

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION)
OF PUBLIC SERVICE COMPANY OF NEW)
MEXICO FOR APPROVAL TO ABANDON)
SAN JUAN GENERATING STATION UNITS)
2 AND 3, ISSUANCE OF CERTIFICATES)
OF PUBLIC CONVENIENCE AND)
NECESSITY FOR REPLACEMENT POWER)
RESOURCES, ISSUANCE OF ACCOUNTING)
ORDERS AND DETERMINATION OF)
RELATED RATEMAKING PRINCIPLES AND)
TREATMENT,)
)
PUBLIC SERVICE COMPANY OF NEW)
MEXICO,)
)
Applicant)
_____)

Case No. 13-00390-UT

JULY 15 SUPPLEMENTAL TESTIMONY

OF

PATRICK J. O'CONNELL

July 15, 2014

**JULY 15 SUPPLEMENTAL TESTIMONY OF
PATRICK J. O'CONNELL
NMPRC CASE NO. 13-00390-UT**

1 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

2 **A.** My name is Patrick J. O'Connell. I am Director, Planning and Resources, for
3 Public Service Company of New Mexico ("PNM" or "Company"). My address is
4 414 Silver Avenue SW, Albuquerque, New Mexico 87102.

5

6 **Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS**
7 **PROCEEDING?**

8 **A.** Yes. I filed Direct Testimony in this proceeding on December 20, 2013,
9 Supplemental Direct Testimony on February 5, 2014, Supplemental Testimony on
10 May 22, 2014, and Supplemental Testimony on July 1, 2014.

11

12 **Q. WHAT IS THE PURPOSE OF THIS JULY 15 SUPPLEMENTAL**
13 **TESTIMONY?**

14 **A.** The purpose of my July 15 Supplemental Testimony is to update my analyses
15 regarding the most cost-effective resource portfolio to comply with the Regional
16 Haze Rule requirements at San Juan Generating Station ("SJGS") to reflect the
17 financial impacts of the San Juan restructuring documents ("Restructure Term
18 Sheet") described in the July 15 Supplemental Testimony of Chris M. Olson.
19 The updated analyses continue to demonstrate that the resource portfolio I have
20 identified as Revised SIP with PV3 remains the most cost-effective resource
21 portfolio. I will also discuss how the Revised SIP with PV3 portfolio is
22 consistent with PNM's 2014-2033 Integrated Resource Plan ("IRP") that was
23 filed with the New Mexico Public Regulation Commission ("NMPRC") on July 1,

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1 2014. Specifically, I will address the following changes to the cost assumptions
2 used in the resource modeling presented in my testimony in this case as a result of
3 the Restructure Term Sheet:

- 4 • an increase in PNM's share of capital investment in SJGS Unit 4,
- 5 • a decrease in the overall cost of fuel, and
- 6 • an increase in operations and maintenance ("O&M) expense.

7

8 **Q. DO THE CHANGES IN PNM'S PROJECTED CAPITAL, FUEL AND**
9 **O&M COSTS AT SJGS UNITS 1 AND 4 CHANGE THE CONCLUSIONS**
10 **OF YOUR PREVIOUS TESTIMONY?**

11 **A.** No, the changes to the cost for fuel and O&M at SJGS Units 1 and 4 do not affect
12 my conclusion that PNM should retire its generation capacity in SJGS Units 2 and
13 3 and replace that capacity with the 134 MW Palo Verde Unit 3, 40 MW of solar
14 photovoltaic resources, and 177 MW of gas peaking capacity in addition to
15 acquiring 132 MW of capacity in SJGS Unit 4. My May 22 and July 1
16 supplemental testimonies showed the benefits of this plan compared to installing
17 selective catalytic reduction ("SCR") technology on all four Units at SJGS,
18 retiring all four Units of SJGS and using additional natural gas capacity instead of
19 Palo Verde Unit 3 in the replacement portfolio. The comparisons were based on
20 two potential outcomes of the SJGS ownership negotiations: PNM acquiring an
21 additional 132 MW in SJGS Unit 4 or PNM acquiring an additional 78 MW in
22 SJGS Unit 4. Now that the negotiations are complete and will result in PNM

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1 owning an additional 132 MW in SJGS Unit 4, I am presenting the updates in this
2 testimony for the 132 MW case only.

3

4 **Q. WHAT IS THE IMPACT OF THE CHANGES TO PNM'S PROJECTED**
5 **CAPITAL, FUEL AND O&M COSTS AT SJGS UNITS 1 AND 4?**

6 **A.** Compared to the \$6,852 million net present value ("NPV") of costs associated
7 with the Revised SIP with PV3, 132 MW Scenario that I reported in my July 1
8 Supplemental Testimony in Table PJO-1, the net impact of the changes to PNM's
9 projected capital, fuel and O&M costs at SJGS Units 1 and 4 are insignificant in
10 relation to the overall cost. The 20 year NPV for each change is:

- 11 • an \$8.9 million NPV increase in PNM's share of capital investment in
- 12 SJGS Unit 4,
- 13 • an \$18.0 million NPV decrease in the overall cost of fuel for SJGS, and
- 14 • an \$19.7 million NPV increase in O&M costs.

15 The net impact of these changes is an overall NPV portfolio cost of \$6,863
16 million, an increase of \$10.6 million, or 0.2%.

17

18 **Q. DO THE CHANGES TO PNM'S PROJECTED CAPITAL, FUEL AND**
19 **O&M COSTS AT SJGS UNITS 1 AND 4 CHANGE PORTFOLIO**
20 **RESOURCE SELECTIONS COMPARED TO YOUR MAY 22**
21 **SUPPLEMENTAL TESTIMONY?**

22 **A.** No. In addition to being insignificant to the overall cost of the portfolio, all of the
23 changes are to either fixed costs or base fuel prices at SJGS. Such changes do not

**JULY 15 SUPPLEMENTAL TESTIMONY OF
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1 affect economic dispatch decisions because economic dispatch is based solely on
2 variable costs and incremental coal prices at SJGS. And since the changes only
3 affect SJGS and do not affect the economic dispatch order of SJGS relative to
4 other resources, the Revised SIP with PV3 portfolio remains unchanged from my
5 May 22 Supplemental Testimony. I verified this by updating the cost projections
6 in the Strategist[®] model, and the result is provided in PNM Exhibit PJO-1 July 15
7 Supplemental.

8
9 **Q. WHAT IS THE IMPACT ON COST OR RESOURCE SELECTION FOR**
10 **THE OTHER POTENTIAL REGIONAL HAZE PORTFOLIOS YOU**
11 **HAVE DESCRIBED IN PREVIOUS TESTIMONY?**

12 **A.** In previous testimony I also described a Revised SIP without PV Unit 3 portfolio,
13 a FIP (4- Unit Shutdown) portfolio and a FIP (4-Unit SCR) portfolio. The changes
14 to the SJGS Unit 4 cost projections only affect the Revised SIP without PV Unit 3
15 portfolio, and the impact on that portfolio is the same as the impact on the
16 Revised SIP with PV Unit 3 portfolio – no change in resource selection and an
17 immaterial increase in the overall portfolio NPV. Table PJO-1 shows an updated
18 portfolio cost summary.

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Table PJO-1

Portfolio Cost Summary

Portfolio	20 Year NPV	Risk Measure
	(\$ M)	(\$ M)
1) Revised SIP with PV Unit 3, 132 MW Scenario	\$ 6,863	\$ 190
2) Revised SIP w/o PV Unit 3, 132 MW Scenario	\$ 6,866	\$ 232
3) FIP (4-Unit Shutdown)	\$ 7,235	\$ 321
4) FIP ("4-Unit SCR")	\$ 7,640	\$ 219

3

4 **Q. WHAT IMPACT DO THE CHANGES TO PNM'S PROJECTED**
5 **CAPITAL, FUEL AND O&M COSTS AT SJGS UNITS 1 AND 4 HAVE ON**
6 **THE COST-EFFECTIVENESS OF THE PALO VERDE UNIT 3**
7 **RESOURCE?**

8 **A.** The changes to the SJGS cost projections do not materially affect the overall
9 portfolio cost and, therefore, do not affect my previous testimony that Palo Verde
10 Unit 3 is a cost-effective resource addition to replace retired SJGS capacity at a
11 price higher than the \$2,500/kW price offered by PNM.

12

13 **Q. IS YOUR CONCLUSION THAT THE REVISED SIP WITH PV UNIT 3 IS**
14 **THE MOST COST EFFECTIVE APPROACH TO COMPLY WITH THE**
15 **REGIONAL HAZE RULE AT SJGS CONSISTENT WITH PNM'S**
16 **INTEGRATED RESOURCE PLAN?**

**JULY 15 SUPPLEMENTAL TESTIMONY OF
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NMPRC CASE NO. 13-00390-UT**

1 **A.** Yes. PNM filed its 2014-2033 IRP on July 1, 2014. The Revised SIP with PV
2 Unit 3 portfolio is identified as the most cost-effective portfolio in the IRP and is
3 the portfolio upon which the four year action plan in the IRP is founded. The IRP
4 report is the culmination of a year-long planning process that included an active
5 public advisory process. The IRP analysis examined the portfolio
6 recommendation over an even wider range of future customer demand, fuel and
7 environmental compliance cost projections than has been presented in my
8 testimony in this case. My conclusion in this case as to the most cost-effective is
9 supported by the PACE reference price curves shown in PNM Exhibit PJO-5 in
10 my Direct Testimony filed on December 20th. The IRP went further and
11 examined the portfolio impacts of all three of the curves described in that exhibit.
12 In addition, the IRP examined portfolio selections using the carbon prices
13 required by the NMPRC for use in integrated resource plans. The high end of the
14 carbon prices used has a cost impact on fossil generation that is greater than what
15 currently should be expected from carbon regulation and therefore can be viewed
16 as a proxy for the impact of future potential environmental regulations.

17

18 **Q. DID YOU ALSO EXAMINE RENEWABLE RESOURCES MORE**
19 **BROADLY IN THE IRP?**

20 **A.** Yes. At the behest of the IRP public advisory group, PNM performed wind
21 resource, solar resource and energy efficiency resource sensitivities as well as an
22 analysis of the potential impact of a more intense drought than New Mexico has
23 been experiencing lately. Again, the result of the analyses included in the IRP is

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1 that the most cost-effective portfolio to comply with Regional Haze at SJGS
2 includes retiring Units 2 and 3 and replacing retired capacity at SJGS with the 134
3 MW Palo Verde Unit 3, 40 MW of solar photovoltaic resources, and 177 MW of
4 gas peaking capacity in addition to acquiring additional capacity in SJGS Unit 4.
5 The IRP is available at www.pnm.com/irp.

6

7 **Q. DOES THIS COMPLETE YOUR JULY 15 SUPPLEMENTAL**
8 **TESTIMONY?**

9 **A.** Yes, it does.

10

#518387

PNM EXHIBIT PJO-1 (July 15 Supplemental)

Consisting of 1 Page

PNM Exhibit PJO-1 July 15 Supplemental

A

B

Summary of Regional Haze Compliant Portfolios Comparisons		
Line	Revised SIP with PV3 132 MW to SJ4 May 22nd Supplemental	Revised SIP with PV3 132 MW to SJ4 July 15th Supplemental
[1]	Gas Pricing	PACE Reference Case
[2]	CO2	PACE Reference Case (\$11 in 2020)
[3]	Energy Efficiency Forecast	2014 LRP (March '14)
[4]	PV DG Forecast	2014 LRP (March '14)
[5]	Demand Response Forecast	June 2013
[6]	Resource Alternative Database	EPRI TAG
[7]	Renewable Procurements	2014 REPP + Projections
[8]	Palo Verde 3 Available	\$2,500/kW
[9]	NOx Control at San Juan	SNCR's on 1 & 4
[10]	San Juan O&M Harvest Savings	Units 2 & 3
[11]	San Juan Investment Recovery	\$16,401,523
[12]	SJ Settlement Fuel Inventory Cost	\$0
[13]	SJ Settlement Common Capital Cost	\$0
[14]	SJ Retirements	Units 2 & 3 (Dec 2017)
[15]	2014	
[16]	2015	Red Mesa (102 MW)
[17]		2015 Solar (23 MW)
[18]	2016	Aeroderivative (40 MW)
[19]		Solar PV Tier 1 (40 MW)
[20]	2017	San Juan BART
[21]	2018	Large GT (177 MW)
[22]		Palo Verde 3 (134 MW)
[23]	2019	
[24]	2020	Solar PV Tier 2 (20 MW)
[25]		
[26]	2021	Solar PV Tier 2 (60 MW)
[27]	2022	Solar PV Tier 3 (40 MW)
[28]	2023	Solar PV Tier 3 (60 MW)
[29]		Wind (100 MW)
[30]	2024	Large GT (177 MW)
[31]	2025	
[32]	2026	
[33]		
[34]	2027	2nd Aeroderivative (40 MW)
[35]	2028	Large GT (177 MW)
[36]	2029	
[37]	2030	
[38]	2031	Aeroderivative (40 MW)
[39]		Solar PV Tier 3 (40 MW)
[40]	2032	Reciprocating Engines (93 MW)
[41]	2033	
[42]	20-Year LOLH	32.15
[43]	Average NPV (Risk)	\$6,852,061,359
[44]	5% Tail (Risk)	\$189,983,119

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AFFIDAVIT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

Patrick J. O'Connell, Director, Planning and Resources, Public Service Company of New Mexico, upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing **July 15 Supplemental Testimony of Patrick J. O'Connell** and it is true and accurate based on my own personal knowledge and belief.

SIGNED this 15 day of July, 2014.



PATRICK J. O'CONNELL

SUBSCRIBED AND SWORN to before me this 15th day of July, 2014.

Ronda Morehead

NOTARY PUBLIC IN AND FOR
THE STATE OF NEW MEXICO

