

**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

**TESTIMONY IN SUPPORT OF  
SUPPLEMENTAL STIPULATION  
OF  
PATRICK J. O'CONNELL**

**August 28, 2015**

**TESTIMONY IN SUPPORT OF  
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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 on December 20, 2013. I filed Supplemental Direct  
9 Testimony on February 5, 2014, and Supplemental Testimony on May 22, 2014,  
10 July 1, 2014, and July 15, 2014. I also filed Direct Testimony in Support of the  
11 Stipulation on October 31, 2014, Rebuttal Testimony in Support of the Stipulation  
12 on December 19, 2014, and Supplemental Testimony on July 31, 2015.

13

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN SUPPORT OF**  
15 **THE SUPPLEMENTAL STIPULATION?**

16 **A.** The purpose of this testimony is to show the additional benefits provided by the  
17 Supplemental Stipulation filed on August 13, 2015. I have testified previously  
18 that PNM's proposed resource portfolio, described as the "Stipulation Portfolio"<sup>1</sup>,  
19 is the most cost-effective resource portfolio for PNM's customers to comply with  
20 the Regional Haze Rule requirements at San Juan Generating Station ("SJGS").

21 The Supplemental Stipulation produces additional cost savings compared to my

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<sup>1</sup> See PNM Exhibit PJO-1 (July 31, 2015 Supplemental) column A for the details of the Stipulation Portfolio.

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1 previous estimates, which provides additional support for my conclusion that the  
2 NMPRC should approve the abandonment of San Juan Units 2 and 3 and issue the  
3 CCNs requested in this case. The requested approvals by the New Mexico Public  
4 Regulatory Commission ("NMPRC") are necessary to implement the Stipulation  
5 Portfolio.

6  
7 **Q. PLEASE SUMMARIZE YOUR PREVIOUS TESTIMONY THAT THE**  
8 **STIPULATION PORTFOLIO IS THE MOST COST EFFECTIVE**  
9 **APPROACH TO REGIONAL HAZE COMPLIANCE AT SAN JUAN**  
10 **GENERATING STATION.**

11 **A.** On October 31, 2014, with corrections provided on December 19, 2014, I  
12 presented the benefits of the original Stipulation that was filed on October 1,  
13 2014. Since this case was originally filed in December 2013, PNM's proposed  
14 portfolio has been shown to be the most cost effective approach through  
15 numerous changes in assumptions. That fact was recognized in the original  
16 Stipulation and is significantly enhanced by the benefits that will be provided by  
17 the new Coal Agreements and the SJGS Ownership Restructuring Agreements,  
18 lower than the previously estimated costs for gas peaking plants and for  
19 installation of selective non-catalytic reduction ("SNCR") and balanced draft on  
20 SJGS Units 1 and 4 that I showed in my July 31, 2015 testimony.

21

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1 **Q. WHAT IS THE IMPACT OF THE SUPPLEMENTAL STIPULATION ON**  
2 **THE COST-EFFECTIVENESS OF THE STIPULATION PORTFOLIO?**

3 **A.** The Supplemental Stipulation further enhances the cost-effectiveness of the  
4 Stipulation Portfolio to comply with the Regional Haze Rule requirements at  
5 SJGS. In this testimony, I quantify the impacts of the Supplemental Stipulation  
6 on the net present value (“NPV”) of cost for the Stipulation Portfolio that I  
7 provided on July 31, 2015. The net effect of the Supplemental Stipulation is an  
8 overall reduction in the NPV of cost for the Stipulation Portfolio of \$41 million.  
9 Table PJO-1 shows how the cost-effectiveness of the Stipulation Portfolio  
10 compared to the most likely alternative, which is a four-unit shutdown at SJGS,  
11 has improved due to the Ownership Restructuring Agreements and Coal  
12 Agreements and the Supplemental Stipulation. The Stipulation Portfolio is now  
13 less expensive by \$420 million in net present value of costs than a four-unit  
14 shutdown.

**Table PJO-1  
20 year NPV of Cost Calculations**

<b>Portfolio Description</b>	<b>Stipulation December 19, 2014</b>	<b>Coal Supply, Participation Agreements and Updated Gas Plant Cost Estimates July 31, 2015</b>	<b>Supplemental Stipulation August 28, 2015</b>
Stipulation Portfolio	\$7.59 billion	\$7.03 billion	\$6.99 billion
4 Unit Shutdown	\$7.68 billion	\$7.41 billion	\$7.41 billion

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1   **Q.   PLEASE DISCUSS YOUR EVALUATION OF THE EFFECT OF THE**  
2           **SUPPLEMENTAL STIPULATION ON THE NPV COST ESTIMATE FOR**  
3           **THE STIPULATION PORTFOLIO?**

4   **A.**   I examined the Supplemental Stipulation for its effect on the cost of Stipulation  
5           Portfolio NPV over 20 years. In my testimony below, I discuss three specific  
6           paragraphs:

- 7           • Paragraph 8, which describes a process whereby PNM will offset the  
8           emissions from 197 MW of SJGS generation with emission-free resources  
9           that should reduce the NPV of the Stipulation Portfolio;
- 10          • Paragraph 9 accelerates the depreciation of the SNCR investment at SJGS;  
11          and
- 12          • Paragraph 10 establishes a significantly reduced rate base value for the  
13          134 MW of capacity in Palo Verde Unit 3.

14           Only Paragraphs 9 and 10 have an impact on the NPV cost estimate of the  
15           Stipulation Portfolio, a reduction of \$41 million.

16

17   **Q.   PLEASE DESCRIBE PARAGRAPH 8 OF THE SUPPLEMENTAL**  
18           **STIPULATION.**

19   **A.**   Paragraph 8 describes a process whereby PNM will offset the emissions from 197  
20           MW of SJGS with generation from wind or solar resources starting in 2020. The  
21           offsets will occur either by purchasing and retiring Renewable Energy Certificates  
22           (“REC”) or by purchasing and retiring Clean Power Plan (“CPP”) compliance

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1 instruments called Emission Rate Credits (“ERC”) or allowances. PNM will  
2 purchase each year RECs, ERCs or allowances in an amount sufficient to offset  
3 the energy production from 197 MW of SJGS, up to a maximum annual  
4 expenditure of \$7 million, including carrying charges. If PNM is able to purchase  
5 the offsets in a quantity sufficient to match 197 MW of SJGS energy production  
6 in any given year for less than the \$7 million, inclusive of carrying charges, PNM  
7 will spend less than that amount. The instruments purchased should assist New  
8 Mexico in complying with the Clean Power Plan and will be in addition to any  
9 REC purchases that PNM may need to make to comply with the requirements of  
10 the Renewable Portfolio Standard provided in the Renewable Energy Act. If  
11 possible, PNM will purchase ERCs or allowances that qualify for incentive  
12 awards as described in the Clean Power Plan’s proposed Clean Energy Incentive  
13 Program (“CEIP”). If the Clean Power Plan is not in effect in 2020 or after, PNM  
14 will offset the emissions from the 197 MW of SJGS generation with RECs and  
15 the Signatories to the Supplemental Stipulation will convene to determine whether  
16 bundled or unbundled RECs provide the best environmental and customer  
17 outcome.

18  
19 **Q. HOW DOES THE CLEAN POWER PLAN DEFINE ERCS OR**  
20 **ALLOWANCES?**

21 **A.** Under the CPP, ERCs and allowances are compliance instruments and their use  
22 depends on whether a state chooses to comply with the CPP using either a rate

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1 based or mass based system. Under a rate based system, states have a compliance  
2 obligation that is expressed in pounds of CO<sub>2</sub> emitted per MWh. In that system  
3 an ERC will represent a MWh of zero-emission generation. So, in the calculation  
4 of CPP compliance, a state will calculate total lbs/MWh by dividing the lbs of  
5 CO<sub>2</sub> emitted by the sum of the MWhs generated from the affected electric  
6 generation units (“EGU”) plus any ERCs. So, ERCs will benefit compliance in a  
7 rate based system by reducing the pounds per MWh compliance calculation.  
8 Under a mass based system, states will have to regulate the total tons of CO<sub>2</sub>  
9 emitted from the affected EGUs below a compliance limit. Compliance will be  
10 measured by subtracting allowances from the emissions from the affected EGUs  
11 and comparing that result to the compliance limit. Until New Mexico submits a  
12 compliance plan, and Environmental Protection Agency (“EPA”) approves New  
13 Mexico’s plan, it is unknown whether PNM should purchase ERCs or allowances,  
14 which is why the Stipulation is not specific on that point.

15  
16 **Q. HOW HAS THE COST OF POTENTIAL CARBON REGULATION BEEN**  
17 **ASSESSED IN PNM’S RESOURCE MODELING?**

18 **A.** Consistent with the Integrated Resource Plan (“IRP”) rule, I have been including  
19 a cost associated with the potential regulation of carbon emissions in the resource  
20 modeling. The assumption for carbon costs in this case is shown as the  
21 “Reference” scenario for national carbon prices on Page 11 of Part 3 of PNM  
22 Exhibit PJO-4 (July 31, 2015 Supplemental). I have been assuming that carbon

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1       dioxide emissions from PNM's generation portfolio will create an additional cost  
2       of about \$11 per metric ton in 2012 dollars starting in 2020. The annual cost  
3       assessment increases over time as a result of the national market dynamics  
4       modeled by PACE Global that are documented in that exhibit. This assessment  
5       results in a cost associated with carbon emissions from PNM's generation  
6       portfolio of \$68 million in 2020 growing to almost \$300 million in 2033. This  
7       carbon pricing is a reasonable surrogate for the costs associated with compliance  
8       with the Clean Power Plan. PNM Exhibit PJO-1 Supplemental Stipulation  
9       compares the annual carbon cost included in the resource modeling to the  
10      maximum annual cost associated with Paragraph 8 of the Supplemental  
11      Stipulation. PNM Exhibit PJO-1 Supplemental Stipulation shows the potential  
12      range of the cost savings associated with Paragraph 8.

13  
14   **Q.   HOW SHOULD THE IMPACT OF PARAGRAPH 8 OF THE**  
15   **SUPPLEMENTAL STIPULATION BE VIEWED COMPARED TO THE**  
16   **CARBON REGULATION PRICING YOU HAVE INCLUDED IN THE**  
17   **RESOURCE MODELLING?**

18   **A.**   The \$7 million per year associated with Paragraph 8 should be viewed as part of,  
19       not incremental to, the carbon compliance costs that I have already included in the  
20       portfolio modeling. EPA released the Clean Power Plan on August 3, 2015. The  
21       State of New Mexico has until September 2016 to develop and submit a State  
22       Implementation Plan based on this rule. It is too soon to evaluate the cost impact



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1 of the Clean Power Plan on PNM's generation portfolio. Since the first Clean  
2 Power Plan compliance date is now 2022, and Paragraph 8 of the Supplemental  
3 Stipulation is designed to take advantage of the early action credits provided in  
4 the Clean Power Plan, it is reasonable to assume that, at least early in the 2020  
5 decade, the cost of complying with the Clean Power Plan will be much lower than  
6 I have been estimating. Future carbon emission regulation costs for PNM's  
7 electric generation portfolio costs should be reduced by the provisions of  
8 Paragraph 8. If the \$7 million is the total cost of compliance with the Clean  
9 Power Plan for PNM's electric generation units, the result would be a reduction in  
10 the NPV estimate of cost for the Stipulation Portfolio of over \$700 million  
11 dollars.

12  
13 **Q. PLEASE DESCRIBE PARAGRAPH 9 OF THE SUPPLEMENTAL**  
14 **STIPULATION.**

15 **A.** Paragraph 9 of the Supplemental Stipulation says that the Signatories agree that  
16 PNM's investment in SNCR technology at SJGS is prudent and will be  
17 depreciated by July 1, 2022. There is a reduction of \$3 million on the twenty-year  
18 NPV of cost for the Stipulation Portfolio as a result of the shorter depreciation  
19 period. There is a trade-off in terms of NPV between the higher up-front costs  
20 associated with shorter depreciation schedule and the higher total costs when cost  
21 recovery occurs over a 30 year period. I have assumed the depreciation period for  
22 the SNCR investment will be January 1, 2018 through June 30, 2022.

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1 **Q. PLEASE DESCRIBE PARAGRAPH 10 OF THE SUPPLEMENTAL**  
2 **STIPULATION.**

3 **A.** Paragraph 10 of the Supplemental Stipulation says that the Signatories agree that  
4 the rate base value for PNM's 134 MW interest in Unit 3 of the Palo Verde  
5 Nuclear Generating Station ("Palo Verde") that is an element of the Stipulation  
6 Portfolio shall be the actual book value at December 31, 2017. The total net book  
7 value on that date of all Palo Verde Unit 3 related-assets is currently estimated to  
8 be \$1,118 per kW, including transmission assets. This paragraph affects the July  
9 31, 2015 NPV of cost for the Stipulation Portfolio because that NPV of cost was  
10 calculated assuming a rate base value of \$1,650 per kW for Palo Verde Unit 3,  
11 plus an additional approximately \$3 million for transmission assets. Including  
12 this resource in rate base at net book value decreases the NPV of cost for the  
13 Stipulation Portfolio.

14

15 **Q. WHAT IS THE IMPACT OF PARAGRAPH 10 ON THE NPV OF COST**  
16 **FOR THE STIPULATION PORTFOLIO?**

17 **A.** Including the Palo Verde Unit 3 related assets at an estimated net book value of  
18 \$1,118 per kW results in a decrease of the NPV of cost of the Stipulation Portfolio  
19 of \$38 million.

20

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1 **Q. WHAT IS THE TOTAL IMPACT OF THE SUPPLEMENTAL**  
2 **STIPULATION ON THE NPV OF COST FOR THE STIPULATION**  
3 **PORTFOLIO?**

4 **A.** The impact of Supplemental Stipulation on the NPV of cost of the Stipulation  
5 Portfolio is the decrease of \$41 million. Paragraphs 9 and 10 reduce the NPV of  
6 cost for the Stipulation Portfolio from the \$7.03 billion shown on Table PJO-1 of  
7 my July 31, 2015 Supplemental Testimony to \$6.99 billion. I have not included  
8 the impact of Paragraph 8 regarding carbon regulation compliance costs, but this  
9 could result in an additional reduction of over \$700 million, which would further  
10 reduce the NPV to \$6.29 billion. Table PJO-2 shows the updated portfolio  
11 estimates from my July 31, 2015 testimony.

**Table PJO-2**

<b>Portfolio Description</b>	<b>July 31 Twenty Year NPV of Cost</b>	<b>Impact of Supplemental Stipulation ¶ 9 and 10</b>	<b>August 28 20-year NPV of Cost</b>	<b>Difference to Stipulation Portfolio as of August 28</b>
Stipulation Portfolio	\$7.03 billion	\$0.04 billion	\$6.99 billion	—
RSIP w/o CCN for SJGS	\$7.22 billion	\$0	\$7.22 billion	\$230 million
RSIP w/o CCN for PV 3	\$7.12 billion	\$0	\$7.12 billion	\$130 million
4 Unit Shutdown	\$7.41 billion	\$0	\$7.41 billion	\$420 million

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1   **Q.   WHAT HAVE YOU CONCLUDED?**

2   **A.**   The Supplemental Stipulation enhances the Stipulation Portfolio's status as the  
3       most cost-effective resource portfolio to replace the retired capacity in SJGS  
4       Units 2 and 3 under widely different economic and operational circumstances. As  
5       I stated in my July 31, 2015 Supplemental Testimony, the Stipulation Portfolio  
6       has remained the most cost-effective solution for the Regional Haze Rule  
7       requirements at SJGS throughout the proceedings in this case under a number of  
8       changing circumstances and assumptions. The Supplemental Stipulation provides  
9       PNM's customers additional cost reductions in what was already the best option  
10      among the alternatives.

11

12   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY?**

13   **A.**   Yes.

*GCG#520411*

**PNM EXHIBIT PJO-1 Supplemental Stipulation**

**Consisting of 1 page**

**PNM Exhibit PJO-1 Supplemental Stipulation**

		A	B		
<b>Carbon Regulation Cost Comparisons</b>					
		Total Carbon Costs Stipulation Portfolio	Supplemental Stipulation		
<i>In</i>	YEAR	PACE Reference	San Juan Plant	<i>In</i>	
1	2014	\$0	\$0	1	
2	2015	\$0	\$0	2	
3	2016	\$0	\$0	3	
4	2017	\$0	\$0	4	
5	2018	\$0	\$0	5	
6	2019	\$0	\$0	6	
7	2020	\$68,399,885	\$7,000,000	7	
8	2021	\$78,645,584	\$7,000,000	8	
9	2022	\$86,675,658	\$7,000,000	9	
10	2023	\$92,901,002	\$7,000,000	10	
11	2024	\$104,852,933	\$7,000,000	11	
12	2025	\$115,126,036	\$7,000,000	12	
13	2026	\$129,072,598	\$7,000,000	13	
14	2027	\$144,256,224	\$7,000,000	14	
15	2028	\$168,608,146	\$7,000,000	15	
16	2029	\$188,953,089	\$7,000,000	16	
17	2030	\$220,044,521	\$7,000,000	17	
18	2031	\$240,405,407	\$7,000,000	18	
19	2032	\$261,247,394	\$7,000,000	19	
20	2033	\$296,737,760	\$7,000,000	20	
21	2016-2033 Sum	\$2,195,926,235	\$98,000,000	21	
22	2014 NPV (8.18% WACC)	\$691,770,922	\$35,631,907	22	
23	Strat 2014 NPV (end of year convention)	\$748,357,784	\$38,546,597	23	

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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 **Testimony in Support of Supplemental Stipulation of Patrick J. O'Connell** and it is true and accurate based on my own personal knowledge and belief.

SIGNED this 26 day of August, 2015.

Patrick J. O'Connell  
PATRICK J. O'CONNELL

SUBSCRIBED AND SWORN to before me this 26<sup>th</sup> day of August, 2015.

Ronda Morehead  
NOTARY PUBLIC IN AND FOR  
THE STATE OF NEW MEXICO

