

**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. 13-00\_\_\_\_\_-UT

**DIRECT TESTIMONY AND EXHIBITS**

**OF**

**CHRIS M. OLSON**

**December 20, 2013**

**NMPRC CASE NO. 13-\_\_\_\_\_-UT**  
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**WITNESS FOR**  
**PUBLIC SERVICE COMPANY OF NEW MEXICO**

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PNM Exhibit CMO-1	Résumé of CHRIS M. OLSON
PNM Exhibit CMO-2	SNCR Project Timeline
PNM Exhibit CMO-3	SNCR Project Total Estimated Costs
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PNM Exhibit CMO-5	Estimated Timing of SNCR Project Costs

AFFIDAVIT

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**I. INTRODUCTION AND PURPOSE**

1  
2  
3 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

4 **A.** My name is Chris M. Olson. I am the Vice President, Generation, for Public  
5 Service Company of New Mexico (“PNM” or the “Company”). My address is 2401  
6 Aztec Road NE, Albuquerque, New Mexico 87107. As Vice President, Generation, I  
7 am responsible for the strategic direction and operation of PNM’s generating  
8 resources to ensure that they continue to provide safe, reliable and efficient  
9 electricity generation to customers within PNM’s service territory. The functions I  
10 oversee include generation operations, maintenance, engineering, construction, fuel and  
11 power procurement, wholesale power marketing and other services related to PNM’s  
12 generation fleet for PNM’s New Mexico customers. I also have executive oversight  
13 responsibility for the operation of the San Juan Generating Station (“San Juan” or  
14 “SJGS”) on behalf of its various owners, in conformity with the San Juan Project  
15 Participation Agreement. A statement of my qualifications is attached as PNM Exhibit  
16 CMO-1.

17  
18 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN UTILITY REGULATORY  
19 PROCEEDINGS?**

20 **A.** I have not previously testified before the New Mexico Public Regulation  
21 Commission (“NMPRC” or “Commission”). However, I testified as a witness for  
22 PNM at the September 5, 2013, proceeding before the New Mexico Environmental  
23 Improvement Board (“NMEIB”) where the revision to the New Mexico Regional

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1 Haze State Implementation Plan (“Revised SIP”) was adopted. The Revised SIP  
2 includes a new determination of Best Available Retrofit Technology (“BART”) for  
3 San Juan for emissions of oxides of nitrogen (“NOx”). The Revised SIP is the  
4 impetus for the retirement of San Juan Units 2 and 3 and the retrofit of selective non-  
5 catalytic reduction (“SNCR”) on San Juan Units 1 and 4 which are issues in this  
6 proceeding. In addition, the owners of San Juan will be converting Units 1 and 4 to  
7 a balanced draft configuration in order to satisfy the requirements of San Juan’s  
8 existing air permits and to demonstrate compliance with the National Ambient Air  
9 Quality Standards (“NAAQS”) under the federal Clean Air Act (“CAA”).

10  
11 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

12 **A.** The basic purpose of my testimony is to support the approval of PNM’s Application in  
13 this proceeding with respect to (a) the abandonment of PNM’s jurisdictional interests in  
14 San Juan Units 2 and 3; (b) the issuance of certificates of public convenience and  
15 necessity (“CCNs”) for an additional ownership interest of 78 MW in San Unit 4 and an  
16 additional 134 MW representing PNM’s interest in Unit 3 of the Palo Verde Nuclear  
17 Generating Station (“Palo Verde” or “PVNGS”); and (c) the recovery of PNM’s initial  
18 costs incurred to comply with the NOx BART determination for San Juan under the  
19 Federal Implementation Plan (“FIP”) issued by the U.S. Environmental Protection  
20 Agency (“EPA”) requiring the installation of selective catalytic reduction (“SCR”) on all  
21 four units.

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1   **Q.   HOW DOES YOUR TESTIMONY SUPPORT PNM'S APPLICATION ON**  
2   **THESE MATTERS?**

3   **A.**   My testimony provides background concerning San Juan and its current ownership  
4       structure. I also note the ongoing discussions among the San Juan owners concerning a  
5       proposed new ownership structure for San Juan following the implementation of the  
6       Revised SIP and the retirement of Units 2 and 3. As part of the revised ownership  
7       structure, it is anticipated that PNM will acquire an additional 78 MW of capacity in San  
8       Juan Unit 4. I also summarize anticipated regulatory approvals necessary for the revised  
9       ownership structure.

10

11       My testimony also addresses the steps PNM has taken with respect to compliance with  
12       the EPA's Regional Haze Rule and the costs associated with compliance. I discuss why  
13       it was necessary for PNM to incur certain initial costs associated with the installation of  
14       SCR on all four San Juan units in order to meet the compliance deadline under the FIP.  
15       I also discuss the need for and benefits of conversion of San Juan Units 1 and 4 to a  
16       balanced draft configuration which is being undertaken in conjunction with the  
17       emissions control upgrades required under the Revised SIP. I will describe the  
18       processes and measures that PNM has taken to assure the reasonableness of the costs  
19       associated with these upgrades and compliance efforts. I also discuss the anticipated  
20       timing of the EPA approval process for the Revised SIP.

21

22       Finally, to support the issuance of CCNs for additional generation capacity in San Juan  
23       Unit 4 and PVNGS Unit 3, I discuss the operational and compliance histories for these

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1 facilities as well as their status as sources of continued reliable and cost-effective  
2 generation capacity. With regard to Palo Verde Unit 3, I also discuss the anticipated  
3 transmission capacity that would be utilized to bring power from PVNGS Unit 3 to New  
4 Mexico jurisdictional customers.

5  
6 **II. SAN JUAN BACKGROUND AND CURRENT OWNERSHIP**

7  
8 **Q. CAN YOU PLEASE PROVIDE SOME GENERAL BACKGROUND**  
9 **DETAILS FOR SAN JUAN?**

10 **A.** San Juan is a four unit coal-fired generating station. It is located in Waterflow,  
11 New Mexico, fifteen miles west of Farmington. San Juan consists of four coal-fired  
12 units with 1683 net MW of electric generation capacity. The net generation capacity  
13 and in-service dates for each of the four units at San Juan are:

- 14 • Unit 1: 340 MW, on line in 1976
- 15 • Unit 2: 340 MW, on line in 1973
- 16 • Unit 3: 496 MW, on line in 1979
- 17 • Unit 4: 507 MW, on line in 1982

18  
19 **Q. WHAT IS THE FUEL SOURCE FOR SAN JUAN?**

20 **A.** San Juan is what is known as a “mine mouth plant” which means that it procures  
21 all of its fuel from the adjacent San Juan Coal Mine. The San Juan Coal Mine is  
22 operated by the San Juan Coal Company (“SJCC”), an affiliate of BHP Billiton.  
23 PNM, Tucson Electric Power Company (“TEP”) and SJCC are parties to an

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1           Underground Coal Sales Agreement (“UG-CSA”) dated August 31, 2001, for the  
2           supply of fuel to San Juan. The UG-CSA expires at the end of 2017 which  
3           corresponds with the proposed retirement of San Juan Units 2 and 3 under the  
4           Revised SIP. As I discuss later, negotiations are currently underway to secure a  
5           coal supply for the remaining units at San Juan beyond 2017.

6  
7   **Q.    WHAT IS PNM’S ROLE WITH RESPECT TO THE OPERATION OF**  
8   **SAN JUAN?**

9   **A.**    PNM is a part owner of San Juan and is also its operating agent. This basically  
10       means that PNM is responsible for the day-to-day operations of the power plant.  
11       The employees who work at San Juan are PNM employees. The San Juan  
12       Participant Engineering and Operating Committee, which is made up of a  
13       representative from each owner, is responsible for review and approval of annual  
14       operating and capital budgets. The San Juan Participant Coordination Committee,  
15       which is also made up of a representative from each owner, serves as the policy-  
16       making board for San Juan.

17  
18   **Q.    CAN YOU PLEASE DESCRIBE THE CURRENT OWNERSHIP**  
19   **STRUCTURE FOR SAN JUAN?**

20   **A.**    San Juan is currently owned by a diverse group of entities. Two New Mexico  
21       municipal entities, the Incorporated County of Los Alamos (“Los Alamos”) and  
22       the City of Farmington (“Farmington”), each own separate interests in San Juan  
23       Unit 4. Other governmental entities owning interests in San Juan include the City

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1 of Anaheim, California (“Anaheim”), M-S-R Public Power Agency (“M-S-R”),  
2 Utah Associated Municipal Power Systems (“UAMPS”), and the Southern  
3 California Public Power Authority (“SCPPA”). Tri-State Generation and  
4 Transmission Association, Inc. (“Tri-State”) is a part owner of Unit 3 and  
5 provides electric generation to most of New Mexico’s rural electric cooperatives.  
6 TEP, an investor-owned utility, has an interest in Units 1 and 2. Table 1 below  
7 shows the current ownership interests by unit at San Juan on a percentage basis.

8  
9 **Table 1: Current San Juan Percentage Ownership**

<b>Participant</b>	<b>Unit 1</b>	<b>Unit 2</b>	<b>Unit 3</b>	<b>Unit 4</b>
PNM	50.000%	50.000%	50.000%	38.457%
TEP	50.000%	50.000%		
M-S-R				28.800%
Farmington				8.475%
Tri-State			8.200%	
Los Alamos				7.200%
SCPPA			41.800%	
Anaheim				10.040%
UAMPS				7.028%
Total	100.000%	100.000%	100.000%	100.000%

10  
11 **Q. CAN YOU PROVIDE A BREAKDOWN OF THE CURRENT SAN JUAN**  
12 **OWNERSHIP ON A GENERATION CAPACITY BASIS?**

13 **A.** Yes. Table 2 below shows each owner’s interest expressed in terms of capacity in  
14 net megawatts (“MW”).



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1 **Table 2: Current San Juan Ownership in Net Capacity (MW)**

<b>Participant</b>	<b>Unit 1</b>	<b>Unit 2</b>	<b>Unit 3</b>	<b>Unit 4</b>	<b>Total</b>
PNM	170.0	170.0	248.0	195.0	783.0
TEP	170.0	170.0	-	-	340.0
M-S-R	-	-	-	146.0	146.0
Farmington	-	-	-	43.0	43.0
Tri-State	-	-	40.7	-	40.7
Los Alamos	-	-	-	36.5	36.5
SCPPA	-	-	207.3	-	207.3
Anaheim	-	-	-	50.9	50.9
UAMPS	-	-	-	35.6	35.6
<b>Total</b>	<b>340.0</b>	<b>340.0</b>	<b>496.0</b>	<b>507.0</b>	<b>1,683.0</b>

2

3 **Q. ARE THERE CERTAIN SAN JUAN EQUIPMENT AND FACILITIES**  
4 **THAT ARE HELD IN COMMON BY THE OWNERS?**

5 **A.** Yes. Some of the equipment and facilities serve all four San Juan units. These  
6 are held in common ownership based on each owner's percentage of ownership in  
7 San Juan as whole based on MW capacity. Table 3 shows each owner's  
8 respective ownership interest in the San Juan common facilities and equipment.

9 **Table 3: Ownership of San Juan Common Facilities and Equipment**

<b>Participant</b>	<b>Common All Units</b>
PNM	46.297%
TEP	19.800%
M-S-R	8.700%
Farmington	2.559%
Tri-State	2.490%
Los Alamos	2.175%
SCPPA	12.710%
Anaheim	3.100%
UAMPS	2.169%
<b>Total</b>	<b>100.000%</b>

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1 In addition to the common ownership interests across all four San Juan units,  
2 there are certain common equipment and facilities shared between Units 1 and 2  
3 and Units 3 and 4. Table 4 shows these common ownership interests.

4 **Table 4: Common Ownership Between Units 1 & 2 and Units 3 & 4**

Participant	Unit 1&2 Common	Unit 3&4 Common
PNM	50.000%	44.119%
TEP	50.000%	0.000%
M-S-R		14.400%
Farmington		4.249%
Tri-State		4.100%
Los Alamos		3.612%
SCPPA		20.900%
Anaheim		5.070%
UAMPS		3.550%
<b>Total</b>	<b>100.000%</b>	<b>100.000%</b>

5  
6 **Q. WHAT ROLE DOES SAN JUAN PLAY IN PNM'S GENERATION**  
7 **PORTFOLIO?**

8 **A.** PNM Witness Patrick J. O'Connell will address PNM's generation portfolio in  
9 more detail. However, in general terms, San Juan provides base load generation  
10 for over 500,000 PNM customers in New Mexico. Base load generation is  
11 essential for maintaining reliable electric service. San Juan has been a low-cost,  
12 reliable source of electricity for four decades. It is the second-lowest cost  
13 resource of electricity, on a levelized basis, in PNM's energy portfolio and a key  
14 reason for the relative affordability of PNM's rates. PNM's ownership share in  
15 San Juan Unit 3 currently represents PNM's single largest generation resource.

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1   **Q.    WHAT OTHER CUSTOMERS DOES SAN JUAN SERVE?**

2   **A.**    San Juan Unit 4 provides generation capacity for 44,000 Farmington customers  
3           and 8,500 Los Alamos customers. Tri-State, in part through its ownership in San  
4           Juan, provides generation capacity to approximately 150,000 members of New  
5           Mexico rural electric cooperatives. It's estimated that San Juan provides energy  
6           to some 2,000,000 total customers in the Southwestern and Western United  
7           States.

8  
9   **Q.    WHAT ARE THE GENERAL OPERATIONAL CHANGES THAT WILL  
10        BE REQUIRED AT SAN JUAN IN ORDER TO IMPLEMENT THE  
11        REVISED SIP?**

12 **A.**    In very basic terms, the San Juan owners will be required to retire Units 2 and 3  
13           by December 31, 2017, and to install SNCR technology on Units 1 and 4 within  
14           fifteen months of the EPA's approval of the Revised SIP, but no earlier than  
15           January 31, 2016. The Revised SIP imposes a NOx limit on Units 1 and 4 of 0.23  
16           lb/MMBtu on a 30-day rolling average. San Juan will also be required to meet a  
17           sulfur dioxide ("SO<sub>2</sub>") emission rate of 0.10 lb/MMBtu which is reduced from the  
18           current permitted emission rate of 0.15 lb/MMBtu. The new SO<sub>2</sub> emission limit  
19           is to become effective by March 5, 2014.

20  
21 **Q.    FOLLOWING THE IMPLEMENTATION OF THE REVISED SIP, WILL  
22        THE OWNERSHIP STRUCTURE OF SAN JUAN CHANGE?**

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1   **A.**    Yes. I discuss the potential new ownership structure in the next section of my  
2           testimony.

3

4           **III.   PROPOSED OWNERSHIP RESTRUCTURE FOR SAN JUAN**

5

6   **Q.**    **HOW WILL THE IMPLEMENTATION OF THE REVISED SIP AFFECT**  
7           **THE OWNERSHIP STRUCTURE FOR SAN JUAN?**

8   **A.**    There will be changes in the San Juan ownership structure as a result of the  
9           implementation of the Revised SIP. As detailed in Table 1 above, current  
10          ownership in San Juan varies on a unit-by-unit basis. The retirement of Units 2  
11          and 3 will result in the transfer and exchange of interests in San Juan in order to  
12          meet the particular generation and regulatory requirements of each owner.  
13          Presently, the San Juan owners are in discussions concerning a new ownership  
14          structure to be memorialized in a restructuring agreement.

15

16   **Q.**    **WHAT CAN YOU TELL US ABOUT PNM'S OWNERSHIP IN SAN JUAN**  
17           **FOLLOWING THE RETIREMENT OF UNITS 2 AND 3?**

18   **A.**    Of course the details of the restructuring discussions among the owners are  
19          confidential. However, PNM has publicly stated its intention to acquire an  
20          additional 78 MW in Unit 4. Most likely, this will be accomplished by means of a  
21          trade using 78 MW of PNM's current interest in Unit 3 for 78 MW in Unit 4  
22          effective January 1, 2015. Discussions are ongoing, so there may be some  
23          adjustments in the actual amount of capacity acquired and in the structure of the

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1 trades among the ownership interests in the various units. For the reasons I  
2 discuss in Section VII. A. of my testimony, PNM does not presently anticipate  
3 that it will acquire less than 78 MW in San Juan Unit 4.

4  
5 **Q. WILL THERE BE CORRESPONDING TRANSFERS OF COMMON**  
6 **EQUIPMENT AND FACILITIES?**

7 **A.** Yes. The ownership structure of the common interests will depend on the final  
8 configuration of the ownership interests in the four San Juan units under the  
9 restructuring agreement.

10  
11 **Q. MR. DARNELL INDICATED THAT THE CALIFORNIA OWNERS, AS**  
12 **WELL AS ONE OF THE OTHER OWNERS, WANT TO EXIT FROM**  
13 **SAN JUAN. CAN YOU ELABORATE ON THIS POINT?**

14 **A.** The California owners in San Juan are subject to a California law, SB 1368,  
15 which restricts their ability to own or procure energy from coal-fired generation  
16 sources. As a result of this law, these owners have reservations about their ability  
17 to agree to the large capital investments in San Juan that are required to comply  
18 with the EPA's Regional Haze Rule. Therefore, these owners are interested in  
19 disengaging from any active participation in San Juan. The closure of Units 2 and  
20 3 will actually help facilitate their exit. Of course, as noted in Table 1 above, the  
21 California ownership interests are limited to San Juan Units 3 and 4. Therefore,  
22 there will have to be changes in the ownership structure of these units for at least  
23 certain of the California owners in order to retire their respective ownership

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1 interests in San Juan. As noted by Mr. Darnell, there is another owner that may  
2 wish to exit from San Juan.

3  
4 **Q. WHAT IS THE ANTICIPATED TIMING FOR THE TRANSFER OF THE**  
5 **VARIOUS INTERESTS IN SAN JUAN?**

6 **A.** The timing of the transfers is one of the issues currently under discussion among  
7 the owners. However, subject to Commission approval, it is PNM's intention to  
8 complete the exchange and acquisition of 78 MW in San Juan Unit 4 effective  
9 January 1, 2015.

10  
11 **Q. WHAT PAYMENTS OR OTHER COMPENSATION ARE TO BE PAID**  
12 **FOR THE VARIOUS TRANSFERS OF INTERESTS UNDER THE**  
13 **PROPOSED RESTRUCTURING AGREEMENT?**

14 **A.** It's presently anticipated that the transfers and exchanges of the San Juan  
15 ownership interests will be traded on a one-for-one MW capacity basis. For  
16 example, PNM would trade a 78 MW share in Unit 3 for a 78 MW share in Unit  
17 4. However, under the eventual agreement for the restructuring of the San Juan  
18 ownership, there may be certain payments and credits among the owners  
19 associated with obligations relating to such things as the long-term capital  
20 improvements, the ultimate decommissioning of San Juan, the treatment of  
21 environmental liabilities resulting from plant operations, and coal mine  
22 reclamation costs. These payments and credits are still the subject of negotiation.

23

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1 **Q. ARE THERE ANY ANTICIPATED ADDITIONAL OR INCREMENTAL**  
2 **DECOMMISSIONING COSTS ASSOCIATED WITH THE RETIREMENT**  
3 **OF SAN JUAN UNITS 2 AND 3?**

4 **A.** No. At the end of all of San Juan's operations, there will certainly be some level  
5 of decommissioning costs. However, because Units 1 and 4 will remain in  
6 operation and rely on certain common facilities with Units 2 and 3, it is not  
7 readily feasible or desirable to physically remove the two retired units. In  
8 addition, there is no specific contractual or legal requirement that, upon their  
9 retirement, Units 2 and 3 need to be dismantled. While some steps will no doubt  
10 be taken to drain fluids from and to otherwise secure Units 2 and 3, these units  
11 will be retired in place. The steps that PNM will take to retire these units in place  
12 are no different than what PNM would do at the end of all operations at San Juan.  
13 Based on the foregoing, PNM has not included any additional or incremental  
14 decommissioning costs for the retirement of Units 2 and 3 in the cost analysis  
15 under the Revised SIP.

16  
17 **Q. IN LIGHT OF THE FACT THAT A FINAL AGREEMENT ON THE**  
18 **OWNERSHIP RESTRUCTURING FOR SAN JUAN HAS NOT BEEN**  
19 **REACHED, ISN'T IT PREMATURE TO BRING THIS CASE BEFORE**  
20 **THE COMMISSION?**

21 **A.** To the contrary. The timeline under the Term Sheet dictates that PNM pursue  
22 numerous regulatory approvals simultaneously. At present, PNM is pursuing the  
23 subject approvals before this Commission and final approval of the Revised SIP

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1 with the EPA. All of these approvals are essential elements for the  
2 implementation of the Revised SIP. PNM does not have the luxury under the  
3 Term Sheet of awaiting separate consecutive approvals from the various  
4 regulatory authorities that must weigh in on the implementation of the Revised  
5 SIP. PNM's present filing of this case is critical for obtaining the necessary  
6 approvals from this Commission in a timely fashion under the Term Sheet.  
7

8 **Q. HOW IS THE COMMISSION SUPPOSED TO APPROVE PNM'S**  
9 **PROPOSED ACQUISITION OF ADDITIONAL GENERATION**  
10 **CAPACITY IN UNIT 4 IF PNM DOES NOT KNOW THE TERMS OF**  
11 **THE FINAL RESTRUCTURING AGREEMENT FOR SAN JUAN?**

12 **A.** That is a legitimate question. What we have presented in the initial filing in this  
13 case, among other things, is PNM's proposal for replacing a portion of the lost  
14 generation capacity resulting from the retirement of San Juan Units 2 and 3.  
15 PNM anticipates that the terms of the final ownership structure for San Juan will  
16 solidify early enough during the pendency of this proceeding that the Commission  
17 will be able to evaluate the efficacy of the proposal to acquire additional capacity  
18 in Unit 4. PNM's actual acquisition of additional capacity in Unit 4 would  
19 necessarily be contingent on a final San Juan restructuring agreement that  
20 comports with the Commission's ruling in this case.  
21



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1   **Q.   HOW WILL THE SAN JUAN OWNERS DEAL WITH CAPITAL**  
2       **INVESTMENTS IN UNIT 2 AND 3 PENDING THEIR PROPOSED**  
3       **RETIREMENT?**

4   **A.**   Of course the Revised SIP will allow the San Juan owners to avoid the significant  
5       capital costs associated with the installation of SCR technology at San Juan. In  
6       addition, under the Revised SIP, the San Juan owners will not have to install  
7       SNCR technology on Units 2 and 3 or convert these units to a balanced draft  
8       configuration. Pending the retirement of Units 2 and 3, the San Juan owners will  
9       limit capital investments and other expenses to only what is reasonably necessary  
10      for the continued reliable operation of these units in conformity with prudent  
11      utility practice.

12

13   **Q.   WHAT IMPLICATIONS DOES THE PROPOSED RETIREMENT OF SAN**  
14      **JUAN UNITS 2 AND 3 HAVE WITH RESPECT TO FUEL SUPPLY?**

15   **A.**   As I mentioned earlier, the existing UG-CSA expires on December 31, 2017.  
16      This directly corresponds to the retirement dates for Units 2 and 3 under the  
17      Revised SIP. Therefore, there should not be any issue with respect to potential  
18      take-or-pay liability arising from a decreased demand in coal as a result of the  
19      retirement of Units 2 and 3.

20

21      The fuel supply for San Juan after 2017 will need to be procured from SJCC or  
22      some other supplier. The San Juan owners are currently in the process of  
23      negotiating the fuel supply for San Juan for the period beginning in 2018.

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1 **Q. WHAT IMPACT WILL THE RETIREMENT OF SAN JUAN UNITS 2**  
2 **AND 3 HAVE ON RECLAMATION COSTS FOR THE SAN JUAN MINE?**

3 **A.** The coal combustion process at San Juan produces coal combustion residuals  
4 (“CCRs”). CCRs are primarily comprised of fly ash and flue gas desulfurization  
5 materials resulting from the coal combustion and SO<sub>2</sub> removal processes. CCRs  
6 generated at San Juan are placed in the San Juan Coal Mine as part of the  
7 approved mine reclamation process. As detailed by PNM Witness Ronald N.  
8 Darnell, the production of CCRs will be reduced by approximately half as a result  
9 of the retirement of Units 2 and 3. Therefore, there will be less CCR material  
10 available for reclamation at the San Juan Coal Mine and other fill material will  
11 have to be procured for use in the mine reclamation process. Based on a recent  
12 draft reclamation study for the San Juan Coal Mine, it is estimated that there will  
13 be an additional incremental cost associated with procuring this other fill material.

14  
15 **IV. REQUIRED REGULATORY APPROVALS**

16  
17 **Q. ARE ANY REGULATORY APPROVALS REQUIRED FOR THE**  
18 **PROPOSED RESTRUCTURING AND CONTINUED OPERATION OF**  
19 **SAN JUAN UNDER THE REVISED SIP?**

20 **A.** There are several approvals from various governmental authorities that are  
21 required to fully implement the terms of the Revised SIP. The required approvals  
22 include those sought by PNM in this proceeding with respect to the abandonment  
23 of its ownership interests in San Juan Units 2 and 3.

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1 **Q. ARE THERE ANY FURTHER APPROVALS REQUIRED FOR THE**  
2 **REVISED SIP TO BECOME EFFECTIVE?**

3 **A.** Yes. As noted above, EPA must still approve the Revised SIP before it becomes  
4 effective.

5

6 **Q. CAN YOU PLEASE DESCRIBE THE EPA APPROVAL PROCESS FOR**  
7 **THE REVISED SIP?**

8 **A.** The Revised SIP was approved by the NMEIB on September 5, 2013, and was  
9 submitted to EPA on October 7, 2013. Under the Term Sheet among EPA, the  
10 New Mexico Environment Department (“NMED”) and PNM dated February 15,  
11 2013 (“Term Sheet”), EPA has sixty days to make a completeness determination  
12 on the Revised SIP and 135 days thereafter to propose action on the Revised SIP.  
13 On December 17, 2013, the EPA issued its determination that the Revised SIP as  
14 submitted by New Mexico is administratively complete. This determination has  
15 triggered the 135 day timeframe for EPA to propose action on the Revised SIP.  
16 The EPA’s proposed action on the Revised SIP will be published in the Federal  
17 Register as a proposed rule. The public will be afforded an opportunity to provide  
18 comments to EPA on the proposed Revised SIP rule. Under the Term Sheet, EPA  
19 is supposed to take final action on the proposed rule within 150 days of its  
20 publication.

21

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1   **Q.    BECAUSE EPA IS A PARTY TO THE TERM SHEET, ISN'T IT A**  
2       **FOREGONE CONCLUSION THAT EPA WILL APPROVE THE**  
3       **REVISED SIP?**

4   **A.**   No. EPA has made it clear that the Term Sheet is non-binding and that EPA is  
5       not bound to take any particular action with respect to the Revised SIP. EPA  
6       cannot pre-judge a proposed rule. EPA will consider all public comments  
7       received on the Revised SIP in accordance with its rulemaking procedures and  
8       requirements. It will make a final determination on the Revised SIP based on the  
9       record that is developed in its rulemaking proceeding. Of course, PNM is hopeful  
10      that the EPA will approve the Revised SIP and believes there are ample grounds  
11      to do so.

12  
13   **Q.    ASSUMING THE EPA APPROVES THE REVISED SIP, WHAT WILL**  
14      **HAPPEN WITH THE PENDING LITIGATION?**

15   **A.**   As noted in the direct testimony of Ronald N. Darnell, the Tenth Circuit has  
16      abated further proceedings on the pending petitions challenging the FIP based on  
17      the Term Sheet. Upon final approval of the Revised SIP by the EPA, the FIP is to  
18      be withdrawn. The withdrawal of the FIP will moot the controversies in pending  
19      litigation. PNM, the Governor, the NMED and the Department of Justice will  
20      then file the necessary papers with the Tenth Circuit requesting dismissal of the  
21      pending petitions filed by PNM and the state petitioners.

22

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1 **Q. ARE THERE ANY APPROVALS THAT ARE STILL REQUIRED FROM**  
2 **NMED FOR THE REVISED SIP TO BE IMPLEMENTED?**

3 **A.** There were until recently. Implementation of the Revised SIP required a  
4 modification to San Juan's New Source Review ("NSR") air permit. PNM filed  
5 an application to amend the San Juan NSR permit to comply with the Revised SIP  
6 on October 4, 2013. On November 8, 2013, the NMED issued an amended NSR  
7 permit which includes the Revised SIP requirements as one of the compliance  
8 options under the permit.

9  
10 **Q. WHAT OTHER APPROVALS ARE REQUIRED FOR THE**  
11 **IMPLEMENTATION OF THE REVISED SIP?**

12 **A.** Because of the proposed restructuring of the ownership of San Juan, approval  
13 from the Federal Energy Regulatory Commission ("FERC") will be required  
14 pursuant to Section 203 (16 U.S.C. § 824b) and Section 205 (16 U.S.C. § 824d) of  
15 the Federal Power Act ("FPA"). Section 203 of the FPA generally relates to the  
16 proposed sale, purchase, lease or disposal of a facility subject to the jurisdiction of  
17 the FERC. Section 205 generally relates to FERC's authority over a public  
18 utility's rates, terms and conditions for the transmission or sale of electric energy  
19 in interstate commerce. In its filings with FERC, PNM will seek expedited  
20 review.

21  
22 **Q. APART FROM THE COMMISSION'S APPROVAL OF PNM'S**  
23 **ABANDONMENT OF UNITS 2 AND 3, ARE THERE ANY**

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1           **REGULATORY APPROVALS THAT ARE REQUIRED FOR OTHER**  
2           **SAN JUAN OWNERS?**

3    **A.**    Yes. We have inquired of the other owners about any necessary regulatory  
4           approval processes that they must undertake with respect to the restructured San  
5           Juan ownership. As noted above, Tri-State provides power sourced from San  
6           Juan to electric cooperatives. We are informed that the retirement of San Juan  
7           Unit 3 will require Tri-State to file a notice with the Rural Utility Service and that  
8           approval is deemed granted if no action is taken in response to the notice within  
9           ninety days.

10  
11           Anaheim, M-S-R and SCPPA have indicated that the only approvals they require  
12           to exit San Juan are from their respective governing boards.

13  
14           TEP is subject to regulation by the Arizona Corporation Commission (“ACC”).  
15           TEP says it will seek approval from the ACC to abandon its jurisdictional interest  
16           in San Juan Unit 2.

17  
18                           **V. REGIONAL HAZE COMPLIANCE**

19  
20    **Q. CAN YOU PLEASE DESCRIBE THE REGIONAL HAZE COMPLIANCE**  
21    **REQUIREMENTS WITH RESPECT TO SAN JUAN?**

22    **A.**    Under the EPA FIP, PNM and the other owners of San Juan are required to install  
23           and operate SCR technology on all four San Juan units by the compliance

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1 deadline of September 21, 2016. Because of this deadline, it was necessary to  
2 incur certain costs related to compliance with the FIP. While the installation of  
3 SCR has been suspended pending approval and implementation of the Revised  
4 SIP, as I detail below, certain initial expenditures for SCR were necessary  
5 environmental compliance costs at the time they were made.

6  
7 Upon final approval of the Revised SIP, the EPA will withdraw the FIP and the  
8 owners of San Juan will be required to install SNCR technology on Units 1 and 4.  
9 They will also be required to retire Units 2 and 3 by the end of 2017.

10  
11 **Q. APART FROM THE COMPLIANCE REQUIREMENTS ASSOCIATED**  
12 **WITH THE REGIONAL HAZE RULE, IS SAN JUAN CURRENTLY**  
13 **SUBJECT TO ANY OTHER CLEAN AIR ACT REGULATORY**  
14 **REQUIREMENTS THAT WILL REQUIRE INSTALLATION OF**  
15 **ADDITIONAL EMISSION CONTROLS?**

16 **A.** Yes. Under San Juan's NSR permit, even before the most recent amendment, and  
17 in order to demonstrate compliance with the NAAQS under the CAA for particulate  
18 matter ("PM") emissions, San Juan is required to install equipment to convert to  
19 what is known as a balanced draft configuration. While the balanced draft  
20 conversion is not directly related to compliance with the EPA's Regional Haze  
21 Rule, it is being carried out in conjunction with the SNCR project in order to  
22 capitalize on efficiencies and economies associated with combining the two

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1 projects. I provide more detail concerning the balanced draft conversion and its  
2 related costs later in my testimony.

3  
4 **A. *Initial SCR Compliance Costs***

5  
6 **Q. CAN YOU PLEASE ADDRESS THE INITIAL COMPLIANCE COSTS**  
7 **THAT WERE INCURRED BY PNM IN CONNECTION WITH**  
8 **COMPLIANCE WITH THE FIP?**

9 **A.** Yes. PNM incurred total costs associated with the proposed installation of SCR  
10 on all four San Juan units as required under the EPA's FIP in the amount of  
11 \$2,846,046. As discussed in the testimony of PNM Witness Sategna, PNM is  
12 seeking an accounting order to allow these costs to be recorded as a regulatory  
13 asset. Additional detail on these costs is contained in Mr. Sategna's testimony as  
14 PNM Exhibit TGS-2.

15  
16 **Q. IF PNM IS NOT ACTUALLY GOING TO INSTALL SCR AT SAN JUAN,**  
17 **WHY SHOULD PNM'S CUSTOMERS BEAR THESE COSTS?**

18 **A.** These SCR costs were incurred in utmost good faith and in furtherance of  
19 mandatory environmental compliance. In fact, the Statement of Basis-Narrative  
20 issued by the NMED in conjunction with the revised air permit issued in  
21 conjunction with the FIP confirms that work towards complying with the FIP was  
22 required, even though it is under judicial review, in order to meet the deadline



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1 imposed by the FIP should it not be overturned. The Statement of Basis-Narrative  
2 is included in the testimony of PNM Witness Darnell as PNM Exhibit RND-5.

3  
4 **Q. PLEASE EXPLAIN FURTHER.**

5 **A.** The EPA issued its FIP on August 5, 2011, which required San Juan to install  
6 SCR on all four units by September 21, 2016. Because the installation of SCR on  
7 all four units is a massive design, engineering and construction project, the five  
8 year compliance deadline provided only limited timing flexibility for the San Juan  
9 owners to commence planning and to initiate steps to comply with the FIP. The  
10 required lead time for planning, design, engineering, contracting, permitting and  
11 construction meant that the San Juan owners, including PNM, needed to pursue  
12 these activities and incur the related costs if they were to comply with the FIP  
13 deadline.

14  
15 **Q. DID PNM TAKE ANY ACTION TO TRY TO EXTEND THE  
16 COMPLIANCE DEADLINE UNDER THE EPA'S FIP?**

17 **A.** Yes, twice. PNM filed a petition with EPA requesting, in the context of an  
18 administrative proceeding, a stay of the effective date of the FIP that would have  
19 extended the compliance deadline. The EPA has taken no action on the petition  
20 for stay.

21  
22 Governor Susana Martinez, NMED and PNM also filed legal challenges to the  
23 FIP in the United States Court of Appeals for the Tenth Circuit ("Tenth Circuit").

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1 In connection with these legal challenges, Governor Martinez, NMED and PNM  
2 filed motions requesting that the Tenth Circuit stay the effective date of the FIP,  
3 but the motions were denied.

4  
5 **Q. DIDN'T THE EPA ISSUE TWO STAYS OF THE FIP SO THE PARTIES**  
6 **TO THE TENTH CIRCUIT PROCEEDINGS COULD TRY TO**  
7 **NEGOTIATE A RESOLUTION OF THE LEGAL CHALLENGES?**

8 **A.** The EPA issued two administrative stay orders for the stated purpose of allowing  
9 the parties an opportunity to try to negotiate a resolution of the Tenth Circuit legal  
10 challenges. However, these stay orders applied only to interim FIP compliance  
11 deadlines, of which there were none, during the periods the stays were in effect.  
12 By their express terms, the stay orders did not alter or extend the September 21,  
13 2016, compliance deadline for the construction and operation of SCR on all four  
14 San Juan units.

15  
16 **Q. DID PNM TAKE ANY MEASURES TO MITIGATE THE FIP**  
17 **COMPLIANCE COSTS?**

18 **A.** PNM delayed, for as long as possible, incurring any major costs associated with  
19 the installation of SCR at San Juan. In fact under the engineering, procurement  
20 and construction ("EPC") agreement that was ultimately awarded, the installation  
21 of SCR would not have been completed on Unit 4 until December 2016. This is  
22 after the September 21, 2016, compliance deadline, but the other three units  
23 would be compliant with the FIP and able to supply the generation needs of the

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1 San Juan owners for the relative short time beyond the FIP deadline that Unit 4  
2 would not be operating.

3  
4 PNM engaged a pre-eminent engineering firm, Sargent & Lundy (“S&L”), to  
5 develop the EPC specifications that were used in the request for proposals  
6 (“RFP”) for an EPC contract for the installation of SCR at San Juan. PNM then  
7 issued an RFP for EPC services and an EPC contract was ultimately finalized  
8 with Fluor Corporation (“Fluor”) in October 2012.

9  
10 **Q. DID PNM STRUCTURE THE FLUOR EPC CONTRACT TO MITIGATE**  
11 **ITS CONTRACTUAL OBLIGATIONS IN THE EVENT OF A**  
12 **SETTLEMENT OF THE LEGAL CHALLENGES TO THE FIP?**

13 **A.** Yes. At the time the Fluor EPC contract was executed, PNM was pursuing three  
14 paths with respect to the FIP. First, PNM was still pursuing its legal challenge to  
15 the FIP. Second, PNM was engaged in negotiations to try to settle the legal  
16 challenge to the FIP with an outcome that met the requirements of the CAA while  
17 being more cost-effective for its customers. Third, because of the impending  
18 compliance deadline, PNM was pursuing steps to comply with the FIP. In  
19 recognition that a settlement might be successful, the Fluor EPC contract allows  
20 for PNM to suspend work without any cancellation penalty. Of course, costs  
21 incurred for work prior to the suspension must be compensated. PNM suspended  
22 the Fluor EPC contract before any actual on-site work on the installation of SCR  
23 commenced.

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22

**Q. IF NO ACTUAL CONSTRUCTION COMMENCED ON SCR AT SAN JUAN, CAN YOU EXPLAIN THE SCR COSTS?**

**A.** Just because no construction was started does not mean that significant work was not performed in connection with the installation of SCR at San Juan. As part of its compliance obligations under the FIP, PNM had to apply for an amended air permit with the NMED for the required emission control modifications to San Juan. The consulting and legal fees related to permitting are included in the SCR costs. PNM also engaged S&L to prepare the EPC specifications used in the RFP for the EPC contract. Legal support was needed in connection with the development of the RFP. Once Fluor was selected as the successful EPC bidder, a several hundred-million dollar contract had to be negotiated. The San Juan owners, including PNM, incurred legal fees associated with these negotiations. Fluor commenced some preliminary work under the EPC contract for the required installation of SCR at San Juan. In addition, several other contractors, such as Tricon Energy and Power Advocate, Inc., provided consulting and other services related to the installation of SCR.

**Q. DID THE SAN JUAN OWNERS HAVE ANY LESS EXPENSIVE OPTIONS AVAILABLE TO COMPLY WITH THE FIP?**

**A.** No. The FIP set a NO<sub>x</sub> emission limit of 0.05 lb/MMBtu and specified SCR as the retrofit technology required to meet this limit. There are no other

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1 commercially proven control technologies available that can meet this very  
2 stringent NOx limit and installation of SCR was the only compliance option.

3  
4 **Q. WHAT WOULD HAPPEN IN THE EVENT THE SAN JUAN OWNERS**  
5 **FAILED TO INSTALL SCR BY THE SEPTEMBER 21, 2016**  
6 **COMPLIANCE DEADLINE IN THE FIP?**

7 **A.** San Juan would not be allowed to operate. The San Juan owners, including PNM,  
8 would be forced to meet their respective customers' energy needs from alternative  
9 sources, more than likely at a much higher overall cost, than energy from San  
10 Juan, including the cost of SCR.

11  
12 **Q. UNDER ALL OF THE CIRCUMSTANCES YOU JUST OUTLINED, DID**  
13 **PNM AND THE OTHER SAN JUAN OWNERS HAVE ANY CHOICE**  
14 **WITH RESPECT TO PURSUING THE STEPS NECESSARY, AND TO**  
15 **INCUR THE RELATED COSTS, TO INSTALL AND OPERATE SCR AT**  
16 **SAN JUAN?**

17 **A.** No. These SCR costs are necessary costs of environmental compliance and are  
18 properly recoverable as such. It's fortunate that PNM is ultimately able to pursue  
19 the lower cost compliance option that is the subject of this proceeding. However,  
20 PNM should not be punished for incurring necessary environmental compliance  
21 costs associated with the FIP just because this lower cost option is now being  
22 pursued.

23

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1           **B.     *San Juan Balanced Draft Conversion***

2  
3   **Q.    YOU INDICATED THAT THE CONVERSION OF SAN JUAN TO A**  
4   **BALANCED DRAFT CONFIGURATION IS NOT REQUIRED UNDER THE**  
5   **REVISED SIP. WHY IS PNM ADDRESSING THE BALANCED DRAFT**  
6   **CONVERSION IN THIS PROCEEDING?**

7   **A.**   For two primary reasons. First, the balanced draft conversion is being done in  
8       conjunction with the installation of the SNCR technology. Both the installation of  
9       SNCR and the conversion to balanced draft involve modifications to San Juan’s existing  
10      emissions controls and plant equipment. It makes sense, from cost and efficiency  
11      standpoints, to contract for and implement both of these modifications as a single  
12      project. It is prudent for the San Juan owners to implement the balanced draft  
13      conversion at the same time that the required SNCR technology is being installed  
14      rather than as separate projects. Second, the cost of the balanced draft conversion is  
15      significant and requires a larger capital investment than SNCR. The generation resource  
16      analyses prepared by PNM Witness O’Connell include the cost of the San Juan  
17      balanced draft conversion. PNM thought it important to detail for the Commission the  
18      bases and reasons for the balanced draft costs in this proceeding.

19  
20   **Q.    WHY IS IT NECESSARY TO CONVERT SAN JUAN TO A BALANCED**  
21   **DRAFT CONFIGURATION?**

22   **A.**   Like many power plants of the same vintage, the San Juan boilers were originally  
23       designed with only forced draft (“F.D.”) fans. These boilers and associated flues

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1 and ducts operate at positive pressure. As these units have aged, and after  
2 experiencing numerous start-up cycles, the flue gas pressure boundary has  
3 typically deteriorated. This deterioration allows ash-laden flue gases and coal  
4 particles to escape from the boiler, flues, ducts and other air or flue gas path  
5 components. Ash and coal that accumulates outside of the boiler pressure  
6 boundary pose various maintenance and cleanliness issues. The environmental  
7 regulators are aware of these issues and the resulting potential compliance issues  
8 related to PM emissions under the NAAQS. For this reason, the NMED, as part of an  
9 amendment to San Juan's NSR permit, required that San Juan convert to a balanced  
10 draft configuration.

11  
12 **Q. HOW DOES BALANCED DRAFT HELP ASSURE COMPLIANCE WITH**  
13 **RESPECT TO FUGITIVE EMISSIONS?**

14 **A.** Balanced draft is achieved by installing induced draft ("I.D.") fans to balance the  
15 pressure in the boilers, flues and ducts. This greatly lessens the escape of ash,  
16 coal particles and ammonia caused by the positive pressures created by the F.D.  
17 fans. Due to changes in operational pressures, other modifications, such as boiler  
18 stiffening, are also often necessary to convert to a balanced draft configuration.

19  
20 **Q. APART FROM THE REGULATORY REQUIREMENTS, ARE THERE**  
21 **ANY OTHER REASONS WHY CONVERSION TO BALANCED DRAFT**  
22 **IS BENEFICIAL?**

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1    **A.**    Yes. As stated above, balanced draft will help ensure demonstrated compliance  
2           with the NAAQS and result in a significant reduction in fugitive emissions which  
3           provides myriad operational benefits, including a cleaner workplace. On a related  
4           note, the chemical reaction associated with the operation of SNCR results in the  
5           generation of ammonia. The balanced draft conversion will mitigate workplace  
6           exposure to ammonia fumes. In addition, PNM and the other San Juan owners are  
7           taking a long-range view for San Juan. Balanced draft is an essential element in  
8           any state-of-the-art coal power plant emission controls.

9

10   **Q.    WHAT ARE THE COSTS ASSOCIATED WITH THE CONVERSION OF**  
11       **UNITS 1 AND 4 TO BALANCED DRAFT?**

12   **A.**    I discuss the costs of the balanced draft conversion in Section VI of my testimony  
13       relating to the costs of the SNCR project.

14

15                   **VI.    THE REASONABLE COST OF THE SNCR PROJECT**

16

17   **Q.    CAN YOU PLEASE GENERALLY DESCRIBE WHAT SNCR IS?**

18   **A.**    SNCR is a post-combustion control technology for NOx emissions. In very  
19       general terms, SNCR uses an amine-based reagent (urea in San Juan's case)  
20       which is injected into the boiler and reacts with NOx to reduce it to molecular  
21       nitrogen (N<sub>2</sub>) and water. In order to inject the reagent, the boiler walls must be  
22       penetrated and lances must be installed for the delivery of the reagent into the  
23       heated boiler. PNM Witness J. Edward Cichanowicz provides a more detailed



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1 description of the installation of SNCR at San Juan and the processes that reduce  
2 the emission of NOx.

3

4 **Q. YOU HAVE MADE REFERENCE ON SEVERAL OCCASIONS TO THE**  
5 **“SNCR PROJECT.” WHAT IS THE SNCR PROJECT?**

6 **A.** The San Juan SNCR project encompasses both the installation of SNCR  
7 technology and the balanced draft conversion. I previously explained the reasons  
8 for combining these two control technologies into a single project for contracting  
9 and construction purposes. However, in my discussion of the costs associated  
10 with the SNCR project, I provide separate breakdowns of the costs associated  
11 with each control technologies.

12

13 **Q. HOW WILL PNM MANAGE THE SNCR PROJECT?**

14 **A.** PNM is managing the SNCR project by separately contracting for SNCR testing  
15 and equipment, other major equipment (e.g. fans), engineering and the general  
16 works construction (“GWC”) contractor for field work. This is in contrast to the  
17 EPC contracting approach that PNM took with respect to the installation of SCR  
18 pursuant to the FIP. The difference in contracting methods is tied to the  
19 differences in scale and costs between the two projects. The installation of SCR  
20 was a very major construction project. It was unprecedented in terms of capital  
21 projects at San Juan. For projects of this nature, it is prudent to utilize very large  
22 contractors on an EPC contract basis for what is, in effect, a “turnkey” project.  
23 This spreads the risks associated with such major projects between the project

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1 owners and the EPC contractor. While the SNCR project is not insignificant, it is  
2 at a scale where PNM can prudently utilize a GWC contractor which minimizes  
3 overall costs for the project and reduces write-off risk since more of the costs are  
4 incurred after a formal decision from EPA. Overall costs are further minimized  
5 because GWC contractors are typically less expensive due to their lower general  
6 and administrative fees compared to the larger companies that conduct projects on  
7 an EPC basis. Under a GWC contact, PNM assumes the risk of coordinating the  
8 multiple contracts necessary for the project, but this risk is managed through the  
9 assignment of experienced personnel, use of a construction management  
10 consultant, multiple project controls and regular management review.

11  
12 **Q. CAN YOU PLEASE DESCRIBE WHAT OTHER MEASURES PNM HAS**  
13 **TAKEN TO ENSURE THAT THE COSTS ASSOCIATED WITH THE**  
14 **SNCR PROJECT REPRESENT THE LOWEST REASONABLE COSTS?**

15 **A.** As an initial step to ensure the lowest reasonable cost, PNM engaged S&L to  
16 prepare a comprehensive design and engineering plan for the installation of  
17 SNCR on Units 1 and 4 and for the equipment and modifications necessary to  
18 convert San Juan to balanced draft.

19  
20 **Q. HOW DID YOU SELECT S&L TO SERVE AS THE DESIGN AND**  
21 **ENGINEERING CONTRACTOR ON THE SNCR PROJECT?**

22 **A.** S&L is a very well-qualified, global engineering, design and consulting company  
23 focused exclusively on the power generating industry. S&L is not a vendor of

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1 technology or equipment so it has no vested interest in any technology or system  
2 that a utility may use to facilitate the generation of electricity or any technology  
3 that may be used to control emissions. S&L has considerable experience with the  
4 specification, evaluation, selection and implementation of emission control  
5 technologies for fossil fuel-fired utility power facilities. With respect to the  
6 control of NOx emissions from coal-fired power plants, S&L has completed, or is  
7 currently in the process of completing, more than 98 projects, representing more  
8 than 47,400 MW of generation. S&L's NOx control experience includes  
9 conceptual studies and preparing control system specifications, as well as the  
10 engineering, procurement, and installation of various control systems. S&L has  
11 participated in the design and installation of more than 26 SNCR control systems  
12 and more than 72 SCR control systems. S&L's BART-related work includes  
13 technical feasibility evaluations, cost estimating, cost-effectiveness evaluations  
14 and visibility impact modeling. S&L has prepared BART cost estimate  
15 determinations for approximately 24 units located at 12 generating facilities.

16  
17 **Q. HOW FAMILIAR IS S&L WITH SAN JUAN BART ISSUES?**

18 **A.** S&L's involvement with San Juan BART issues dates back to 2011. S&L was  
19 initially engaged by PNM to verify the cost estimates contained in PNM's initial  
20 BART analysis submitted to NMED. S&L confirmed that the costs in this BART  
21 analysis were within the range of costs that are likely to be incurred by San Juan  
22 for the installation of SCR on all four units. S&L was also hired to prepare the  
23 engineering, procure and construct contract specifications for the SCR project

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1 required under the EPA FIP. It also provided the cost estimates and cost-  
2 effectiveness analysis that underlie the San Juan BART determination in the  
3 Revised SIP. Based on its vast experience in the industry and its familiarity with  
4 San Juan, S&L is thoroughly qualified to serve as the design and engineering  
5 consultant for the SNCR project.

6  
7 **Q. HOW WILL S&L'S ENGAGEMENT AS THE DESIGN AND**  
8 **ENGINEERING CONSULTANT HELP ASSURE THAT THE COST OF**  
9 **THE SNCR PROJECT REPRESENTS THE LOWEST REASONABLE**  
10 **COST?**

11 **A.** S&L has prepared an extremely detailed design and engineering plan for the  
12 SNCR project. As part of this process, S&L has prepared a very reliable cost  
13 estimate for the SNCR project. The detailed design and engineering plan will  
14 allow prospective bidders to prepare very accurate, fixed-price bids. The detailed  
15 design and engineering plan will also allow a broader range of contactors to bid  
16 on the construction portion of the SNCR project creating more competition for the  
17 project. As I discuss in more detail below, the construction portion of the SNCR  
18 project represents the largest cost component of the SNCR project. Sargent &  
19 Lundy has also assisted in developing RFPs for the various components of the  
20 SNCR project.

21  
22  
23

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1 **Q. HAS PNM ISSUED ANY RFPs WITH RESPECT TO THE SNCR PROJECT?**

2 **A.** Yes. In April of 2013, PNM issued an RFP for the procurement of the SNCR  
3 equipment. There are a rather limited number of SNCR vendors that can supply SNCR  
4 technology on the scale and of the type required at San Juan. PNM received two  
5 responses to the RFP. After reviewing the RFP responses and evaluating them based on  
6 qualifications, commercial terms and price, PNM selected STEAG Energy Services,  
7 LLC (“STEAG”) to supply the SNCR equipment.

8  
9 **Q. APART FROM SUPPLYING THE SNCR EQUIPMENT, IS STEAG  
10 PROVIDING ANY OTHER GOODS OR SERVICES AS PART OF THE SNCR  
11 PROJECT?**

12 **A.** Yes. STEAG representatives will be on-site during equipment installation. STEAG  
13 will also participate in the commissioning of the SNCR equipment.

14  
15 **Q. IS STEAG PROVIDING ANY TYPE OF WARRANTIES OR  
16 PERFORMANCE GUARANTEES?**

17 **A.** STEAG has agreed to a performance guarantee that the SNCR equipment will meet a  
18 NOx emission limit of 0.23 lb/MMBtu or better. This is sufficient to meet the emission  
19 limit under the Revised SIP. STEAG is also providing a twenty-four month warranty  
20 against defects in its materials.

21  
22 **Q. ARE THESE GUARANTEES STANDARD IN THE INDUSTRY?**

23 **A.** Yes, they are.

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1   **Q.   HAVE ANY OTHER RFP'S BEEN AWARDED IN CONNECTION WITH**  
2   **THE SNCR PROJECT?**

3   **A.**   The procurement process for the SNCR project is ongoing.  However, a few contracts  
4   have been awarded including those with Howden North America, Inc. for fans and  
5   motors and Siemens Industry, Inc. for variable frequency drives for fans.  The bid award  
6   for Siemens Industry, Inc. is subject to negotiation of final agreement terms.  A few  
7   other relatively smaller contracts have been awarded for various studies associated with  
8   the SNCR project.

9

10  **Q.   WHAT FURTHER STEPS ARE REQUIRED WITH RESPECT TO**  
11  **IMPLEMENTATION OF THE SNCR PROJECT?**

12  **A.**   Under the Term Sheet, the SNCR project must be completed within fifteen months of  
13  the EPA approval of the revised SIP, but not earlier than January 31, 2016.  The Term  
14  Sheet also provides that EPA final action on the Revised SIP should be completed  
15  within 345 days of the Board's approval of the Revised SIP.  Based on this timeline, we  
16  expect that EPA will have taken final action on the Revised SIP by September of 2014.

17

18  PNM is coordinating its bidding and construction process to coincide with the  
19  anticipated timing of EPA's approval process.  Based on S&L's detailed design and  
20  engineering plan, an RFP for the construction component of the SNCR project will be  
21  issued in May 2014.  It is anticipated that the successful bidder will be selected by  
22  August 2014 and that construction on the SNCR project will commence approximately  
23  two months thereafter provided the requisite approvals are obtained or reasonably

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1 anticipated. A timeline for the SNCR project construction process is attached as PNM  
2 Exhibit CMO-2. The initial engineering studies commenced in September 2013 and  
3 will continue through March of 2014. Detailed engineering studies will continue  
4 through March of 2015. Necessary equipment procurement will take place from May  
5 2014 through September 2015. Construction will take place from December 2014  
6 through January 2016. Testing, including the performance tests under the Term Sheet,  
7 will be conducted from April 2016 through February 2017.

8  
9 **Q. HOW WILL THE CONSTRUCTION OF THE SNCR PROJECT IMPACT**  
10 **ONGOING OPERATIONS AT SAN JUAN?**

11 **A.** The SNCR construction will have minimal impact on plant operations. The conversion  
12 to balanced draft will occur during previously scheduled outages. The SNCR system  
13 can be installed while SJGS is operating, and then connected during a short, less than  
14 one week, outage.

15  
16 **Q. HAS PNM PREPARED AN EXHIBIT THAT DETAILS THE ESTIMATED**  
17 **COSTS FOR THE SNCR PROJECT?**

18 **A.** PNM Exhibit CMO-3 provides the total estimated costs for the SNCR project.  
19

20 **Q. CAN YOU GENERALLY DISCUSS THE COSTS DEPICTED IN PNM**  
21 **EXHIBIT CMO-3?**

22 **A.** PNM Exhibit CMO-3 details the estimated costs for the SNCR project in three broad  
23 categories:

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- 1                                   • SNCR
- 2                                   • Balanced Draft Conversion
- 3                                   • Project Oversight.

4                   Within these three categories are further itemizations for cost categories such as  
5                   equipment, materials labor, escalation, sales tax, contingency, owners' engineer,  
6                   construction management and commissioning. The total cost SNCR project is  
7                   \$149,700,000 exclusive of any estimated AFUDC.

8

9   **Q.   HOW ACCURATE IS THIS COST ESTIMATE?**

10  **A.**   Because of S&L's detailed design and engineering plan, there is a high degree of  
11           confidence that this is the maximum price for project. The construction team is  
12           committed to reducing the price through the competitive bidding process.

13

14  **Q.   HAS PNM PREPARED AN EXHIBIT WHICH SHOWS PNM'S SHARE OF**  
15           **THE ESTIMATED COSTS FOR THE SNCR PROJECT?**

16  **A.**   Yes. PNM Exhibit CMO-4 provides a breakdown of PNM estimated share of the total  
17           SNCR project costs in the amount of \$77,600,000, plus AFUDC in the amount of  
18           \$4,400,000 for a combined total of \$82,000,000. PNM's share of the estimated costs as  
19           shown in PNM Exhibit CMO-4 presumes that PNM will acquire the additional 78 MW  
20           in Unit 4.

21

22  **Q.   HAS PNM PREPARED AN EXHIBIT WHICH SHOWS THE ANTICIPATED**  
23           **TIMING OF WHEN THESE COSTS WILL BE INCURRED?**



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1    **A.**    PNM Exhibit CMO-5 provides the anticipated timing of when the costs for the SNCR  
2           project will be incurred. PNM Exhibit CMO-5 shows that \$4,800,000 (3.1%) of the  
3           SNCR project costs will be incurred in 2013, \$17,300,000 (11.2%) of the costs will be  
4           incurred in 2014, \$125,500,000 (81.4%) of the costs will be incurred in 2015 and the  
5           remaining \$6,500,000 (4.2%) will be incurred in 2016. The foregoing costs include  
6           PNM's AFUDC of \$4,400,000. The sequencing of the construction and construction-  
7           related costs for the SNCR project was structured to allow sufficient time for the  
8           necessary approvals to be acquired before the bulk of the expenses are incurred.

9

10   **Q.    HAS PNM HAD THE S&L COST ESTIMATE ANALYZED BY AN**  
11       **INDEPENDENT EXPERT FOR REASONABLENESS?**

12   **A.**    Yes. PNM Witness Cichanowicz, an expert in air pollution controls, has reviewed the  
13           S&L cost estimate and other materials related to the SNCR project. As detailed in his  
14           direct testimony, Mr. Cichanowicz is of the expert opinion that the estimated SNCR  
15           project costs associated with the engineering, procurement and contracting are  
16           reasonable.

17

18   **Q.    WHAT ASSURANCE IS THERE, AFTER THE SNCR PROJECT IS**  
19       **IMPLEMENTED AT SAN JUAN UNITS 1 AND 4, THAT THESE UNITS**  
20       **WILL CONTINUE TO OPERATE FOR A SUFFICIENT PERIOD TO FULLY**  
21       **UTILIZE AND AMORTIZE THIS INVESTMENT?**

22   **A.**    PNM Witness O'Connell has assessed the need and cost-effectiveness of San Juan  
23           Units 1 and 4 using a 20 year planning horizon, which is consistent with the

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1 Integrated Resource Planning (“IRP”) process. He has determined that these units  
2 should remain viable generation resources through this 20-year period. The  
3 remaining useful life for San Juan extends through at least this planning horizon.  
4 In addition, as noted before, PNM Witness Cichanowicz has concluded that with  
5 the installation of SNCR, the retirement of two units and the conversion to  
6 balanced draft, San Juan is well-poised to meet anticipated environmental  
7 regulations. Of course San Juan’s status as a generation resource will continue to  
8 undergo periodic review in accordance with the IRP planning requirements.  
9

10 **VII. REQUESTS FOR CCNs FOR SAN JUAN UNIT 4 AND PVNGS UNIT 3**

11  
12 **Q. HOW DOES PNM PLAN TO REPLACE THE GENERATION CAPACITY**  
13 **ASSOCIATED WITH THE RETIREMENT OF SAN JUAN UNITS 2 AND**  
14 **3 REQUIRED UNDER THE REVISED SIP?**

15 **A.** PNM Witness O’Connell addresses this issue in some detail. PNM will need to  
16 replace generation capacity lost as a result of the retirement of Units 2 and 3 in  
17 2017. Due to the retirement of Units 2 and 3, PNM will lose a total of 418 MW  
18 of generation capacity. PNM is proposing to replace at least part of this lost  
19 generation capacity with existing generation capacity in the form of an additional  
20 78 MW in San Juan Unit 4 and 134 MW from PNM’s interest in PVNGS Unit 3.  
21 In my testimony I address the performance and compliance status of both of these  
22 facilities.  
23

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1           A.     *San Juan Unit 4 Performance and Compliance*

2     **Q.     WHAT APPROVAL IS PNM SEEKING FROM THE COMMISSION**  
3     **WITH RESPECT TO PNM'S PROPOSED ACQUISITION OF AN**  
4     **ADDITIONAL 78 MW OF CAPACITY IN SAN JUAN UNIT 4?**

5     A.     PNM is requesting that the Commission issue a CCN for the additional 78 MW  
6     capacity in San Juan Unit 4 that PNM will acquire under the ownership  
7     restructuring of San Juan that I previously described. The final amount of the  
8     additional capacity may be subject to some adjustment depending on the final  
9     ownership restructuring for San Juan. The 78 MW figure is derived, in part,  
10    based on considerations relating to capacity that exiting owners want to divest.  
11    As I explain next, this is not the sole factor in the amount of Unit 4 capacity that  
12    PNM requires to make up for the retirement of Units 2 and 3.

13  
14    **Q.     WHY DOES PNM BELIEVE THAT THE ADDITIONAL 78 MW**  
15    **CAPACITY FROM SAN JUAN UNIT 4 CONSTITUTES SUITABLE**  
16    **REPLACEMENT POWER?**

17    A.     Of course PNM already has 195 MW of jurisdictional generation capacity from  
18    San Juan Unit 4. If the NMPRC approves the CCN as requested, PNM will have  
19    a total jurisdictional generation capacity of 273 MW from Unit 4. Unit 4 is the  
20    newest and has the highest net capacity of all the San Juan units. It has provided  
21    reliable and cost-effective energy to PNM customers for almost three decades.  
22    Unit 4 has been a solid performing unit with an average availability factor of

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1           87.47% over the past 5 years (2008 through 2012). As I discussed earlier, San  
2           Juan provides necessary base load generation to help ensure a reliable energy  
3           supply. The addition of 78 MW from Unit 4 will help assure continued necessary  
4           base load supply for PNM's customers.

5  
6   **Q.    ONE OF THE ISSUES THAT PNM HAS RAISED WITH RESPECT TO**  
7   **THE PROPOSED RETIREMENT OF UNITS 2 AND 3 RELATES TO**  
8   **POTENTIAL FUTURE ENVIRONMENTAL REGULATION OF COAL**  
9   **GENERATION. IS PNM'S APPLICATION FOR A CCN FOR AN**  
10   **ADDITIONAL 78 MW FROM UNIT 4 CONSISTENT WITH THE**  
11   **RATIONALE OFFERED FOR THE ABANDONMENT OF UNITS 2 AND**  
12   **3?**

13   **A.**   Yes it is. As discussed by PNM Witness Cichanowicz, with the installation of  
14           SNCR on Units 1 and 4, and the conversion of these units to balanced draft, San  
15           Juan will be well-positioned to meet anticipated future environmental regulations.  
16           In addition, the proposed abandonment of San Juan Units 2 and 3 is related not  
17           just to the costs of compliance under the FIP, but also to a re-balancing of PNM's  
18           generation portfolio where PNM's reliance on coal generation is reduced, but not  
19           eliminated. As discussed previously, even with the addition of 78 MW from Unit  
20           4, PNM is reducing its coal generation capacity by a total of 340 MW. PNM  
21           Witness Ortiz discusses the benefits of a properly diversified fuel mix in his  
22           testimony.

23

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1 **Q. WHAT IS THE ENVIRONMENTAL COMPLIANCE STATUS OF SAN**  
2 **JUAN UNIT 4?**

3 **A.** San Juan Unit 4 is presently in compliance with applicable environmental  
4 requirements. There are no outstanding notices of violation or other enforcement  
5 actions pending with respect to Unit 4. As operating agent for San Juan, PNM  
6 possesses the necessary environmental permits for the continued operation of Unit  
7 4. Of course, as previously discussed, PNM must convert San Juan to balanced  
8 draft. PNM has obtained an amendment to San Juan's air permit for the  
9 installation of SNCR technology on Unit 4 and to reduce permitted SO<sub>2</sub> emissions  
10 to 0.10 lb/MMBtu. PNM has no reason believe that Unit 4 will not be able to  
11 meet the requirements and applicable emission limits under the Revised SIP.

12

13 **Q. IS SAN JUAN SUBJECT TO ANY CONSENT DECREES?**

14 **A.** There are two consent decrees that are currently in effect with respect to San Juan.  
15 There is a May 10, 2005, consent decree ("2005 Consent Decree") in effect with  
16 respect to alleged violations under the CAA dating back many years. There is  
17 also an April 12, 2012, consent decree ("2012 Consent Decree") in effect relating  
18 to alleged violations under the Resource Conservation and Recovery Act and the  
19 Surface Mining Reclamation Act.

20

21 **Q. CAN YOU PLEASE DISCUSS THE CURRENT STATUS OF THE 2005**  
22 **CONSENT DECREE?**

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1    **A.**    The 2005 Consent Decree required the installation of certain additional air  
2            emission controls relating to NO<sub>x</sub>, SO<sub>2</sub>, PM and mercury. The specific emission  
3            controls installed at San Juan under the 2005 Consent Decree are detailed in the  
4            direct testimony of PNM Witness Cichanowicz. All of the requisite emission  
5            controls under the 2005 Consent Decree have been installed and are operational.  
6            San Juan is meeting all of the applicable emission limits required under the 2005  
7            Consent Decree.

8  
9            The only outstanding issue under the 2005 Consent Decree relates to mercury  
10           controls. The 2005 Consent Decree calls for the establishment of certain  
11           operational parameters for the control of mercury emissions. The pulse-jet fabric  
12           filters installed at San Juan account for a mercury removal rate of greater than  
13           90%. To further enhance mercury removal, the San Juan owners agreed to inject  
14           brominated active carbon (“BAC”) into the flue gas stream. There is presently a  
15           dispute under the 2005 Consent Decree concerning the applicable BAC injection  
16           rate that maximizes mercury removal. PNM contends that a BAC injection rate of  
17           0.15 lb/ MMacf (0.15 pounds of BAC per million cubic feet of flue gas) achieves  
18           the necessary mercury reductions under the 2005 Consent Decree, and in fact, the  
19           plant is achieving a mercury emission removal rate of greater than 99% with the  
20           fabric filters and the addition of activated carbon at its current injection rate. The  
21           NMED, Grand Canyon Trust and the Sierra Club contend that the applicable BAC  
22           injection rate should be 1.5 lb/MMacf. The mercury dispute has been pending  
23           since May 17, 2010, with no final ruling on the dispute by the federal court. The

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1 parties to the 2005 Consent Decree have been engaged in settlement discussions  
2 to try to resolve this dispute. If they are not able to resolve the dispute, the federal  
3 court will determine an injection rate applicable to all of the San Juan units. The  
4 BAC injection rate is the only issue that remains open under the 2005 Consent  
5 Decree.

6  
7 **Q. CAN YOU PLEASE DISCUSS THE CURRENT STATUS OF THE 2012**  
8 **CONSENT DECREE?**

9 **A.** The 2012 Consent Decree deals with CCRs. As noted before, CCRs generated at  
10 San Juan are placed in the San Juan Coal Mine as part of the approved mine  
11 reclamation process. Sierra Club alleged that CCRs were impacting ground and  
12 surface water in the vicinity of San Juan and the San Juan Coal Mine. Under the  
13 2012 Consent Decree, PNM and SJCC agreed to install a groundwater and surface  
14 water recovery system, comprised of a slurry wall and an associated recovery  
15 trench, to capture any ground or surface water that may contact CCRs. PNM and  
16 SJCC are in compliance with the requirements, including applicable deadlines,  
17 under the 2012 Consent Decree. Of course, the retirement of San Juan Units 2  
18 and 3 will reduce the generation of CCRs by approximately half.

19  
20 ***B. PVNGS Unit 3 Performance and Compliance***

21  
22 **Q. PNM IS ALSO PROPOSING TO REPLACE A PORTION OF THE RETIRED**  
23 **CAPACITY FROM SAN JUAN WITH GENERATION CAPACITY FROM**

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1           **PVNGS UNIT 3. CAN YOU PLEASE PROVIDE THE COMMISSION WITH**  
2           **SOME GENERAL BACKGROUND INFORMATION ON PVNGS?**

3    **A.**    As explained in more detail by PNM Witnesses Gerard T. Ortiz and Patrick O’Connell,  
4           PVNGS is a nuclear power plant operated by Arizona Public Service Company  
5           (“APS”) that consists of three units located west of Phoenix, Arizona. PNM has a  
6           10.2% interest in each of the three units with capacity rights to 134 MW from  
7           each of the units. However, only the capacity associated with Units 1 and 2,  
8           which totals 268 megawatts, is currently included in PNM’s jurisdictional  
9           resource portfolio. Unit 3 was excluded from jurisdictional rates by the New  
10          Mexico Public Service Commission in Case 2146, Pt. II as discussed by PNM  
11          Witness Thomas G. Sategna.

12  
13   **Q.**    **WHY DOES PNM BELIEVE THAT PVNGS UNIT 3 CONSTITUTES**  
14          **SUITABLE REPLACEMENT POWER FOR A PORTION OF THE LOST**  
15          **CAPACITY FROM SAN JUAN?**

16   **A.**    First, PVNGS Unit 3 is an existing facility. Inclusion of PNM’s interest in  
17          PVNGS Unit 3 in jurisdictional generation resources will obviate the need for  
18          PNM to construct new generation or enter into a new purchased power agreement  
19          with another supplier to replace retired generation from San Juan. Second,  
20          PVNGS Unit 3 has been a very reliable generation resource. Over the past five  
21          years, it has had an Equivalent Availability Factor (“EAF”) of 88.58%. This is  
22          very much in line with the North American Reliability Corporation (“NERC”)  
23          Generating Availability Data System (“GADS”) industry 5-year EAF average of



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1 89.44%. Third, PVNGS is a very cost-effective resource. In addition to capital  
2 costs, there is a wide range of factors that must be considered when evaluating  
3 resource alternatives including: fuel costs, other O&M costs, availability of  
4 existing plants as opposed to construction of new plants, permitting risks for new  
5 plants, reliability, transmission concerns and decommissioning funding. The fair  
6 value for PNM's interest in PVNGS Unit 3, based on the valuation study by PNM  
7 Witness John J. Reed, is in the range of \$2500 per kW. As discussed by PNM  
8 Witness O'Connell, this cost compares favorably with other potential generation  
9 options. These factors combined make PVNGS Unit 3 a very attractive  
10 generation resource.

11  
12 **Q. WHAT IS THE CURRENT STATUS OF THE NUCLEAR LICENSING**  
13 **FOR PVNGS UNIT 3?**

14 **A.** As explained by PNM Terry R. Horn, the Nuclear Regulatory Commission  
15 license for PVNGS Unit 3 is valid until November 25, 2047.

16  
17 **Q. DOES PVNGS UNIT 3 HAVE A RELIABLE FUEL SUPPLY?**

18 **A.** It does. The market for nuclear fuel is global in nature and PVNGS has a well-  
19 established fuel procurement program that constantly evaluates the balance  
20 between long-term contracts and market opportunity. PVNGS has a mix of  
21 contracts for fuel and fuel-related services that extend to the relative near term,  
22 i.e. through 2018, and to a more intermediate term, i.e. through 2025.

23

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1 **Q. DOES PVNGS HAVE A RELIABLE SUPPLY OF WATER NEEDED FOR**  
2 **FUTURE OPERATIONS?**

3 **A.** Yes. PVNGS is somewhat unique in that the bulk of its water requirements are  
4 met by treated effluent water recycled from the City of Phoenix and surrounding  
5 communities. The contract for this water supply extends through the current  
6 licensed life of PVNGS.

7

8 **Q. DO PNM CUSTOMERS CURRENTLY HAVE ACCESS TO**  
9 **GENERATION FROM PVNGS UNIT 3?**

10 **A.** Yes, but not because PVNGS Unit 3 is included in PNM's jurisdictional portfolio  
11 in any respect. As part of the decertification of PVNGS Unit 3, PNM agreed to  
12 "hazard sharing" arrangements whereby PNM customers can access generation  
13 from PVNGS Unit 3 when generation is not available from PVNGS Units 1 and 2  
14 due to maintenance. In this respect, PVNGS Unit 3 helps assure system reliability  
15 for PNM customers.

16

17 **Q. WHAT IS THE ENVIRONMENTAL COMPLIANCE STATUS OF PVNGS**  
18 **UNIT 3?**

19 **A.** There are currently no outstanding regulatory or environmental compliance issues  
20 relating to PVNGS Unit 3.

21

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1 **Q. WHAT TRANSMISSION INFRASTRUCTURE IS IN PLACE TO GET**  
2 **GENERATION FROM PVNGS UNIT 3 TO PNM'S JURISDICTIONAL**  
3 **CUSTOMERS?**

4 **A.** There are existing transmission lines from PVNGS to the Four Corners  
5 Switchyard that are used for transmission of generation from PVNGS Units 1 and  
6 2. In addition, PNM currently has three Transmission Service Agreements  
7 ("TSAs") in place with APS under APS's Open Access Transmission Tariff for  
8 long-term, point-to-point transmission services. These three TSAs afford PNM a  
9 total of 135 MW of additional transmission capacity from PVNGS to the Four  
10 Corners Switchyard. This available transmission capacity would be utilized to  
11 bring power from PVNGS Unit 3 to PNM's New Mexico customers.

12

13 **Q. AS VICE PRESIDENT OF GENERATION FOR PNM DO YOU BELIEVE**  
14 **THAT THE ADDITIONAL CAPACITY FROM SAN JUAN UNIT 4 AND**  
15 **PVNGS UNIT 3 REPRESENT REASONABLE AND PRUDENT**  
16 **REPLACEMENT CAPACITY FOR PNM'S CUSTOMERS?**

17 **A.** Yes I do. Both of these facilities have proven track records for providing cost-  
18 effective and reliable energy. These facilities are good performers and comply  
19 with applicable environmental and regulatory requirements.

20

21

22

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1

VIII. CONCLUSION

2

3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 **A.** Yes it does.

GCG#517357

**PNM EXHIBIT CMO-1**

**Consisting of 1 page**

**CHRIS M. OLSON**

**EDUCATIONAL AND PROFESSIONAL SUMMARY**

**Address:** Public Service Company of New Mexico  
Aztec Facility  
2401 Aztec Road NE, Building A  
Albuquerque, New Mexico 87107

**Position:** Vice President, PNM Generation, 2012 to Present

**Previous Positions:**

Corval Group, 2008 – 2012  
Vice President, Power & Energy

DTE Energy, 2008  
Director & Chief Engineer, Fossil Operations

Xcel Energy, 2000 – 2008  
Plant Director, Sherburne County Generating Plant

Northern States Power, 1982 – 2008  
General Manager, Regional Plants  
Manager, NSPW Generation  
Manager, Hydro Plants  
Superintendent, A.S. King Plant  
Engineer, Plant Engineering & Construction

Westinghouse Electric Corporation, 1980 – 1982  
Field Service Engineer

**Professional Affiliation:**

Registered Engineer, State of Minnesota

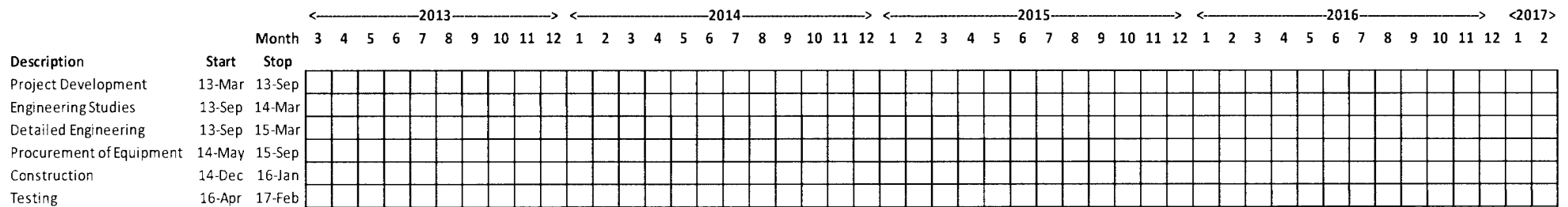
**Education:**

University of Minnesota, Bachelor of Mechanical Engineering  
University of Minnesota, Carlson School of Management, Minnesota Executive Program

**PNM EXHIBIT CMO-2**

**Consisting of 1 page**

**SNCR PROJECT TIMELINE**





**PNM EXHIBIT CMO-3**

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### **SNCR Project Total Estimated Costs**

#### **SNCR**

Equipment	\$	8,800,000
Material	\$	6,300,000
Labor	\$	15,500,000
Escalation	\$	800,000
Taxes	\$	2,200,000
Owners Engineer	\$	1,500,000
Construction Management	\$	800,000
Commissioning	\$	<u>300,000</u>
Subtotal	\$	36,200,000

#### **BALANCED DRAFT**

Equipment	\$	23,600,000
Material	\$	9,900,000
Labor	\$	49,500,000
Escalation	\$	1,900,000
Taxes	\$	10,100,000
Owners Engineer	\$	6,100,000
Construction Management	\$	2,300,000
Commissioning	\$	<u>800,000</u>
Subtotal	\$	104,200,000

#### **PROJECT COSTS**

Project Management	\$	3,000,000
Loads	\$	1,500,000
Project Development	\$	<u>4,800,000</u>
Subtotal	\$	9,300,000

TOTAL (excluding AFUDC) \$ 149,700,000

**PNM EXHIBIT CMO-4**

**Consisting of 1 page**

### **SNCR Project Total Estimated Costs (PNM Share)**

Note: Assumes PNM owns 170 MW in Unit 1 and 273 MW in Unit 4

#### **SNCR**

Equipment	\$	4,600,000
Material	\$	3,300,000
Labor	\$	8,100,000
Escalation	\$	400,000
Taxes	\$	1,100,000
Owners Engineer	\$	800,000
Construction Management	\$	400,000
Commissioning	\$	<u>200,000</u>
Subtotal	\$	18,900,000

#### **Balanced Draft**

Equipment	\$	12,300,000
Material	\$	5,100,000
Labor	\$	25,700,000
Escalation	\$	1,000,000
Taxes	\$	5,200,000
Owners Engineer	\$	3,200,000
Construction Management	\$	1,200,000
Commissioning	\$	<u>400,000</u>
Subtotal	\$	54,100,000

Project Management	\$	1,600,000
Loads	\$	800,000
Project Development	\$	<u>2,200,000</u>
Subtotal	\$	4,600,000

Total without AFUDC	\$	77,600,000
AFUDC	\$	<u>4,400,000</u>
<b>GRAND TOTAL</b>	\$	<u>82,000,000</u>

**PNM EXHIBIT CMO-5**

**Consisting of 1page**

### ESTIMATED TIMING OF SNCR PROJECT COSTS

	<b>Unit 1</b>	<b>Unit 4</b>	<b>Total</b>	<b>Annual % Spend</b>
2013	\$ 2,200,000	\$ 2,600,000	\$ 4,800,000	3.1%
2014	\$ 7,400,000	\$ 9,900,000	\$ 17,300,000	11.2%
2015	\$ 60,400,000	\$ 65,100,000	\$ 125,500,000	81.4%
2016	<u>\$ 3,200,000</u>	<u>\$ 3,400,000</u>	<u>\$ 6,500,000</u>	5.2%
Total	\$ 73,200,000	\$ 81,000,000	\$ 154,100,000 <sup>1</sup>	

<sup>1</sup>Total includes \$4,400,000 of PNM's share of AFUDC

**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. 13-00 \_\_\_\_-UT

**AFFIDAVIT**


STATE OF NEW MEXICO )  
 ) ss  
COUNTY OF BERNALILLO )

**CHRIS M. OLSON, Vice President, Generation for Public Service Company of New Mexico**, upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing **Direct Testimony and Exhibits of Chris M. Olson** and it is true and accurate based on my own personal knowledge and belief.

SIGNED this 3<sup>rd</sup> day of December, 2013.

  
\_\_\_\_\_  
**CHRIS M. OLSON**

**SUBSCRIBED AND SWORN** to before me this 3<sup>rd</sup> day of December, 2013.

  
\_\_\_\_\_  
NOTARY PUBLIC IN AND FOR  
THE STATE OF NEW MEXICO

My Commission Expires:

September 14, 2014