedule 4.b, Column C of Ms. Blankenship's testimony.

Q. What is your understanding of the ACC's approach with respect to allowing recovery of acquisition adjustments?

A. It is my understanding that the Commission includes acquisition premiums in rate base only under limited extraordinary circumstances. Further, the Commission has determined in the past that, "if a party believes that an acquisition adjustment is necessary to bring about an efficiency-enhancing transaction, it should come to the Commission and establish at the very least: (1) the transaction will not likely occur but for an acquisition adjustment; (2) that operational efficiencies will likely result from the transaction; and (3) in a subsequent rate case, that operational efficiencies resulted from the transaction."[2]

Q. Does Liberty believe that the circumstances of the Four Corners transaction meet these criteria?

A. Yes. We believe that the transaction reasonably satisfies these criteria, and makes rate recognition of the acquisition premium appropriate.

Decision No. 73130 authorized APS to proceed with the transaction. APS explained that exceptional circumstances warranted an exemption from the "self-build" moratorium imposed by the Commission in Decision No. 67744 (April 7, 2005). APS also stated that the transaction would provide good value for customers and that it would require a significant investment. APS requested Commission approval to defer costs related to the transaction for recovery as part of a subsequent proceeding. The Commission determined that it was reasonable to authorize such a deferral, subject to later examination for prudence, errors, or inappropriate application of the requirements of Decision No. 73130.

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[2] See In the Matter of the Joint Application of Black Mountain Gas Company and SemStream Arizona Propane, L.L.C. for Approval of the Transfer of the Black Mountain Page Division and Related Assets to SemStream Arizona Propane, L.L.C., Consolidated Docket Nos. G-03703A-06-0694 and G-20471A-06-0694.

Our review has concluded that the transaction was reasonable, prudent, timely, and remains expected to provide good value for customers, and did require significant investment. We also believe that it is reasonable to conclude that the ability to recover actual costs (which include the acquisition premium) reflects a necessary and proper inducement for entry into a transaction that has value for customers.

We therefore believe that the unique circumstances of the acquisition, the results that it will provide for customers, and Decision No. 73130's prior recognition of the potential for rate recognition of the acquisition adjustment combine to warrant inclusion of the acquisition premium in the proposed Rider.

Q. What then, does Liberty recommend with respect to the acquisition adjustment?

A. Given Liberty's conclusion that the acquisition was reasonable, prudent, and appropriately timed, we believe that the acquisition adjustment should be included in rate base, at a 6.09 percent FVROR. This approach will require a downward adjustment to the jurisdictional revenue requirement in the amount of $8,151,604 to $54,377,396 from $62,529,000 million and, would reduce the surcharge rate by 0.29 of a percentage point, reducing the proposed monthly surcharge rate to 1.93 percent.

Q. Are there unique circumstances associated with this Acquisition Adjustment that should be considered by the Commission?

A. Yes, to wit:

- Significant policy changes in another state (California) presented APS with a need to respond to uncertainties about the future viability of its interests in a fairly short period of time;

- Environmental requirements applicable across the five Four Corners units caused APS to face significant compliance costs for units with differing economic characteristics and costs (and therefore value to customers);
- The circumstances also provided APS with a unique opportunity to rearrange its ownership position through unit retirements and share acquisitions outside the traditional self-build and market solicitation approaches;
- Delays in pursuing the non-traditional approach made available to APS would risk higher fuel and purchased power costs for customers, and produce an ownership structure whose members had differing interests and objectives for a group of assets that APS still viewed as a long term contributor to its system;
- The non-traditional opportunities available to APS enabled the company to make an acquisition on terms estimated to provide substantial positive value to customers when compared with the available alternatives.

Q. Although this is an Acquisition Adjustment per the National Association of Regulatory Utility Commissioners and/or GAAP, does Staff believe this Acquisition Adjustment gives rise to different considerations than when Utility A purchases all or part of Utility B at more than book value and Utility A will take over service of Utility B's customers?

A. Other than that both are classified as an Acquisition Adjustment, they should not be considered the same. APS's purchase in this case is simply a purchase of additional capacity, not of a service area or customers that it will serve. This purchase should be considered in light of the factors previously discussed. In the case of Utility A purchasing Utility B for more than book value, the Commission should consider the benefits, if any, that the customers of Utility B will receive in exchange for being served by Utility A if Utility A will be asking for an increase in rates simply to cover the added cost of the Acquisition Adjustment.

Q. Why does Liberty disagree with APS's proposed return component applicable to the rate base component of the proposed Rider?

A. The result of Decision No. 73183 was the application of a FVROR of 6.09 percent to APS's fair value rate base. We thus believe that this rate comprises the appropriate one for application to APS's Four Corner's fair value rate base when determining the surcharge rate.

Ms. Blankenship's testimony at page 8 states that the assets APS has acquired were initially recorded at fair value. She observed that the "fair value" she is referring to is an accounting "fair value" rather than "fair value" rate base as typically discussed in Arizona rate cases. Nevertheless, she acknowledges that the two measures are mathematically equivalent in this case.

Schedule 4, Line 6, of Ms. Blankenship's testimony shows that the increase to APS's required operating income ($18,128,500) is the same under all three methods for measuring rate base (Original Cost, RCND, and Fair Value). This amount is based upon the $217,629,000 increased rate base value multiplied by a constant 8.33 percent rate of return. APS's responses to data requests indicated minor changes to the as-filed rate base values. The changes produce a slightly lower adjusted rate base value of $217,352,003.

Applying the fair value rate of return of 6.09 percent on APS's fair value rate base produces required operating income of $13,236,737 ($217,352,003 x 6.09 percent), which is $4,891,763 less than the $18,128,500 sought by APS. We therefore consider APS's proposed revenue requirement to be overstated by approximately $8,151,604 ($4,891,763 times the 1.6566 tax gross-up factor). Dividing the approximately $8,151,604 by the $2,810,916,000 of 2010 Base Revenues (from line 11 of Schedule 4) produces a 0.29 of a percentage point reduction to the APS-proposed 2.22 percent monthly surcharge. A monthly surcharge of 1.93 percent results from this adjustment.

Q. What is your view of the remaining elements of the revenue requirement calculation proposed by APS?

A. Liberty generally found that APS has accurately calculated and appropriately supported the other revenue requirement elements it has proposed. There are, however, some exceptions. APS has provided estimates for some cost items included in the Four Corners Units 4 and 5 revenue requirement. Liberty also understands that some costs related to the closure and retirement of Units 1-3 may increase if the proceeding is not finalized by the proposed effective date of July 1, 2014.

Liberty has requested that APS continue to provide updates to its cost estimates as actual data becomes available. Liberty believes it is proper and important to update the surcharge rate calculation as more current data becomes available during the remainder of this proceeding.

IV. RATE BASE ELEMENT DETAILS

Q. What are the major rate base elements APS has claimed in this proceeding?

A. As shown in the table below, APS's rate base claim includes three major elements: a) acquisition of SCE's interest in Units 4 and 5 having an approximate $52 million net book value (original cost value less accumulated depreciation as of December 31, 2013); b) $8,623,930 for auxiliary boiler; and c) a $254,787,014 acquisition adjustment to reflect the amount paid that exceeds the net book value of the asset acquired.[3]

For the reasons discussed earlier, Liberty believes that the Commission should recognize the acquisition adjustment as a rate base value in this proceeding. The revenue requirement

[3] The table reflects an adjusted rate base value of $217.352 million based upon APS's data request responses. Those responses change the as-filed $217.629 million rate base value by $277,000. APS's data request responses further indicated that the as-filed operating expenses of $19.617 million would be reduced to $19.588 million (for a difference of approximately $29,000).

determination, however, should be based upon the FVROR of 6.09 percent, rather than APS's proposed 8.33 percent.

Four Corners Pro Forma Rate Base	**Amount**
Plant in Service:	
Acquired Plant	$605,364,014
Acquisition Adjustment	254,787,393
Auxiliary Boiler-Plant	8,623,930
Auxiliary Boiler-Startup Steam Supply	2,694,978
Deferred Cost-O&M Expense (12/30/13 - 6/30/14)	38,252,000
Deferred Cost-Depr & Amort Expense (12/30/13 - 6/30/14)	4,694,000
Deferred Cost-Property Taxes (12/30/13 - 6/30/14)	3,208,000
Deferred Cost-Debt Return (12/30/13 - 6/30/14)	4,533,268
Total Plant in Service	**$922,157,582**
Accumulated Depreciation:	
Acquired Plant	$-539,326,651
SCE Additional Reserve (9/1/13 - 12/31/13)	-14,738,975
APS Additional Reserve (1/1/14 - 6/30/14)	-1,088,271
Cost of Removal Reserve	916,566
Boiler Depreciation (5/1/13 - 6/30/14)	-286,000
Total Accumulated Depreciation	**$-554,523,331**
Plus Deferred Debits:	
Plant, Materials & Operating Supplies	$4,468,827
Total Deferred Debits	**$4,468,827**
Less Deferred Credits:	
Deferred Taxes	$-20,026,580
Asset Retirement Obligation Liability	-34,123,498
Other Deferred Credits (Including Coal Reclamation)	-92,950,926
Total Deferred Credits	**$-147,101,004**
Total Company Rate Base	**$225,002,074**
APS Allocation Rate	96.60%
APS Rate Base	**$217,352,003**

We are still in the process of examining the potential removal from base rates of any rate base costs associated with Units 1-3.

V. OTHER REVENUE REQUIREMENT REVIEW DETAILS

Q. How did APS determine the $62.53 million annual revenue deficiency and the resulting 2.22 percent monthly surcharge?

A. The Company's filing computed the incremental Rate Base impact of the Four Corners acquisition to be approximately $217,629,000. The Company also computed the incremental annual operating expenses associated with operating the Four Corners acquisition to be $19,617,000. To compute the $62,529,000 revenue deficiency, the Company applied its proposed 8.33 percent rate of return and the revenue conversion factor approved by the Commission in the last rate case. The Company computed the 2.22 percent monthly surcharge by dividing the $62,529,000 revenue requirement by the 2010 Adjusted Base Revenues from its last rate case.

As I noted earlier, APS's as-filed $217,629,000 and $19,617,000 of rate base and operating expense values should be reduced to $217,352,003 and $19,587,962, respectively based upon information provided in responses to data requests. We also recommend that the required revenue requirement be based upon the Commission authorized 6.09 percent FVROR. The table below provides a summary of the revenue requirement and surcharge rates based upon APS's as-filed amounts and the updated revenue requirement needs when considering the slightly lower operating expenses and required return on the lower rate base value at the Commission authorized 6.09 percent FVROR. Liberty's proposed adjustments produce a $54,377,396 revenue requirement and 1.93 percent monthly surcharge rate. These adjustments generate reductions of $8,151,604 to the revenue requirement and 0.29 of a percentage point to the monthly surcharge rate.

Item	APS As-Filed Pro Forma Adjustments	Liberty Proposed
Adjusted Rate Base	$217,629,000	$217,352,003
Adjusted Operating Income	-19,617,000	-19,587,962
Current Rate of Return	-9.01%	-9.01%
Rate of Return	8.33%	6.09%
Required Return	$18,128,500	$13,236,737
Operating Income Deficiency	$37,745,500	$32,824,699
Gross Revenue Conversion Factor	1.6566	1.6566
Total Revenue Deficiency	**$62,529,000**	**$54,377,396**
2010 Adjusted Base Revenues	$2,810,916,000	$2,810,916,000
Percentage Rate Surcharge	**2.22%**	**1.93%**
Change in Revenue Deficiency		**($8,151,604)**
Change in % from As-Filed		**(0.29%)**

Q. Please explain how the Company accounted for the Four Corners acquisition on its books.

A. The book value (cost less accumulated depreciation) of the acquired plant is approximately $60,778,500 (which includes $8,623,930 for the auxiliary boiler). In addition to this amount, the Company added approximately $12,963,000 for the cost of other assets related to the Four Corners acquisition. The Company then deducted approximately $147,355,000 for the estimated cost of assumed liabilities (*e.g.*, asset retirement obligations, coal reclamation, accounts payable) related to the Four Corners acquisition. The table below shows that this calculation produces a net book value for all recorded assets and liabilities of approximately $-73,613,500. The cash price that the Company has paid for SCE's share of Units 4 and 5 is approximately $181,127,000. Therefore, the difference between the cash price paid of $181,127,000 and the book value of the acquired assets and liabilities of $-73,613,500 represents an acquisition adjustment of approximately $254,787,393, which the next table shows.

Item	Four Corners Accounting
Plant Net Book Value (Cost less Accumulated Depreciation)	$60,778,500
Plus Materials & Supplies, Prepaid Expenses	12,963,000
Less Assumed Liabilities and Deferred Credits	-147,355,000
Net Book Value of all Assets & Liabilities	**$-73,613,500**
Acquisition Adjustment	$254,741,000
Cash Price Paid	**$181,127,000**

Q. Was Liberty able to verify the cost components of the acquisition of Units 4 and 5 and of the retirement of Units 1-3?

A. Yes. Liberty traced all costs associated with the acquisition of Units 4 and 5 to the source records of SCE and to the books of APS. Liberty was also able to trace the costs associated with the retirement of Units 1, 2, and 3 to APS's books and records.

Q. Does Liberty consider the amortization rates proposed by the Company reasonable?

A. Yes. The Company has proposed to amortize the cost deferrals authorized in Decision No. 73130 over a 10-year period. Liberty believes that a 10-year period properly balances the cost impact of these items with the financing costs. Liberty therefore found the 10-year amortization period reasonable for amortizing these costs.

The Company has also proposed to amortize the decommissioning and reclamation costs of Units 4 and 5 over a 24-year period coinciding with the expected life of the plant. Liberty considers matching the amortization period with the expected production period reasonable for amortizing these costs.

Q. Will approval of the Four Corners surcharge allow the Company to earn beyond its authorized rate of return set by the Commission in the last rate case?

A. No, based on our analysis of the matter. Liberty has reviewed the Company's earnings reports for the past three years. APS's effective rate of return is below its authorized rate of return. The proposed Four Corners surcharge only allows it to earn a return on the newly acquired assets at the same return approved in the last rate case. The surcharge by itself should therefore not allow the Company to exceed its authorized rate of return.

VI. FOUR CORNERS ADJUSTMENT RIDER

Q. Does Liberty have any concerns regarding the language of the Four Corners Tariff Rider proposed by the Company?

A. Yes. The tariff contains no provision for suspension, should APS earn beyond its authorized rate of return. However, the surcharge Rider is only intended to remain in effect until the Company's next rate case, which may be filed in 2015. Therefore, the safeguards normally found in this type of tariff may not be required here. Nevertheless, at a minimum, the tariff language should be amended to make explicit that the Four Corners Rider shall only remain in effect until the Company's next rate case, if the intention was to only utilize the Rider until the impact of the acquisition would be reflected in base rates.

Q. Does that conclude your direct testimony?

A. Yes, it does.

Direct Testimony of Dennis M. Kalbarczyk
Docket No. E-01345A-11-0224
Exhibit DMK-1

ARIZONA CORPORATION COMMISSION
STAFF'S THIRTY-SIXTH SET OF DATA REQUESTS TO ARIZONA PUBLIC SERVICE COMPANY REGARDING THE APPLICATION TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP A JUST AND REASONABLE RATE OF RETURN FOUR CORNERS RATE RIDER
DOCKET NO. E-01345A-11-0224
APRIL 8, 2014

Staff 36.20: Refer to the Company's Workpaper EAB-3, Page 2. Please provide the source and support for the property tax rate of 2.451%.

Response: The 2.451% property tax rate was an estimate of the average composite property tax rate for New Mexico at the time the schedule was prepared. APS's actual 2013 New Mexico Composite Property Tax Rate was 2.434%. See APS15312 for the calculation and support for the actual rate of 2.434%. APS will reflect this modification its Rebuttal Testimony.

Witness: Beth Blankenship

Arizona Public Service Company

New Mexico - 2013 Compostie Property Tax Rate

			[A]	[B] / [A]	[B]
Tax Year	Full Value	Tax Value %	Taxable Value	Tax Rate	Amount Due
2013	200,110,328	33.33%	66,703,376	2.434%	1,623,581

41G87403 MHG4052 1970 NEW 10 X 55 FOUR CORNERS POWER PLANT P0085001

2013 TAX BILL

SAN JUAN COUNTY TREASURER
100 S. OLIVER, STE 300
AZTEC, NEW MEXICO 87410
OFFICE HOURS:
7:00 am to 5:30 pm
MON Thru THUR
CLOSED FRIDAY'S
Phone: **(505) 334-9421**
On-line payment: go to www.sjcounty.net
Credit cards not accepted over the phone.
Drop box located on east side of building for your convenience

51702 T166 P1 ******AUTO**ALL FOR AADC 852
ARIZONA PUBLIC SERVICE CO 00007159
1622
PO BOX 53999
PHOENIX AZ 85072-3999

☐ IF THIS BOX IS CHECKED, YOUR MORTGAGE COMPANY HAS REQUESTED YOUR TAX BILL FOR PAYMENT. PLEASE KEEP THIS BILL FOR YOUR RECORDS.

TAX BILL NUMBER: 00007159

NR PROPERTY CLASSIFICATIONS
RS = RESIDENTIAL NR = NON-RESIDENTIAL

THE FIRST HALF PAYMENT IS DUE: November 10, 2013
TO AVOID INTEREST AND PENALTY CHARGES, PAYMENT MUST BE POSTMARKED BY: December 10, 2013
THE SECOND HALF PAYMENT IS DUE APRIL 10, 2014
TO AVOID INTEREST AND PENALTY CHARGES, PAYMENT MUST BE POSTMARKED BY: MAY 10, 2014.

PROPERTY	FULL VALUE	TAXABLE VALUE
LAND		
IMPROVEMENTS		
PERSONAL PROPERTY		
MANUFACTURED HOMES	1866	622
LAND / IMPROVEMENTS		
LESS EXEMPTIONS		
TOTALS	1866 B	622 C

AGENCIES	TAX RATE	AMOUNT DUE
STATE	1.3600	0.85
COUNTY	8.5000	5.29
SCHOOL	9.3180	5.80
CITY	0.0000	0.00
COLLEGE	5.1000	3.17
TOTAL TAX RATE	24.2780	15.11

PRIOR TAXES, IF ANY, MUST BE PAID BEFORE ACCEPTING CURRENT YEAR PAYMENT.

YEAR	BILL NO.	TAX	INTEREST	PENALTY	AMOUNT DUE

Amount Due
ΣA's = 1,623,581

Full Value
ΣB's = 200,110,328

Taxable Value
ΣC's = 66,703,376

APS15312
Page 2 of 5

EQUIPMENT FOR ELECTRIC GEN

2013 TAX BILL

SAN JUAN COUNTY TREASURER
100 S. OLIVER, STE 300
AZTEC, NEW MEXICO 87410
OFFICE HOURS:
7:00 am to 5:30 pm
MON Thru THUR
CLOSED FRIDAY'S
Phone: **(505) 334-9421**

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51704 T166 P1 ******AUTO**ALL FOR AADC 852
ARIZONA PUBLIC SERVICE CO 00085001
STATION 9505
PO BOX 53999
PHOENIX AZ 85072-3999

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TAX BILL NUMBER: 00085001

NR — PROPERTY CLASSIFICATIONS
RS = RESIDENTIAL NR = NON-RESIDENTIAL

THE FIRST HALF PAYMENT IS DUE: November 10, 2013
TO AVOID INTEREST AND PENALTY CHARGES, PAYMENT MUST BE POSTMARKED BY: December 10, 2013
THE SECOND HALF PAYMENT IS DUE APRIL 10, 2014
TO AVOID INTEREST AND PENALTY CHARGES, PAYMENT MUST BE POSTMARKED BY: MAY 10, 2014.

PROPERTY	FULL VALUE	TAXABLE VALUE
LAND		
IMPROVEMENTS		
PERSONAL PROPERTY		
MANUFACTURED HOMES		
LAND / IMPROVEMENTS		
CENTRAL ASSESSED	198116406	66038736
LESS EXEMPTIONS		
TOTALS	198116406	66038736

AGENCIES	TAX RATE	AMOUNT DUE
STATE	1.3600	89,812.68
COUNTY	8.5000	561,329.26
SCHOOL	9.3180	615,348.94
CITY	0.0000	0.00
COLLEGE	5.1000	336,797.55
TOTAL TAX RATE	24.2780	1,603,288.43

PRIOR TAXES, IF ANY, MUST BE PAID BEFORE ACCEPTING CURRENT YEAR PAYMENT.

YEAR	BILL NO.	TAX	INTEREST	PENALTY	AMOUNT DUE

2013 TAX BILL

THIS TAX BILL IS THE ONLY NOTICE YOU WILL RECEIVE!
PLEASE CHECK NAME, ADDRESS AND PROPERTY DESCRIPTION CAREFULLY. IF INCORRECT, NOTIFY ASSESSOR'S OFFICE.

Parcel Number: 2-075-590-000-000

Legal: REAL ESTATE, PLANT IN SERVICE, CWIP, SEE CORPORATES PAGES 5 & 6

ERNEST C. BECENTI JR
McKINLEY COUNTY TREASURER
207 WEST HILL AVENUE, SUITE 101
GALLUP, NEW MEXICO 87301-4715

ARIZONA PUBLIC SERVICE CO.
PO BOX 53999 STATION 9505
PHOENIX AZ 85072-3999

T71 P1 99 RN: 007
AC: C207559

TAXABLE VALUE IS 33 1/3% OF FULL VALUE	FULL VALUE	TAXABLE VALUE
CORP - PUB. UTI	1,371,136	457,045
NET VALUE		457,045

PRINT THIS ACCOUNT NO. ON YOUR CHECK

ACCOUNT NO. C207559

TOTAL AMOUNT $ 15,252.52

FIRST HALF $ 7,626.26

SECOND HALF $ 7,626.26

IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER TO INSURE PROPERTY TAXES ARE PAID. OWNERS WITH MORTGAGES SHOULD CONTACT LENDER TO DETERMINE RESPONSIBILITY FOR PAYMENT OF PROPERTY TAX.

INTEREST IS 1% PER MONTH ON DELINQUENT TAXES, IN ADDITION A 1% PENALTY WILL ALSO BE CHARGED ON EACH HALF.

DELINQUENT DATES

YEAR	TAX AMOUNT	INTEREST	PENALTY	TOTAL TAXES

PRIOR TAXES, IF ANY MUST BE PAID BEFORE ACCEPTING CURRENT YEAR PAYMENT.

HOW YOUR TAX DOLLAR IS BEING DISTRIBUTED

TAX RATE - $ PER THOUSAND		TAX DOLLAR AMOUNT
STATE DEBT SERVICE	1.360	621.58
COUNTY OPERATIONAL-NON RE	11.850	5,415.99
SCHOOL DISTRICT OPERATION	0.500	228.52
SCHOOL DIST CAP IMPROVEME	2.000	914.09
GALLUP BRANCH COLLEGE - N	2.000	914.09
REHOBOTH CHRISTIAN HOSPIT	3.000	1,371.14
UNM GALLUP SPECIAL VOCATI	1.000	457.05
COUNTY DEBT SERVICE	0.000	0.00
SCHOOL DISTRICT DEBT SERV	8.332	3,808.10
GALLUP BRANCH DEBT SERVIC	3.330	1,521.96

ROAD 6675 FRUITLAND NM 87416

NR 22NR

EQUIPMENT FOR WATER ASSOCI
ATIONS

APS15312
Page 5 of 5

2013 TAX BILL

SAN JUAN COUNTY TREASURER
100 S. OLIVER, STE 300
AZTEC, NEW MEXICO 87410
OFFICE HOURS:

CLOSED FRIDAY'S
Phone: **(505) 334-9421**
On-line payment: go to www.sjcounty.net

ARIZONA PUBLIC SERVICE CO
PO BOX 53940
PHOENIX AZ 85072-3940

IF THIS BOX IS CHECKED, YOUR MORTGAGE COMPANY HAS REQUESTED YOUR TAX BILL FOR PAYMENT. PLEASE KEEP THIS BILL FOR YOUR RECORDS.

Drop box located on east side of building for your convenience

TAX BILL NUMBER: **8005415**

THE FIRST HALF PAYMENT IS DUE:
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RS = RESIDENTIAL NR = NON-RESIDENTIAL

THE SECOND HALF PAYMENT IS DUE APRIL 10, 2014
TO AVOID INTEREST AND PENALTY CHARGES, PAYMENT MUST BE POSTMARKED BY: MAY 10, 2014.

PROPERTY	FULL VALUE	TAXABLE VALUE
LAND		
IMPROVEMENTS		
PERSONAL PROPERTY	620920	206973
MANUFACTURED HOMES		
LAND / IMPROVEMENTS		
LESS EXEMPTIONS		
TOTALS	620920 B	206973 C

AGENCIES	TAX RATE	AMOUNT DUE
STATE	1.360	281.48
COUNTY	8.500	1,759.27
SCHOOL	9.318	1,928.57
CITY	0.000	0.00
COLLEGE	5.100	1,055.56
TOTAL TAX RATE	24.278	5,024.88 A

PRIOR TAXES, IF ANY, MUST BE PAID BEFORE ACCEPTING CURRENT YEAR PAYMENT.

YEAR	BILL NO.	TAX	INTEREST	PENALTY	AMOUNT DUE

ARIZONA CORPORATION COMMISSION
STAFF'S THIRTY-SIXTH SET OF DATA REQUESTS TO ARIZONA PUBLIC SERVICE COMPANY REGARDING THE APPLICATION TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP A JUST AND REASONABLE RATE OF RETURN FOUR CORNERS RATE RIDER
DOCKET NO. E-01345A-11-0224
APRIL 8, 2014

Staff 36.22: Refer to the Company's Workpaper EAB-4, Page 2. Please provide the source and support for the 5.25% rate used as the marginal cost of debt.

Response: In Workpaper EAB-4, page 2 the Company used the 5.25% rate based on the anticipated forecasted interest rate of the Company's next bond financing. APS issued debt at a 4.7% yield on January 7, 2014 to fund the purchase of SCE's share of Units 4 and 5 of Four Corners. APS is currently deferring costs at 4.7%. When APS updates the deferral calculation in Rebuttal Testimony the 4.7% debt rate will be used.

Witness: Beth Blankenship

Dennis M. Kalbarczyk
Educational and Professional Experience

I am the principal of Utility Rate Resources, and work frequently with the Liberty Consulting Group, Inc., ("Liberty").

I graduated in 1971 with a Bachelor of Science Degree in Accounting from Husson College (now Husson University), in Bangor, Maine. In 1969, I received an Associate in Art Degree in Accounting from Strayer College (now Strayer University), in Washington D.C. I am the principal of Utility Rate Resources, which was formed in October 1990. I have prepared over fifty rate case filings, which have included almost all key aspects of the ratemaking process, such as revenue requirement elements (revenues, operation & maintenance expenses, administrative and general expenses, taxes, depreciation and amortization expenses, and rate base valuation), rate of return, cost of service, rate design, and, other tariff rate design and rate rider matters.

I was employed by Drazen-Brubaker & Associates, Inc. from March 1988 to September 1990. I presented testimony and prepared financial statements necessary for applications for Certificates of Public Convenience before the Pennsylvania Public Utility Commission ("PA PUC"). Additionally, I was responsible for the preparation and filing of rate cases, and testified on behalf of utilities under PaPUC regulation. Prior to March 1988, I was employed by Metropolitan Edison Company, a subsidiary of First Energy, formerly GPU Energy and General Public Utilities. I spent three years in the utility's Rate Revenue Requirement Department as a Senior Financial Analyst. My responsibilities included the preparation, review, and analysis of financial reports, budgets, and management responsibility for rate and regulatory matters before the PaPUC.

From 1975 through 1985, I was employed by the PaPUC, serving primarily in the performance of financial and operations audits and in rate proceedings. I testified on revenue requirements matters in nearly all the major electric rate cases during my time at the PaPUC, and performed audits of electric, gas, and water companies for compliance with Commission regulations in the areas of energy cost, coal and gas contracts, and affiliated service contracts. I testified in Energy Cost Rate, Gas Cost Rate, and Coal Compliance proceedings. I actively participated in developing the Commission's first set of regulations on Fuel Procurement Policy and Procedures, Tariffs and Procedures on Energy Cost Rates for electric companies and Gas Cost Rates for gas companies, and designed computerized procedures for electric utilities to report fossil fuel purchases to the PaPUC. From 1972 to 1975 I held progressive degrees of responsibilities with Certified Public Accounting firms performing accounting, auditing and tax preparation duties.

I have specialized in the area of utility rate and economic consulting related to the financial aspects of public utility rates and regulation. My work has encompassed rate case filings, certificates of public convenience, expert testimony, and financial applications for funding by the Pennsylvania Infrastructure Investment Authority. I have participated in regulatory and legal proceedings concerning investor-owned and municipal utilities, have testified before governmental agencies and courts, and have represented utilities as well as consumers of utility services.

Since 2002, I have been providing senior level consulting services to Liberty, participating in an audit of electricity distribution service costs for inclusion in revenue requirement before the Illinois Commerce Commission, and serving as a team member on focused audits (for the New Jersey Board of Public Utilities) addressing financing, accounting, and affiliate charges of National Utilities Inc. (Elizabethtown Gas), South Jersey Gas, and New Jersey Natural Gas. I participated in Liberty's examinations of fuel adjustment mechanism costs and issues for staffs of the Arizona

Corporation Commission ("ACC") and the Nova Scotia Utility and Review Board ("NSUARB"). I also participated in Liberty's engagements to assist ACC Staff in the review of AEPCO's and the Southwest Transmission Cooperative, Inc. ("SWTC") applications for a general rate increase in the proceedings at Docket Nos. E-01773A-09-0472 and E-04100A-09-0496 pertaining to cost of service and rate design matters, respectively and testified to same. More recently in 2013, I assisted ACC Staff in the review of AEPCO's and SWTC's application for a general rate case filing in the proceedings at Docket Nos. E-01773A-12-0305 and E-04100A-12-0353 and I presented testimony pertaining to revenue requirement, and cost of service and rate design matters, respectively. I also participated with Liberty in Nova Scotia Power Incorporated's last two general rate increase filings, where I testified about revenue requirement matters.

I have testified in more than 70 rate and regulatory matters on behalf of state regulatory commissions, utilities, municipal authorities, and various consumer groups.

BEFORE THE ARIZONA CORPORATION COMMISSION

BOB STUMP
Chairman
GARY PIERCE
Commissioner
BRENDA BURNS
Commissioner
BOB BURNS
Commissioner
SUSAN BITTER SMITH
Commissioner

IN THE MATTER OF THE APPLICATION OF THE ARIZONA PUBLIC SERVICE COMPANY FOR A REQUEST TO APPROVE A FOUR CORNERS RATE RIDER AS DEFINED IN APPROVED SETTLEMENT AGREEMENT IN DECISION NO. 73183 TO ALSO INCLUDE AMORTIZATION OF RELATED DEFERRALS AUTHORIZED IN DECISION NO. 73130	DOCKET NO. E-01345A-11-0224

REDACTED

DIRECT

TESTIMONY

OF

JAMES LETZELTER

CONSULTANT

ON BEHALF OF THE STAFF OF THE

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

JUNE 19, 2014

TABLE OF CONTENTS

EXHIBITS

INTRODUCTION

Q. Please state your name, occupation, and business address.

A. My name is James Letzelter. I am an Executive Consultant with The Liberty Consulting Group ("Liberty"). My business address is: The Liberty Consulting Group, 279 North Zinns Mill Road, Suite H, Lebanon, PA 17042-9576.

Q. What is the purpose of your testimony?

A. I led Liberty's review of the analytics behind the Arizona Public Service Company acquisition of Four Corners Units 4 and 5 from Southern California Edison. Our goal was to:

- Evaluate the validity of the analytical approach, data and models
- Update or confirm the APS valuation
- Assess the need for capacity
- Assess acquisition timing
- Evaluate risks of the transaction
- Identify ancillary benefits of the transaction.

Q. Did you prepare a report containing your analysis of the Four Corners Transaction?

A. Yes. I directly performed the work reflected in the report, and I prepared the report addressing the findings and conclusions of that examination, which is included as Exhibit JCL-1. The purpose of my testimony is to present, and respond to questions regarding Exhibit JCL-1.

Q. Mr. Letzelter, briefly summarize your educational background and professional qualifications as they relate to the subject of your testimony.

A. I have been engaged as a consultant and manager in the electric utility industry since 1990. Before joining Liberty in 2011, I served with companies now part of Navigant Consulting (Research Management International and Metzler Associates) and PA Consulting (Theodore Barry & Associates and Hagler Bailly), Entergy Corporation, Platts Research and Consulting, and GenMetrix. I have assisted energy industry clients throughout the United States and Europe, and have worked on behalf of many utility regulatory authorities.

My background includes power market assessment, risk analysis and generating asset valuation. Over the course of my career, I have performed asset valuations on over ten billion dollars' worth of electric power generating facilities. Clients have used that work for negotiation, project development, mergers, acquisitions, due diligence, regulatory proceedings, and litigation.

I have a B.S.E.E. degree from Clarkson University and an M.B.A. degree from the State University of New York at Albany (SUNY). I have earned the designation of Certified Rate of Return Analyst.

Q. Have you prepared a more detailed summary of your background?

A. Yes. Exhibit JCL-2 provides it.

CONCLUSIONS

Q. **Please briefly summarize your findings and conclusions with respect to the Four Corners Transaction.**

A. Based upon my analysis, Liberty formed the following conclusions:

1. The additional 179 MW of capacity are used and useful.
2. APS considered an appropriate range of resource options.
3. APS's economic analysis of the acquisition was sound.
4. The economics of the transaction favor APS customers.
5. The timing of the transaction was prudent.
6. The risks of the acquisition are offset by the expected favorable economics.
7. Several ancillary benefits add to the positive impact that the transaction will have for customers.
8. Overall, the Four Corners transaction was prudent.

In summary, Liberty finds the acquisition of Four Corners to be reasonable and prudent, and calculated to provide benefits to APS customers.

Q. Does that conclude your direct testimony?

A. Yes, it does.

Direct Testimony of James Letzelter
Docket No. E-01345A-11-0224
Exhibit JCL-1

Report on a Review of the Arizona Public Service Company Four Corners Acquisition

Presented to the:

Arizona Corporation Commission

By:

THE LIBERTY CONSULTING GROUP

279 North Zinns Mill Road, Suite H
Lebanon, PA 17042-9576

(717) 270-4500 (voice)
(717) 270-0555 (facsimile)
Admin@LibertyConsultingGroup.com (e-mail)

June 19, 2014

Table of Contents

I. Executive Summary

A. Background

This report summarizes the process and results of Liberty's review of the Arizona Public Service Company ("APS" or "Company") Four Corners Units 4 and 5 acquisition.

On December 30, 2013, APS finalized a transaction with Southern California Edison ("SCE") to acquire SCE's share of Four Corners Units 4 and 5, as authorized by Decision No. 73130. Decision No. 73130 also set a goal for APS to retire Units 1-3 by December 31, 2013, if it acquired SCE's shares of Four Corners 4 and 5. With this transaction, APS therefore retired 560 MW of the older, less efficient Units 1-3, and acquired 740 MW of the more efficient Units 4 and 5. These changes produce a net increase in APS capacity of approximately 179 MW. Table 1 displays the basic parameters of the units involved in this transaction and Units 1-3, including the before and after APS share[1], unit type (technology), heat rate, and capacity factor.[2]

Table 1: Four Corners Basic Parameters (APS portions, before and after acquisition)

Unit	Capability (MW)			Technology	Heat Rate	Capacity Factor
	Before	After	Delta			
Unit 1	170	-	(170)	Subcritical	11,222	71.0%
Unit 2	170	-	(170)	Subcritical	11,139	72.0%
Unit 3	220	-	(220)	Subcritical	10,765	74.0%
Unit 4	116	485	370	Supercritical	10,047	75.0%
Unit 5	116	485	370	Supercritical	9,964	76.0%
Total	791	970	179			

The Company based its decision to purchase SCE's share of Units 4 and 5 on its view of its needs for long-term baseload supply, the economic value of the acquisition, and its comparison with other alternatives. APS's analyses determined that the Net Present Value ("NPV") of the acquisition was a $425.6 million benefit, when compared with the next best alternative (new gas-fired generators). Benefit is defined as the difference in NPV of the total system cost under the acquisition option (as compared to the gas build or buy option).

B. Scope of Work

Liberty's assessment of the acquisition focused on: the validity of APS's analytical approach, data and models gathered and used, updating or confirming the APS valuation, assessing the need for more capacity, acquisition timing, risks, and ancillary benefits. Liberty interviewed key people at APS in person, engaged in a number of telephone conferences to secure information, and reviewed models and data provided by APS in response to written data requests.

[1] Due to rounding, some capability totals (MW) do not sum to the total of their rounded components.

[2] Heat rates and capacity factor are from SNL Financial LC from 2012, and are provided as an indication of unit efficiency and historical performance relative to that efficiency. SNL Financial is an established energy industry information service serving more than 5,000 companies and 100,000 users. Liberty Consulting Group is a licensed subscriber of SNL Financial.

C. Findings & Conclusions Summary

Liberty performed a review of the models, processes, and data that drove APS's decision to acquire Four Corners Units 4 and 5. We also examined uncertainties and risks associated with the asset and the regional power market. Liberty formed the following conclusions:

1. The additional 179 MW of capacity are used and useful.
2. APS considered an appropriate range of resource options.
3. APS's economic analysis of the acquisition was sound.
4. The economics of the transaction favor APS customers.
5. The timing of the transaction was prudent.
6. The risks of the acquisition are offset by the expected favorable economics.
7. Several ancillary benefits add to the positive impact that the transaction will make for customers.
8. Overall, the Four Corners transaction was prudent.

In summary, Liberty finds the acquisition of Four Corners to be reasonable and prudent, and calculated to provide benefit to APS customers.

II. Background & Scope of Work

A. Background

[redacted] This spurred APS's initiative to investigate the prospect of acquiring SCE's interest in Units 4 and 5.

On October 19, 2010, the Environmental Protection Agency ("EPA") proposed a Federal Implementation Plan that would require Four Corners to achieve emissions reductions required under the Clean Air Act's "Best Available Retrofit Technology" ("BART") provision. APS projected that bringing all five units at Four Corners into compliance could exceed $660 million in capital costs by 2016. The Company proposed an alternate plan in November 2010. It consisted of closure of Units 1, 2, and 3, which APS owned in their entirety, and purchase of the SCE 45 percent interests in Units 4 and 5. APS would also commit to the installation of selective catalytic reduction ("SCR") equipment on Units 4 and 5 by July 31, 2018.

Based on the opportunity to purchase SCE's share of Units 4 and 5 and the EPA requirements, APS identified four options for the future of Four Corners:

- Continued operation of Units 1, 2, and 3 with Units 4 and 5 shut down in 2016.
- Replacement of the APS interest in Four Corners with combined-cycle gas generation.
- Retirement of Units 1, 2, and 3 early and acquisition of SCE's interest in Units 4 and 5.
- Continued Operation of Units 1-3 with SCE's interest in Units 4 and 5 acquired by another party.

APS found that, considering the costs of installing the equipment required to meet BART, the third alternative would produce revenue requirements (on a net present value basis) of about $500 million less than those of combined cycle installation and $1 billion less than those of continued operation of Units 1, 2, and 3. A consultant for APS found an even greater advantage in APS's preferred alternative. APS also cited the major contribution that Four Corners makes to the economy of the Navajo Nation, due to the units' location and operation.

The other companies holding an interest in Units 4 and 5 all declined to exercise their rights of first refusal with respect to the SCE interest, so APS did not consider the fourth option a viable alternative.

B. Scope of Work

The scope of Liberty's examination of the Four Corners Closure/Acquisition included the following principal elements:

1. Determining the basis for "pursuing" the closure/acquisition plan
2. Updating if and as required the evaluation of the closure/acquisition plan to verify its prudence
3. Determining whether and when the net increase in capacity produced by the plan will be "used and useful."

III. Findings

A. Need for Capacity

APS made clear in its application to acquire SCE's ownership interest in Four Corners that economics, rather than an immediate need for power, principally drove its plan. The net impact after retiring Units 1, 2 and 3 and adding 740 MW of Units 4 and 5 would be to add 179 MW of capacity to the Company's supply portfolio. APS calculated that its 2014 capacity reserve of 32.2 percent would essentially double the 15 percent reserve margin required to meet reliability requirements.

Taken at face value, this level of reserves may appear hard to justify. APS's particular circumstances, however, need to be considered in addressing that concern. Liberty used the APS 2014 Integrated Resource Plan ("IRP") as a reference for supply and demand[3] to create three Reserve Margin Scenarios to investigate APS's need for resources (both current and future). We used the underlying data from Table 1 of the APS 2014 IRP (page 8), and adjusted it to calculate the reserve margins under these scenarios.

Use of a 15 percent reserve margin drove this assessment. APS has established this planning threshold to meet its loss of load probability criterion. We found this margin typical for the U.S. electric power industry, and is the default level used by the North American Electric Reliability Corporation ("NERC") for primarily thermal systems[4]. That margin equals the percent of total capacity (less non-dispatchable renewables) divided by the peak demand (less customer owned resources). Also worth noting is the Commission's 2012 IRP Decision requiring APS to perform additional studies to mitigate surplus capacity when total reserve margin exceeds 20 percent for more than two years.

1. Load Growth

The rate at which APS's peak load grows will affect the reserve margins produced by the Four Corner's transaction. Over the next five years, APS forecasts peak demand growth of 3.25 percent per year. This projection was developed by APS, and used in its IRP. As part of its analysis, Liberty reviewed the load forecast and key inputs. The APS load forecasting team provided detailed explanations and data to support the Liberty review.

[3] The 2014 IRP uses established values for future supply, and projected customer demand.
[4] NERC website: http://www.nerc.com/pa/RAPA/ri/Pages/PlanningReserveMargin.aspx

At this growth rate, APS's generation needs to increase by 265 MW per year in order to maintain its reserve margin. These increases exclude the effects of any energy efficiency and distributed energy initiatives. APS projects that energy efficiency and distributed energy efforts will offset 986 MW of this increase, leaving a projected 2014 through 2019 increase of 1,419 MW. APS expects to address a substantial portion of this balance with new natural gas resources. A lower than expected load forecast would be expected to produce reduced or deferred commitments for new combined cycle gas turbines ("CCGT").

2. Reserve Margin Scenarios

In reviewing the need for generating capacity resources, Liberty reviewed APS's supply and demand situation, and estimated reserve margins for the following three scenarios. It is worth noting that the system load was the same for each of these scenarios. The only difference between scenarios is related to APS generating capacity.

a. Reserve Margin Scenario 1: Acquire Four Corners Units 4 and 5 and retire Four Corners Units 1-3

This scenario represents the current outlook for APS' future load and resource needs, because it includes the closure of Units 1, 2 and 3 and the acquisition of the Units 4 and 5 share from SCE. It reflects the resource plan from the APS 2014 IRP. It is important to assess the annual reserve margin of this scenario, as it highlights the Company's current and future position based on the current plan. The other scenarios will be compared to this scenario.

As of the December 31, 2013, acquisition and closure date, APS increased its share of Units 4 and 5 by 740 MW (from 231 MW to 970 MW). At the same time, APS closed its 560 MW of Units 1, 2 and 3. The net impact of the transactions was to increase the size of APS's generating portfolio by 179 MW.

The annual reserve margins for all scenarios are displayed in Figure 1, with an overlay of the planning target reserve margin of 15 percent. It is very clear that in Scenario 1 (solid line) for the next three years (2014-16), APS has capacity well in excess of its needs. Over those three years, reserve margins are 34, 33, and 22 percent, respectively. On the surface, it would appear that the addition of 179 MW was not justified on the basis of these next three years. However, the subsequent years should be considered.

Over the subsequent seven years, the period of 2017-2023, the supply plan produces near-optimum annual reserve margins (noted by the close tracking of the Reserve Margin Scenario 1 line to the 15 percent target). Based on this outlook, Liberty finds that the IRP case is appropriate. While the first three years represent excess capacity, it diminishes at a reasonable rate (from a capacity planning and development perspective) through a fall in contracted resources and growth in APS load. The acquisition of Units 4 and 5 creates additional surplus capacity in the short term, but is necessary to maintain system integrity (as defined by reserve margin) in the long term.

b. Reserve Margin Scenario 2: Do not acquire Four Corners Unit 4 and 5 and do not retire Four Corners Units 1-3

This scenario represents the APS pre-acquisition portfolio, to shed light on the reserve margin implications of not acquiring the SCE share of Units 4 and 5. To assess this scenario, Liberty started with Scenario 1 (APS 2014 IRP) and adjusted it to remove the net impacts of the acquisition and closure of Units 1, 2 and 3.

The capacity situation in this case reflects a reduction in coal resources of 179 MW for the period of 2014-2018. This situation reflects the differential between the pre- and post-acquisition portfolios over that period. After 2018, the numbers are further reduced by another 231 MW to reflect the loss of APS's pre-existing 231

MW share of Units 4 and 5 (under the assumption that no APS purchase of the SCE share causes the plant to be shut).

The annual reserve margins under this scenario are displayed by the No Acquisition/Keep 1-3 line in Figure 1. As in Reserve Margin Scenario 1, the first years (2014-15) display rather high reserve margins of 31 percent, followed by a year in the target zone (at 19.0). In this scenario the reserve margin picture falls more quickly in line with target levels.

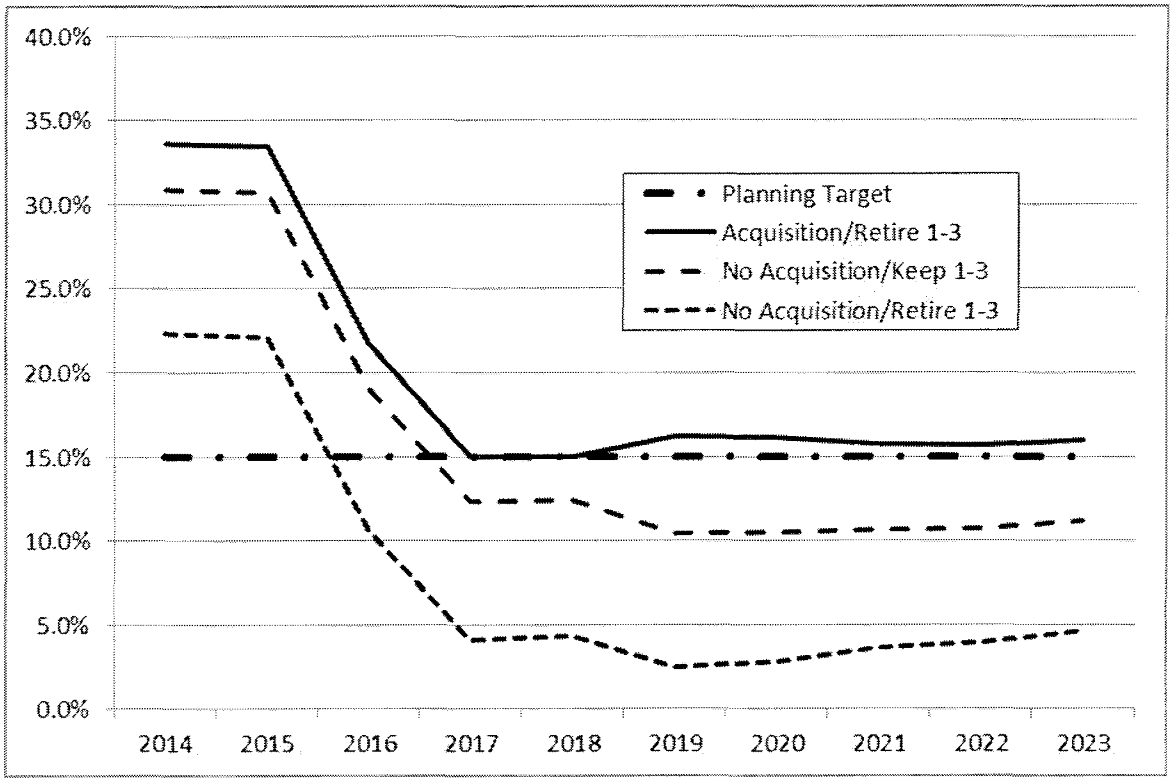
However, the situation changes significantly in the next seven years. During that time, based on Units 4 and 5 closing, the APS portfolio loses another 231 MW of coal capacity that represented its pre-existing share. Losing this 231 MW drives the reserve margins into the 10-12 percent range over this period, which is insufficient for system security. In short, not acquiring SCE's share of Units 4 and 5 would have had negative implications on the supply portfolio, from 2017 and beyond. Liberty concludes that the acquisition was helpful in maintaining integrity of the long-term supply plan.

c. Reserve Margin Scenario 3: Retire Four Corners 1-3 but do not acquire Four Corners Units 4 and 5

This scenario represents the closure of Units 1, 2 and 3 for economic reasons (due to emissions control capital requirements), with no acquisition of Units 4 and 5 or other resources. This event would result in 739 fewer MW through 2018, followed by the loss of an additional 231 MW after that due to the closure of APS's 231 MW of its pre-existing share of Units 4 and 5.

This scenario thus produces severe reserve margin impacts (bottom line in Figure 1). After 2015, reserve margins would plummet to dangerously low levels. What this scenario does, however, is highlight that additional resources would be absolutely required to maintain the APS system.

Figure 1: Reserve Margin Scenarios



B. Economic Analysis

APS based its economic analysis of the acquisition on the NPV of total system production costs. For each of the alternatives considered, APS calculated an NPV. The Company began with production model runs and simulations, made with the support of tools common in the industry (***Promod*** and ***Strategist***). Outputs from these models then fed a series of custom, ***MS Excel***-based financial models. Liberty reviewed the process, models and data used for the analyses, focusing on the key inputs and the Excel-based models.

1. Options Considered

APS considered only two alternatives to be completely viable, in light of the need for closure of Units 1, 2 and 3:

- Acquire SCE's interest in Units 4 and 5
- Build or buy new gas generation.

The key to the options considered was the need for baseload generation. Utilities serve their load with a variety of resources from various asset classes (commonly referred to as baseload, intermediate/cycling, and peaking). Typically, at least 30-40 percent of a utility's generation capacity is comprised of baseload resources. In order to maintain this level of baseload capacity upon closure of Four Corners Units 1, 2 and 3, new baseload generation was required.[5] Baseload resources are typically coal and nuclear facilities, or newer, high efficiency (low heat rate) gas-fired combined cycle units. Accordingly, the APS analysis focused on the NPV

[5] APS's baseload under each Reserve Margin Scenario identified in Figure 1 is as follows: Acquisition/Retire 1-3 (13% nuclear and 21% coal); No Acquisition/Keep 1-3 (13% nuclear and 20% coal); and No Acquisition/Retire 1-3 (13% nuclear and 13% coal).

differential between the two available baseload options: the Four Corners Units 4 and 5 acquisition and new gas combined cycle, augmented by simple-cycle gas turbines for additional (non-baseload) capacity.

Energy efficiency measures and distributed resources play a role in meeting resource requirements as well, as shown in the reserve margin tables in *Section A: Need for Capacity*. These are already included in the resource plans.

2. Model Integrity

Liberty reviewed the Excel-based models, including the inputs from the Promod and Strategist system inputs. The model was designed to calculate the annual cost of total system generation under the two options (acquire Units 4 and 5 versus build or buy new gas facilities). The model calculates the annual capital (fixed carrying charges), variable costs (fuel and variable O&M), fixed O&M, CO_2 emissions, transmission costs, and other costs. The horizon for the study was 25 years, covering the period from 2014 through 2038. The stream of annual system costs for each option was discounted to provide an NPV.

Liberty reviewed the analysis spreadsheets to verify that: a) the approach was sound from a resource cost calculation perspective, b) the calculations were based on appropriate flow of data, and c) the specific formulas and algorithms used were correct. This review found the financial analysis approach to have been appropriate. We observed no gaps or errors in the models or in their application.

3. Data Integrity

The data used to drive the APS analysis were comprised of many components (e.g., capital, fuel, variable O&M, fixed O&M, emissions, etc.). The production-related data were used in **Promod** to produce projections of output and costs for each option, to be added to the fixed cost components in the APS spreadsheet model. The data used by APS in this analysis are the same as that used in the Company's 2014 IRP. Liberty therefore used this document to review the data.

Of the many data elements, it was determined by APS (and confirmed by Liberty) that the forecasts of natural gas costs and the cost of CO_2 emissions proved to be the critical variables. These two key drivers are assessed in greater detail and are the basis for our valuation adjustments and probabilistic valuation of the acquisition.

4. Gas Data

The delivered cost of gas operates as a principal driving factor in the gas build or buy scenario. On the one hand, lower gas prices give advantage to the gas build or buy. On the other hand, high gas prices favor the coal-fired Four Corners Units 4 and 5 acquisition option.

Liberty reviewed the APS gas input prices APS used in its analysis. The base case produced the Company's calculation of $425.6 million in *net present value benefit*. This benefit is defined as the difference in net present value of the total system cost under the acquisition option (as compared to the gas build or buy option).

Liberty's view of gas prices was based on the Energy Information Administration ("EIA") 2014 Annual Energy Outlook ("AEO") report. To develop this view, we used the EIA projection for Henry Hub, added to it the basis differential to the San Juan Hub, and then added to that the location-specific transportation adder for APS gas generation. The Liberty view is compared to the gas data from the APS analysis, for base, high and low cases, as shown in Figure 2. It also includes an expected, probability-adjusted "@Risk" value to be discussed later in this report.

Figure 2: Comparison of APS Gas Prices to EIA Gas Prices

[redacted]

We found that the natural gas prices used by APS are reasonable, and are actually conservatively low. For each case (base, low, and high), the EIA-based prices are notably higher than the corresponding forecast that APS used in its analysis. Accordingly, it is Liberty's view that actual gas prices may be higher than APS expects, making the benefit of the Four Corners acquisition even higher, as addressed later in this report.

5. CO_2 Emissions Cost Data

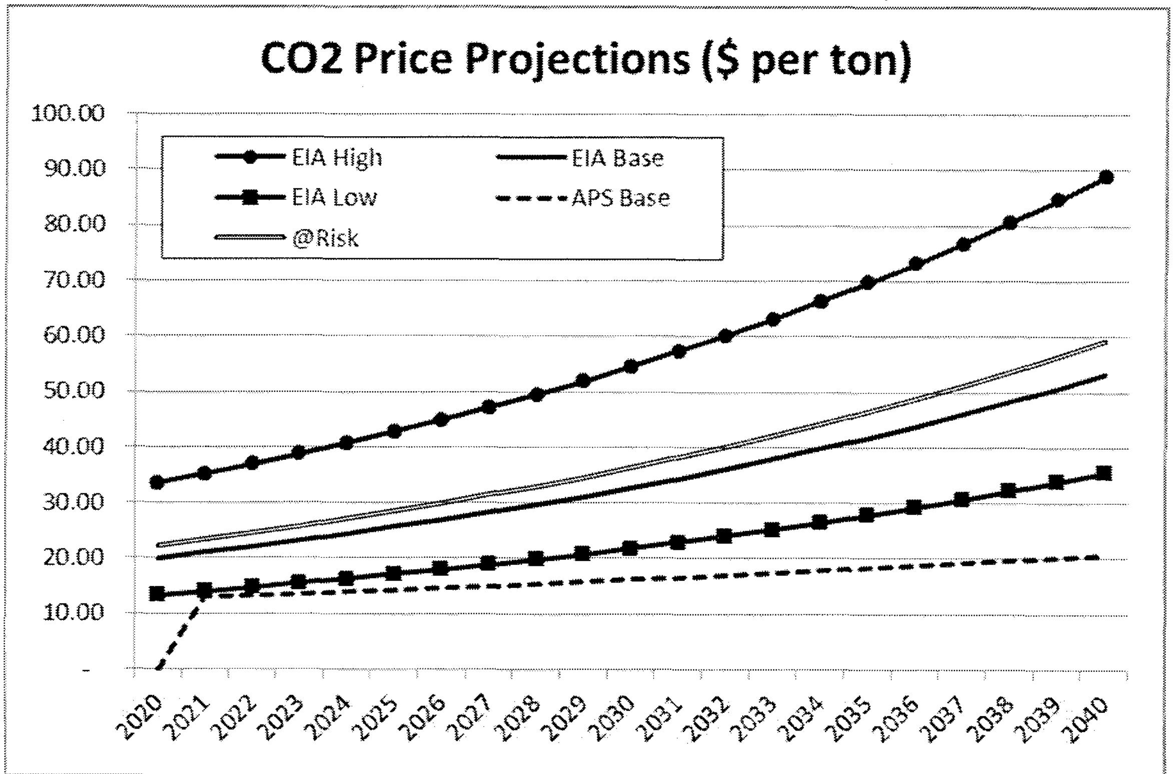
APS accounted for the potential changes in CO_2 regulation by imposing per-ton cost on its fossil fuel-fired units. There exists a high level of uncertainty in the future cost of CO_2 emissions, as shown by the very wide range of potential costs forecast by industry experts. Carbon presents a primary risk factor for fossil-fuel fired generating assets, particularly coal units. These facilities typically produce on the order of one ton of CO_2 per MWh (depending on unit heat rate). This level of output translates to a $/MWh dispatch cost impact equivalent to the $/ton CO_2 cost that is realized.

On June 2, 2014, the EPA proposed a draft rule requiring a 30 percent reduction in CO_2 emissions (nationwide) from existing power plants by 2013 (based on 2005 emission levels) and a 25 percent reduction by 2020.[6] This long-anticipated announcement now defines proposed reduction levels, which will result in varied predictions of the ultimate cost. However, at this point, there is no firm pricing available, meaning that there remains great uncertainty about the impact of CO_2 regulation on coal plant viability.

[6] Due to its location on tribal land, the EPA proposal does not specifically apply to Four Corners. This does not exclude Four Corners from CO_2 reductions, but affects the implementation plan process. That there remains a need to address goals and requirements for some facility locations does not in our view suggest the use of different assumptions about the exposure faced by Four Corners.

In light of this uncertainty, Liberty reviewed a number of public sources to compare them to the projections used by APS. Ultimately, Liberty compared the APS prices with those used by the EIA in its AEO. This EIA source is the same one we used in addressing the gas price projections discussed in the previous section. The APS and EIA prices are compared in Figure 3, as well as the probability-adjusted "@Risk" values used later in this report:

Figure 3: Carbon Cost Predictions ($ per ton)



Based on this comparison to the EIA's projections, Liberty considers the APS numbers to be insufficiently conservative (*i.e.*, too low for analysis purposes). The result is to underestimate the negative impacts to the Four Corners acquisition option. This, in turn, leads to the conclusion that more conservative (higher) CO_2 projections by APS could materially reduce the expected benefit of the acquisition.

6. Valuation Adjustment

The APS assessment calculated NPV for both the acquisition and gas build or buy options. As mentioned above, Liberty found the APS results appropriate in design and execution. Liberty has, however, adjusted this valuation to reflect differing views of the two primary drivers (gas prices and CO_2 costs). Liberty found that:

- It is proper to use *gas prices* higher than APS expects, resulting in a *higher* value for the acquisition benefits.
- It is proper to use *CO_2 prices* higher than APS expects, resulting in a *lower* value for the acquisition benefits.

To perform an adjustment for these two opposing factors, Liberty isolated both the cost and quantity of system-wide gas consumption and CO_2 emissions under each resource option, and calculated the annual cost differential of each. We then discounted the results back to calculate the NPV of benefits. Finally, we applied the resulting adjustment to the APS valuation of $425.6 million.

Figure 4 displays the total system gas consumption by APS for both resource options. The bottom area shows the gas burn as expected given the acquisition. The top area shows the increase in gas consumption by APS had the gas build or buy option been chosen instead. This delta (top area) is the quantity basis that is multiplied by the gas price adjustment to calculate the impact of the gas price adjustment on the acquisition benefit.

Figure 4: APS Gas Consumption

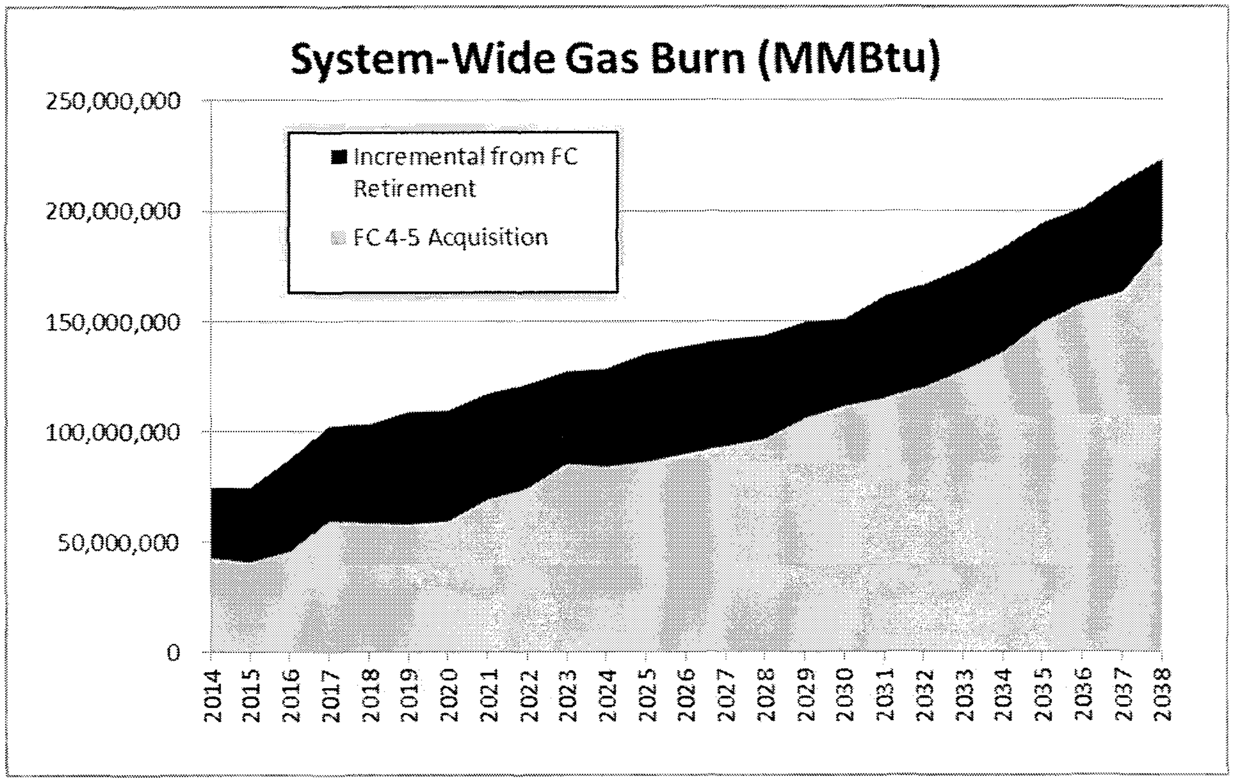
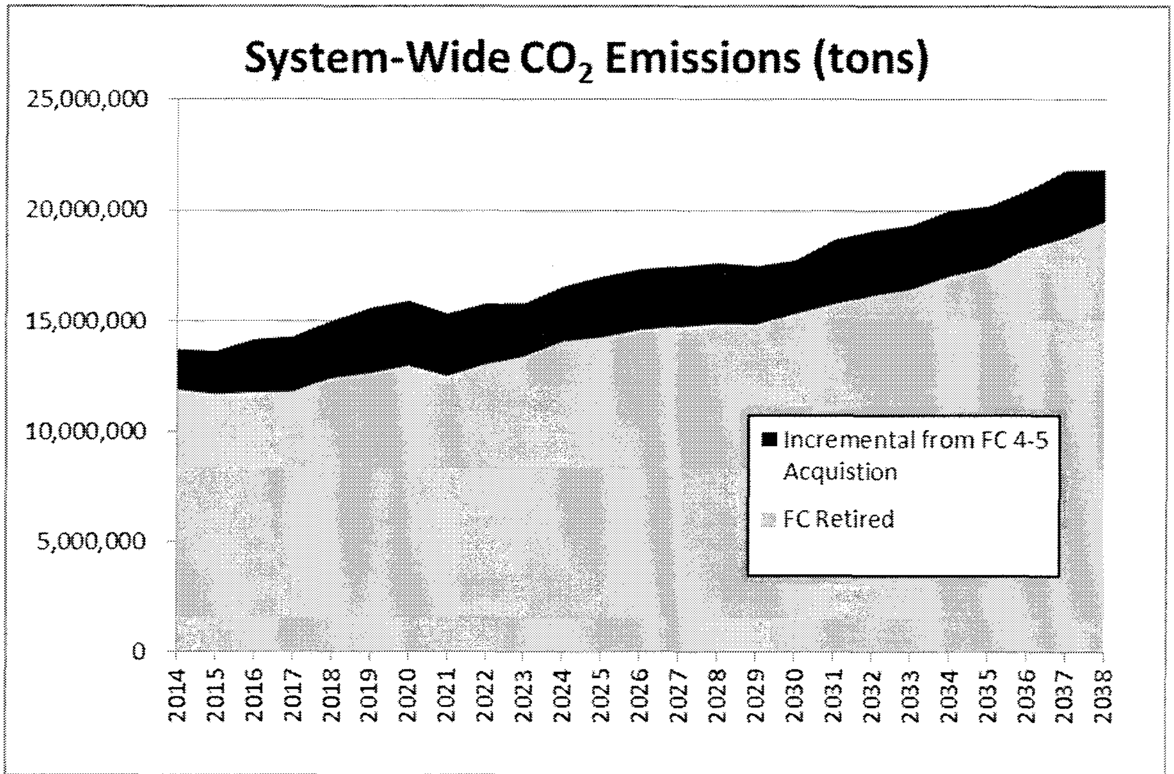


Figure 5 displays the total system CO_2 emissions by APS for both resource options. The bottom area shows the CO_2 emissions under the gas build or buy scenario. The top area shows the increase in CO_2 emissions by APS under the acquisition scenario. This delta (top area) shows the quantity basis that is multiplied by the CO_2 price adjustment to calculate the impact of the CO_2 price adjustment on the acquisition benefit.

Figure 5: APS Gas Consumption



Given the high uncertainty in gas prices and very uncertain future of CO_2 costs, Liberty engaged in a stochastic approach to perform the valuation adjustment. In doing so, Liberty was able to consider a range of inputs for gas prices and CO_2 costs, model each of those with a probability function, run a simulation, and capture the probabilistic range of results.

Key to this exercise is the development of input probability functions for the key drivers. Based on our experience, Liberty chose to use a triangle function for each parameter, which calls for the input of a low, base, and high value for each data element. Liberty chose the following for its input functions:

Parameter	Low	Base	High
Gas Price	EIA Low	APS Base	EIA High
CO_2 Cost	EIA Low	EIA Base	EIA High

The gas price scenarios referred to in the table, and the resulting expected value of the probability function, can be found in Figure 2. The CO_2 cost scenarios referred to in the table, and the resulting expected value of the probability function, can be found in Figure 3.

Liberty used the @Risk model to run a simulation of 10,000 iterations of the probability inputs defined above. The result was a range of possible outcomes for the NPV of the benefit of the acquisition option. The results are displayed graphically in Figure 6.

Figure 6: Probability Distribution of Acquisition Benefit

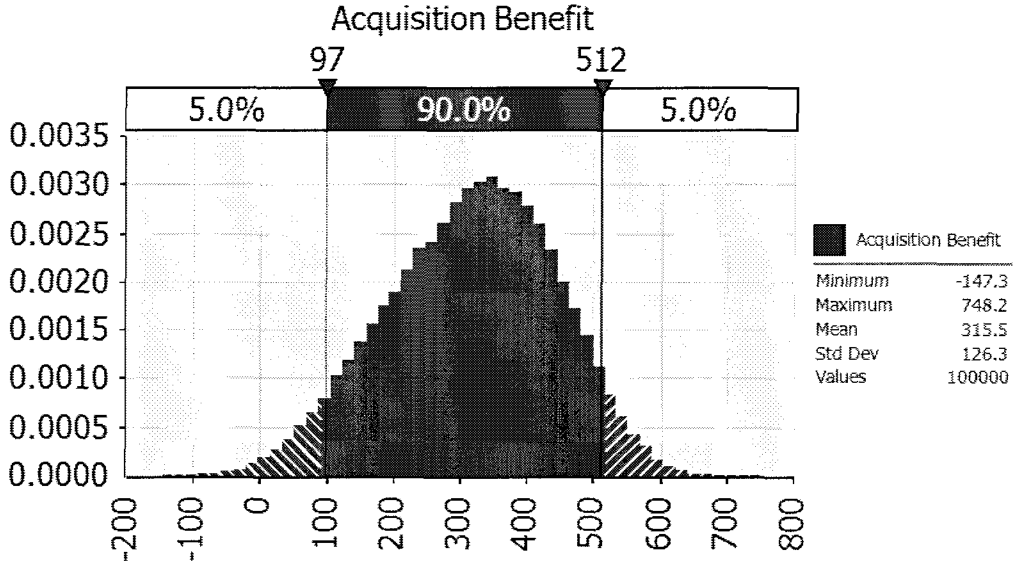


Figure 6 shows the probability weighted (expected) outcome of the acquisition to be $315.5 million, in comparison to the $425.6 million expected by APS. The results are lower, but still significantly favorable. The primary driver of the decrease is related to CO_2 cost, the negative impacts of which are somewhat offset by higher gas prices than those expected by APS.

The acquisition benefit ranges widely, from a negative (cost) of $147 million to a positive benefit (savings) of $748 million. These figures represent the extreme (low probability) ends of the spectrum. The 90 percent confidence interval of the analysis produces benefits that range from $97 million to $512 million.

C. Acquisition Timing

[redacted] SCE and APS settled on a price of $294 million, subject to an adjustment that reduced the value by $7.5 million per month for a closing after October 2012. The purchase price represented an ambivalence point for SCE, at which replacement power could be purchased in lieu of the production from Four Corners. Ultimately, a closing date of December 31, 2013, produced a cash purchase price of $181 million.

APS provided several reasons for its acquisition date, which we questioned, given that delaying the acquisition would have resulted in a lower acquisition price.

1. Closing of Four Corners Units 1 through 3 (EPA), $1 Billion

APS faced either committing to install SCR for NO_x control on Units 1 through 3, or shutting down the units by January 2014. The economic analyses clearly indicated that SCR was not a viable option for these units, which therefore should be closed. Closure would cause APS a loss of 560 MW. Purchasing the SCE portion of Four Corners would add 740 additional MW from Units 4 and 5, resulting in a net gain in capacity of 179 MW, instead of losing the 560 MW net loss of baseload generation.

2. Protect existing interest in Units 4 and 5

Without a buyer for SCE's share of Units 4 and 5, the existing APS share of Units 4 and 5 was at risk of closure. Additionally, because SCE was already determined to be rid of its share, it could not be expected to take a robust long-term outlook on planning and spending for the units. APS had been planning for a future well beyond 2016. Moreover, had APS not committed to purchasing the SCE portion when it did, it would have needed to start planning and spending for unit decommissioning, which would have had to begin in July of 2016.

3. SCR commitment and lead time

In order to continue operation of Units 4 and 5, APS had to commit to install SCR on both units. Installing SCR in time to meet its EPA deadlines required APS to move forward with planning for SCR construction—and incurring capital expenditures—as early as Quarter 2 of 2014. As such, APS viewed the earliest reasonable acquisition date as best in light of the need to spend for SCR. Otherwise, APS risked investing in SCR for an asset that may not be acquired by them or may not continue to operate at all.

4. Replacement of high cost sources with lower cost Units 4 and 5

While extending the closure resulted in a $7.5 million monthly price reduction, cost savings from holding the increased share of Units 4 and 5 served as an offset. To calculate the offset, Liberty considered two components:

[redacted]

- The total energy savings for both components of this analysis totals $1.93 million per month.

Taking these operational savings into consideration, APS's net monthly savings for delaying the acquisition of Units 4 and 5 would have been $5.5 million.

D. Risk Analysis

This analysis considers and evaluates the risks associated with APS's retirement of Four Corners Units 1, 2 and 3 and the concurrent acquisition of SCE's ownership interest in Four Corners Units 4 and 5. The net effect of closure and acquisition was to add 179 MW to APS's generation portfolio in 2014.

Retirement of Units 1, 2 and 3 helped APS avoid investing in mandated environmental containment systems, and the transaction has produced economic benefit for its consumers as analyzed by APS. Despite a sound evaluation, there are continued risks that may mitigate or eliminate that calculated benefit, in addition to the quantifiable risks associated with gas prices and CO_2 costs.

Few capital intensive, long-term investments, especially in light of today's energy business environment, come without a material degree of risk exposure. Coal-fired generation is under great pressure, as low natural gas prices due to fracking have increasingly displaced coal as the "low" cost source of baseload generation. The addition of government-imposed costs for reducing carbon not only will inhibit future coal units, but also will shorten the lives of those now operating.

However, gas sources of supply (e.g., a CCGT) also impose risk. Shale gas has undoubtedly been a game changer in the United States, driving natural gas prices to a fraction of what they were just five years ago. Nevertheless, pipeline and storage constraints have rendered natural gas highly volatile as to price and delivery. During the 2013 – 2014 winter season, delivery to the Northeast was constrained, and prices rose to over $100/MMBtu as the temperatures in New York and New England plunged. A large number of pending applications for liquefied natural gas export facilities, particularly combined with the political dimensions of international supply dominated by countries like Russia, risks more convergence between U.S. and international gas prices than we have seen to date.

Other Risks

In addition to the quantifiable risks associated with the uncertainty of natural gas prices and CO_2 costs, Liberty identified and summarized other risks associated with the Four Corners transaction, as defined in Table 3:

Table 3: Summary of Other Risks

Risk Area	Status	Potential Exposure
Coal contract termination	Coal Contract Extension executed	Low risk as it appears likely that the Navajo Nation will receive DOI approval
Four Corners Land Lease – Dept. of Interior ("DOI") Approval Process	Lease executed with APS	Low probability that DOI would reject lease, but might modify
Decommissioning and Mine Reclamation	Draft Environmental Impact Statement filed with DOI by Navajo Nation	While expected to be unlikely, DOI could reject or modify terms.
Heavy metals mitigation	Lengthening regulations for coal plants as to mercury and other heavy metals	Potential for added mitigation costs, although APS claims that Units 4 & 5 will comply
Inexperience of Navajo Transitional Energy Company ("NTEC")	BHP operating mine until 2016; APS manages closely and has assigned a full time fuel operations expert to be on-site.	Potential risk of mine operation due to replacement of BHP
Competitive market driven power costs	Potential for added mitigation costs, although APS claims that Units 4	Lower than expected market prices that would have been available via purchased power agreements

	& 5 will comply	
Load forecasts	Lower than expected load forecast could result in additional surplus capacity.	Risk to APS is low as further reduction in PPAs could offset lower growth and/or delay in planned 1,010 MW of gas generation

E. Ancillary Benefits

In addition to the economic benefits of the Four Corners acquisition, Liberty observed other benefits related to APS's acquisition of Four Corners Units 4 and 5. They include:

- Retention of approximately 800 jobs at the plant and mine
- Lease and right of way on Navajo land
- Protection of APS's pre-existing 15 percent of Four Corners Units 4 and 5
- Fuel diversity—not depending more on gas
- Closing Units 1 through 3 results in major reductions in Mercury, particulates, NO_x, SO_2 and CO_2.

IV. Conclusions

Based on the findings from our review of the process, data, and models, Liberty makes the following conclusions:

1. The additional 179 MW are both used and useful.
2. APS considered its reasonably available resource options.
3. The economic analysis of the acquisition was sound.
4. The economics of the transaction are favorable to APS customers.
5. The timing of the transaction was prudent.
6. The risks of the acquisition are more than offset by the expected favorable economics.
7. Several ancillary benefits add to the positive impact that the transaction will have for customers.
8. Overall, the Four Corners transaction was prudent.

In summary, Liberty finds that the acquisition of Four Corners to be reasonable and prudent, and calculated to provide benefit to APS customers.

James Letzelter

Areas of Specialization

Jim Letzelter is a leader in management consulting to the energy industry with over 24 years of experience. Jim specializes in power generation issues, including power market assessment, risk analysis, power plant valuation and acquisitions. He has led consulting teams on a variety of strategic, operational, regulatory and restructuring proceedings, and has supported a variety of successful merger, acquisition and development initiatives. Jim has a bachelor's degree in electrical engineering from Clarkson University and an M.B.A. from the State University of New York at Albany. He was a Lead Consultant in Liberty's audit of the procurement practices for fuel and purchased power of Entergy Mississippi, Inc. for the Mississippi Public Service Commission. Jim also led the effort by Liberty to evaluate the viability of PSNH's fossil fuel-fired generating stations.

Representative Experience

Risk Analysis & Asset Portfolio Assessment

- **Arcadia Wind**—Recently developed a sophisticated financial risk analysis model used by the client to bid on power project RFPs and to acquire capital from equity investors. Currently engaged with the company to provide ongoing risk modeling and overall financial and market intelligence support.
- **NextEra**—Developed a custom market intelligence tool to extract data from an industry standard forecasting package to meet the specific needs of energy traders. Currently engaged in an enhanced assignment to provide yet more market intelligence to the organization.
- **Nebraska Public Power District**—Performed a comprehensive risk analysis on the issue of nuclear plant life extension (NUPLEX) for the client's asset. Developed a risk management simulation tool to manage data and produce projections of future plant profitability under varying market, cost and regulatory scenarios. The work product was successfully employed by the client to make an informed decision on a major investment.
- **PSEG Power**—Developed and implemented a risk analysis and risk management tool for dealing with the uncertainty of emissions regulations. Implemented the model for the client and successfully led the organization through the maze of issues, including capital allocations, plant operations and investments that they faced.

Power Price Forecasting & Market Assessment

- **Investment Bank Syndicate**—Provided critical power market assessments for use in a major energy bankruptcy case. On behalf of the official creditor's committee, provided power price forecasts, power market assessments, fuel market reviews and power plant financial assessments. Work product was successfully used in litigation.

- **GE Power Systems**—Performed power market assessments for a major turbine manufacturer. Developed forecasts of energy, capacity, and ancillary service prices to be used to define the place in the market for an emerging turbine technology.
- **BNP Paribas**—Provided a detailed, comprehensive market assessment of global power markets to review the market for power generation turbines. With substantial investment in turbine manufacturers, the consortium relied on the expertise to make changes to their investment portfolios and shore up risk-plagued securities.
- **Bluewater Wind**—Provided market price forecasts to be utilized in the development and acquisition of power plants. Included forecasts of energy, capacity and ancillary services prices.

Generation & Transmission Operations

- **Bluewater Wind**—Provided a renewable power developer with consulting support on placement of assets with respect to transmission topography. Study used to select connection points and predict bus-level power prices.
- **Arcadia Wind**—Performed an assessment of transmission constraints for use in an asset valuation study. Used transmission constraint information to predict long-term power price implications, and the ability to move power to alternative markets.
- **NextEra**—Developed a power market price model based on dispatch costs, including transmission constraints and costs.

Asset Valuation, Acquisition & Development Support

- **PSEG Power**—Provided comprehensive power plant acquisition support. Managed market assessment process, provided asset valuations, defined acquisition price and assisted in property tax negotiations. Also highlighted the value of the asset with respect to asset re-powering opportunities.
- **PSEG Power**—Led the analytical efforts behind the acquisition of portions of three nuclear power plants. Included market comparables assessment, decommissioning fund valuation, and materials and supplies inventory valuation.
- **PSEG Power**—Provided a comprehensive financial and market analysis of re-powering opportunities for the client's older asset base. Included detailed assessment of market conditions and expected returns for various re-powering opportunities.
- **NextEra**—Successfully developed and deployed software to determine generating asset intrinsic and extrinsic value. Program utilizes probabilistic market price output from AURORA. Program also develops equilibrium market pricing for long-term time frame.
- **Dairyland Power Co-Op**—Provided a thorough asset valuation study to assess the impact of market uncertainties and financing parameters on the organization's asset values. Successfully provided the client with recommendations for potential divestiture and regulatory initiatives.
- **PSEG Power**—Provided a massive market assessment in support of a corporate power plant acquisition initiative. Included development of a detailed financial and valuation model for the client to use in future asset acquisition studies.

- **GE Power Systems**—Provided a power market assessment and financial analysis to assess the viability of a new class of combined cycle units for the U.S. power markets. Included a comprehensive scenario analysis of fuel prices, load growth, emissions regulations and transmission constraints.

Model Implementation, Validation & Development

- **NextEra**—Developed a custom interface for the AURORA electric power market model to seamlessly integrate within the client's analytical framework. Included data development and model validation, and custom report development.
- **NextEra**—Managed the overall process for transitioning the resource planning and forecasting department to AURORA. Included full data development, training, interface development, testing and validation. Successfully converted the business process to an AURORA-based system.
- **NextEra**—Developed a customized power price forecasting tool to provide acquisition and development support, restructuring support and general corporate financial forecasts. Developed data sets for the model and provided training and validation.

Emissions Control Analysis

- **PSEG Power**—Developed an enterprise-wide strategy for managing emissions constraints for the generating asset portfolio. Developed a probabilistic assessment model to consider plant operations, emission rates, control technology options, market forces and potential and existing emissions constraints. Deliverables resulted in a cohesive strategy and lobbying campaign for favorable regulations.
- **PSEG Power**—Performed a risk analysis of greenhouse gas regulation impacts on a potential fossil-fired asset portfolio acquisition. Deliverables included a detailed assessment of financial and asset value implications of various regulatory scenarios.
- **PSEG Power**—Provided an assessment of emissions regulations impacts on potential asset acquisitions. Included a market assessment of abatement technology costs and operating parameters, and a review of potential emissions regulations scenarios.

Regulatory & Litigation Support

- **BG&E**—Performed a gas cost of service study to be used in a major rate case. Developed a proprietary model for cost allocation and financial implications.
- **Entergy/MP&L**—Developed a custom ROE Calculation model to be used in rate-setting. The model captured highly complex algorithms into a manageable user interface. The model was approved by the state utility regulator and was successfully implemented.
- **PSEG Power**—Provided litigation support in a major utility restructuring proceeding. The project including development of exhibits, preparation of witnesses, developing testimony and cross-examination, and performing power market analyses.

Venture Capital & Emerging Technology Support

- **Arcadia Wind**—Provided analytical support for overall corporate development and acquisition of investment capital.
- **Thermal Energy International**—Provided comprehensive support for commercialization of a newly patented NO_x control technology. The project included a detailed market assessment, development of a financial analysis tool for customer proposals, acquisition of venture capital and strategic planning for the company. All aspects of the project were highly successful.

Basic Generation Services Auctions

- For the **Maryland PSC**, Mr. Letzelter oversaw several Basic Generation Service (BGS) auctions covering a multitude of time periods and utility service territories. The work entailed developing Bid Forms for bidders to submit with detailed price parameters; pre-qualification of bidders based on security and credit; and monitoring and oversight of the utility staff during bid period.
The work also entailed developing a detailed and comprehensive pre-auction market report and setting a bandwidth of acceptable bids based on market conditions. Mr. Letzelter also provided the Commission with a detailed report and presentation on results and provided testimony and other hearing support.
- For the **Pennsylvania PUC**, Mr. Letzelter oversaw the auction for Basic Generation Service (BGS). As auction monitor, he was responsible for pre-qualifying bidders and to open bids and select winners. He developed and implemented a custom web-based bid system to replace previously used paper/faxed forms. The implementation was highly successful. Mr. Letzelter also provided the Commission with a detailed report and presentation on results and provided testimony and other hearing support.
- For the **Delaware PSC**, lead consultant for Liberty's current service as Independent Monitor of Delmarva Power & Light. The project includes a review of pre-bid communications, announcements to bidders, and website review. Monitored the receipt of all bids. Produced reports and presentation for commission and provided follow-up consulting support and testimony.

Education

Master of Business Administration (M.B.A.)—State University of New York at Albany, Concentration in Finance.

Bachelor of Science in Electrical Engineering (B.S.E.E.)—Clarkson University, Concentration in Power System Engineering.

Key Publications & Presentations

- Quoted extensively in major news publications, including BusinessWeek, Chicago Tribune, Miami Herald, LA Times, etc., related to the Northeast blackout of 2003
- "U.S. Power Markets Overview: An Issues Overview and Enhanced View of Eastern Markets," May 6, 2008, Gerson Lehman Group speaker sponsorship
- "Economics of Coal-Fired Generation," March 2007, Goldman Sachs private speaker sponsorship
- "Power Risk Management: Environmental Economics," 2007, Goldman Sachs private speaker sponsorship
- "Predicting Long-Term Energy Prices with OptQuest: The GenMetric Model," May 3, 2006, Crystal Ball User Conference
- "Using the Efficient Frontier," January 18, 2006, Internationally-broadcast Web Conference sponsored by Decisioneering
- "Building the Perfect Generation Portfolio," September 2005, Public Utilities Fortnightly
- "Finding the Efficient Frontier: Power Plant Portfolio Assessment," June 13, 2005, Crystal Ball User Conference
- "The Efficient Frontier and Power Plant Portfolio Analysis," September 2004, EPIS Electric Market Forecasting Conference
- "Power Asset Transactions: Regulatory Risks," June 24, 2004, Infocast Buying Selling & Investing in Energy Assets 2004
- "Power Generation Asset Valuation," June 17, 2004, Crystal Ball User Conference
- "Assessing Risk in a Changing Market," March 29, 2004, Platts Global Power Markets
- "Our Energy Future," January 14, 2004, NET 2004 Conference
- "Our Transmission Future," January 14, 2004, NET 2004 Conference
- "Models Matter: The Art of LMP," November 6, 2003, Platts Electric Market Design Conference
- "Risk Management Panel Discussion" Moderator, September 2002, EPIS Electric Market Forecasting Conference, Skamania, WA
- "Venture Capital" Panel Moderator, December 3, 2001, Strategic Research Institute Energy Investor's Summit
- "Leveraging AURORA: Modeling New Resource Development," November 13, 2001, EPIS Electric Market Forecasting Conference
- "Optimizing Emissions Compliance: Emerging Technologies & Multi-Pollutant Regulation," July 26, 2001, Coal-GEN 2001
- Letzelter, James C., Public Utilities Fortnightly, "The New Venture Capitalists: Utilities Go Shopping For Deals," December 2000
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