Docket E-01933A-15-0322/0239
Witness: Patrick W. Luckow

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR APPROVAL OF ITS 2016 RENEWABLE ENERGY STANDARD AND TARIFF IMPLEMENTATION PLAN.	Docket No. E-01933A-15-0239
IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR THE ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES DESIGNED TO REALIZE A REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE PROPERTIES OF TUCSON ELECTRIC POWER COMPANY DEVOTED TO ITS OPERATIONS THROUGHOUT THE STATE OF ARIZONA AND FOR RELATED APPROVALS.	Docket No. E-01933A-15-0322

Direct Testimony
of
Patrick W. Luckow

On Behalf of
Sierra Club

REDACTED

June 3, 2016

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

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

A My name is Patrick Luckow. I am a Senior Associate at Synapse Energy Economics ("Synapse"), based in Cambridge, Massachusetts. My business address is 485 Massachusetts Avenue, Suite 2, in Cambridge, Massachusetts.

Q What is your role at Synapse?

A I focus on calibrating, running, and modifying industry-standard economic models to evaluate long-term energy plans, and the environmental and economic impacts of policy/regulatory initiatives. As part of my work there, I provide testimony on behalf of state consumer advocates and other clients in electricity planning dockets, such as in California and Hawaii. I also review and evaluate the energy planning practices of utilities in dockets involving long-term planning and rate cases.

Q Please describe your educational background and experience.

A I hold a Bachelor of Science degree in Mechanical Engineering from Northwestern University and a Master of Science degree in Mechanical Engineering from the University of Maryland. Prior to joining Synapse, I worked as a scientist at the Joint Global Change Research Institute, a division of Pacific Northwest National Laboratory ("PNNL"). In this position, I evaluated the long-term implications of potential energy policies, both internationally and in the United States, across a range of energy and

electricity models. Since 2012, I have been at Synapse, where I run a range of electricity dispatch and capacity expansion models. I have provided testimony on the Public Service Company of New Mexico ("PNM") recent application for approval of a Stipulation Agreement related San Juan Generating State ("SJGS"), including reviewing PNM's Strategist analysis. My full resume is attached as PWL-1.

Q Please describe the purpose of your testimony.

A My testimony reviews the testimony of Mr. Mike Sheehan, in which he supports a revised retirement date at San Juan Unit 1 of 2027, set to 2036 in Tucson Electric Power Company's (TEP) current depreciation rates, as well as $34 million in capital expenditures related to SNCR and Balanced Draft Conversion at San Juan Unit 1.

Q What is your recommendation?

A First, I recommend that the Commission reject TEP's proposed retirement date of 2027 for San Juan Generating Station Unit 1 and instead set an expected retirement date of 2022. Given the poor economic performance of San Juan, a 2022 retirement date is far more likely than a 2032 retirement date, and therefore TEP should adjust its depreciation schedule accordingly to avoid shifting the costs for paying off San Juan to future ratepayers who will not benefit from the plant.

Second, I recommend that the Commission direct TEP to perform a more rigorous analysis on all future capital spending decisions at San Juan. TEP provided minimal support for its request to include $34 million in rate base for the SNCR and balanced draft conversion. Given the deteriorating economics of San Juan, TEP's must be required

to demonstrate clearly that any future expenses provide a lower-cost option for ratepayers compared to shutting down San Juan Unit 1.

Q Please describe the structure of your testimony.

A I will review the EPA's rulings leading up to the San Juan settlement agreement and retirement of units 2 and 3, and summarize the analysis conducted in support of the plan for San Juan. This includes analysis done by TEP in 2012 and 2013, as well as subsequent analysis by PNM in 2014 and 2015.

Q Please briefly describe TEP's role in San Juan Generating Station.

A San Juan Generating Station ("San Juan" or "SJGS") is a four-unit 1,646 MW coal plant located near Farmington, New Mexico. It is operated by PNM, and it currently has 8 additional co-owners. TEP is the 2nd largest co-owner of the plant, with a 19.8 percent ownership share in SJGS Units 1 & 2.[1] A restructuring ownership agreement reached in 2015 will leave the plant with 5 co-owners once various California public utilities exit the plant on or about December 31st, 2017. At that time, TEP's ownership share will increase to 20.1%.

Q Please describe what TEP is seeking in this case related to San Juan Generating Station.

A The TEP application generally seeks to update revenue requirements and rate design. I focus here on the TEP requests related to SJGS. TEP is seeking recovery of a $34 million

[1] Ownership shares supplied in July 31, 2015 NM PRC testimony of Chris M. Olson, NMPRC Case No. 13-00390-UT. Table CMO-2. Available at: https://www.pnm.com/systems

investment in capital expenditures for two pollution control projects at SJGS unit 1: Selective Non-Catalytic Reduction (SNCR) and balanced draft conversion. TEP is also proposing to update the expected retirement dates associated with SJGS used for depreciation purposes. The new proposed retirement dates for SJGS are 2027 (Unit 1) and 2017 (Unit 2).[2] Mr. Sheehan's testimony provided support for the decision to adjust the Unit 2 depreciation date based on the EPA's final BART ruling in September 2014 requiring Unit 2 to retire. With respect to Unit 1, Mr. Sheehan based the retirement date on a more ambiguous "mid point date" of 2027, which falls between 2022 and 2032. [3] These dates reflect TEP's expectation that a contract extension of the 2015 San Juan Coal Supply Agreement could extend the life of the mine for up to 10 years beyond 2022, which is the expiration date of the current coal supply agreement.[4]

Q Please describe TEP's recent decision points related to the San Juan Generating Station.

A TEP has had three key opportunities to make decisions related to the expected life of San Juan. First, on October 24, 2013, TEP voted in accordance with the ownership agreement to approve the proposal to install SNCR on Unit 1 by January 2016.[5] Second, TEP made the decision to sign on to the revised ownership agreement, as approved by the New Mexico Public Regulation Commission on December 15th, 2015. Third, TEP filed the present rate case, which reflects the revised retirement date of San Juan for depreciation purposes.

[2] Direct Testimony of Michael E. Sheehan, page 23, Table 11
[3] Direct Testimony of Michael E. Sheehan, page 26 at line 20
[4] Direct Testimony of Michael E. Sheehan, page 26 at line 8
[5] Sierra Club Discovery Request 3.4.

Q Please summarize the EPA requirements leading to the decision to retire SJGS Units 2 and 3?

A The federal regional haze rule mandates that states submit State Implementation Plans ("SIP") to address visibility impairment. EPA issued a revised regional haze rule in 2006. New Mexico failed to submit a SIP by the December 17th, 2007 deadline, and in August 2011, EPA promulgated a federal implementation plan (FIP) requiring selective catalytic reduction (SCR) at all four units of SJGS. In February 2013, the state of New Mexico, EPA, and PNM reached a settlement agreement whereby the San Juan owners committed to the retirement of SJGS Units 2 and 3 by Dec 31, 2017 in exchange for the option to install less costly and less effective SNCR at Units 1 and 4.[6] EPA gave final approval to this plan in September 2014.[7]

My testimony does not contest TEP's assertion that the settlement agreement to install SNCR represents a lower cost alternative than the FIP's original requirement to install SCR. The settlement agreement is a better option for ratepayer's than the original FIP's requirements. However, even with the settlement agreement, TEP nevertheless had an obligation to consider whether the costs associated with the SNCR and balanced draft still provided a better outcome for ratepayers than an alternative scenario that could have retired or converted SJGS unit 1 in addition to the shutdown of units 2 and 3. I focus here primarily on the stated benefits of continued operation at SJGS as opposed to a four-unit shutdown.

[6] For further details, reference the State of New Mexico Petition for Regulator Change. EIB 13-02 (R), available at:https://www.env.nm.gov/aqb/reghaz/documents/RHSIP_BART_Petition_05212013.pdf.
[7] EPA 2014. "EPA Approves New Mexico Regional Haze and Visibility Transport Clean-Air Plan". September 26, 2014. Available at: https://yosemite.epa.gov/opa/admpress.nsf/0/AA7EEF7002875D7E85257D5F00797ED0

Q Please summarize your findings.

A TEP's conclusion that San Juan unit 1 is likely to operate past 2022 is unsupported and incorrect. There is a broad body of evidence, both in this case and in related cases, which suggests that SJGS is unlikely to be economic past 2022, when the recently revised coal contract expires. It appears that TEP selected 2027 as a "mid point" of a number of potential retirement dates, but an economic analysis of the plant indicates that earlier retirement dates are far more likely.[8]

II. REVIEW OF ANALYSES OF RETIREMENT OF SAN JUAN

Q What analyses related to San Juan have you reviewed?

A As provided in Exhibit PWL-2, Sierra Club Discovery Request 2.2 asked TEP to provide any analysis conducted by or on behalf of TEP to determine if the plan including the closure of San Juan Units 2 & 3 was economically beneficial to ratepayers. In response, TEP provided two PowerPoint presentations that ostensibly support its San Juan decision: (1) an investor presentation from September 2012 and (2) a "replacement analysis" from May 2013. TEP also incorporated San Juan in its 2014 IRP planning, although with no specific retirement or replacement analysis related to SJGS. My understanding is that TEP has not done any subsequent analysis since that time.

In addition to the information provided by TEP in this proceeding, I also participated in PNM's recent proceeding before the New Mexico PRC related to San Juan. As part of that proceeding, I reviewed a detailed revenue requirement analysis provided by PNM.

[8] Direct Testimony of Michael E. Sheehan, page 26 at line 20

Q Please summarize TEP's 2012 analysis of San Juan.

A Sierra Club 2.2(a) asked TEP to "provide any analyses conducted by TEP or on behalf of TEP to determine if the plan, including the closure of San Juan 2 & 3, and installation of emission control equipment on 1 & 4 was economically beneficial to ratepayers". TEP provided a confidential September 2012 presentation by Mr. Sheehan summarizing environmental options at SJGS (attached as PWL-2). [redacted]

Q Please summarize TEP's 2013 analysis of San Juan.

A In response to Sierra Club 2.2(a), TEP also provided a May 2013 board presentation of replacement scenarios at San Juan (attached as PWL-2). [redacted]

[redacted]

Q How did TEP treat the retirement or retrofit of San Juan in its integrated resource planning?

A While TEP incorporated San Juan into its 2014 IRP, the Company conducted no specific analysis related to the value of San Juan in the IRP. TEP assumed SJGS Units 2 and 3 would retire by the end of 2017, and the loss of San Juan Unit 2 capacity would be covered through the acquisition of capacity at Gila River Power Station (see PWL-3).[9] These assumptions were "hardcoded" into the model.[10] At the Commission's request, TEP considered a "Full Coal Retirement" case that assumed 1,500 MW of TEP coal capacity was replaced with natural gas by 2025. This case was substantially more expensive than the TEP Reference case. TEP did not, however, specifically consider the retirement of both San Juan units alone in this analysis, and therefore the 2014 IRP cannot be used to assess the relative economics of continuing to operate SJGS 1 & 2.

Q Has TEP explained its rational for this analysis in support of the proposed changes to San Juan?

A Yes. On May 11, 2016, I participated on a phone call with TEP representatives. The call included Mr. Sheehan, Brad Carroll, and Mark Mansfield, as well as Sierra Club attorney

[9] TEP 2014 Integrated Resource Plan. April 1, 2014. p. 349. Available at: https://www.tep.com/doc/planning/2014-TEP-IRP.pdf . This page is attached as Exhibit PWL-3.
[10] Rather than let the model decide whether to replace or retire San Juan, TEP incorporated the retirement/retrofit decision as an input assumption and did not allow the model to make this decision.

Travis Ritchie. In response to my request for further information on its analysis justifying the proposed retirement dates at SJGS, TEP filed a supplementary response to Sierra Club 2.2 on May 18th.[11] This response reiterated that the analysis conducted between summer 2012 and spring 2013 (discussed above) supported the partial retirement decision, showing that the preferred partial shutdown at San Juan had a $54 to $63 million net benefit. However, the basis for this conclusion is not fully supported. The files attached to TEP's supplemental response include summary annual economic and energy outputs, as well as net present value comparisons between the cases. TEP used the Ascend Analytics PowerSimm model, but has not documented the input assumptions or methodology used in this analysis. It is difficult to make an assessment on the validity of this conclusion without any further support, either in response to Discovery or in the Application itself.

TEP's supplement response stated that it chose to support PNM's plan for SJGS "in good faith" to ensure SJGS was fully-subscribed.[12] In other words, it appears that TEP was content to rely on PNM's analysis of costs rather than conduct its own detailed review. Given that TEP's summer 2012 analysis discussed above showed a clear benefit ($54 to $63 million in saving), deferring the bulk of future analysis efforts to PNM is not unreasonable, particularly in reference to the SNCR installation, which was required to be completed by Jan 2016. I will discuss PNM's plan below. However, based on TEP's supplemental response and the lack of any post-2013 analysis provided by TEP, it appears that TEP has continued to rely on PNM's analysis efforts regarding the proposed

[11] Sierra Club Discovery Request 2.2, May 18th Supplemental. Attached as Exhibit PWL-2, page 2.
[12] Sierra Club Discovery Request 2.2, May 18th Supplemental. Attached as Exhibit PWL-2.

changes for SJGS. Unfortunately, PNM's analysis included a number of elements specific to PNM ratepayers, and changed numerous times in 2014 and 2015.

Q Has PNM done a more recent analysis of the net present value of continued ownership at San Juan compared to other alternatives?

A Yes. PNM used the Ventyx (now ABB) Strategist model, a long-term utility scale capacity expansion model, to understand the total costs to its system under scenarios of different ownership levels of San Juan. The Strategist model is able to select least-cost pathways for future power supply, given assumptions about required capital expenditures, future load forecasts, commodity prices, and replacement power costs. PNM updated this analysis several times between 2014 and 2015 as costs, ownership agreements, and PNM's supplemental stipulation agreement related to a New Mexico proceeding continued to evolve.

Q Did TEP review the 2014 and 2015 analyses conducted by PNM?

A It is unclear. During our phone discussion, TEP indicated that their resource planning team had no direct communication with PNM; although they were aware of some of the broad conclusions, as well as some of the analysis issues I raise below.

Q Please summarize the timeline of the PNM analysis and your findings.

A See the timeline in Exhibit PWL-4. PNM filed its Application to Implement a Revised SIP with the New Mexico Public Regulation Commission ("PRC") on December 20, 2013. That application assumed abandonment of San Juan Units 2 and 3. My colleague

Dr. Jeremy Fisher filed testimony reviewing this analysis on August 29, 2014. I supported Dr. Fisher in his review of PNM's modeling efforts. PNM filed a stipulation agreement, making certain concessions to ratepayers and stakeholders in exchange for their support, on October 1, 2014. Dr. Fisher and I reviewed PNM's Strategist analysis in support of this Stipulation and found clear indications that continued ownership of San Juan beyond December 2017 was a substantial liability to PNM and its ratepayers.[13] Other stakeholders also reviewed PNM's analysis and found the plant to be a liability, most notably the New Mexico Industrial Energy Consumers ("NMIEC").

While PNM did specifically focus its analysis on SJGS, its analysis inappropriately included elements of the Stipulation Agreement in its Strategist analysis and ignored benefits that also existed in the absence of the Stipulation. Its analysis also included errors related to the inclusion of fixed operations and maintenance costs and fuel prices. PNM had originally contended that San Juan Unit 4 presented a net benefit of $134 million, on a net present value basis. In December 2014, Dr. Fisher testified that PNM had inappropriately incorporated stipulation elements into Strategist modeling, and in doing so convoluted appropriate utility decision making and PNM-specific claimed benefits. He further testified that these benefits claimed in the model did not exist, or more specifically, also existed in the absence of the stipulation. It was therefore inappropriate to include these as benefits of the stipulation. For example, PNM valued additional capacity purchased from the Palo Verde Nuclear Generating Station at $1650/kW in the Stipulation analysis, but $2,500 in its retirement analysis. This alone

[13] Surrebuttal Testimony of Dr. Jeremy Fisher. New Mexico Public Regulation Commission. Case 13-00390-UT. Attached as Exhibit PWL-6.

accounted for $114 million in discrepancies.[14] Inappropriate characterization of variable costs (i.e. fuel and operations and maintenance costs), faulty accounting for stranded costs, and inappropriate depreciation assumptions ultimately led to over $1 billion in errors, according to our analysis.

Q Did PNM acknowledge these errors in its analyses of the benefits of SJGS?

A On cross, PNM admitted these issues led to over $1 billion dollars in increased costs from its December 2013 filing. I provide an excerpt of this cross examination in Exhibit PWL-5.[15] Subsequent to this finding, the City of Farmington, in a January 7, 2015 letter, announced that it had decided not to purchase 65 MW of capacity at San Juan, leaving the plant lacking ownership for its full capacity. The administrative law judge in the PNM case subsequently rejected the application on merits.

Q How did PNM respond to the rejection of its application?

A Following this setback, PNM offered to purchase through an unregulated affiliate the 65 MW that another co-owner, the City of Farmington, abandoned. It then filed a revised coal supply and ownership agreement, followed by a supplemental stipulation agreement on August 13, 2015. Lower coal prices associated with the coal supply contract made the case for continued ownership better, but several of the errors associated with replacement capacity and depreciation schedules were still present in this analysis. I testified to that

[14] Surrebuttal Testimony of Dr. Jeremy Fisher. New Mexico Public Regulation Commission. Case 13-00390-UT. Attached as Exhibit PWL-6.
[15] Cross Examination of Pat O'Connell, Director of PNM Resource Planning. Jan. 9, 2015. page 1001. Available at: http://164.64.85.108/infodocs/2015/1/PRS20203525DOC.PDF. Attached as Exhibit PWL-5.

effect on September 25, 2015. It is my opinion that PNM conducted inappropriate utility decision making and modeling in an effort to bolster the apparent benefit of the stipulation. PNM continued to put its thumb on the scale by claiming benefits of the stipulation that are not unique to the stipulation, and hiding other costs that will accrue as an outcome of its plan.

Q Did the New Mexico Commission ultimately approve PNM's plan for San Juan?

A Yes. On December 15, 2015 the New Mexico PRC approved the supplemental stipulation, allowing for the retirement of SJGS Units 2 and 3 and environmental retrofits for continued operation at SJGS Units 1 and 4. The new coal contract with Westmoreland, which purchased the mine from the previous mine owner, BHP, took effect on February 1, 2016.

III. EXISTING ANALYSES SUPPORTS A 2022 RETIREMENT DATE FOR SJGS, RATHER THAN 2027

Q Does TEP's analysis presented in this proceeding support the changes TEP has proposed to its depreciation schedule for SJGS?

No. The limited analysis presented in response to Sierra Club's discovery requests does not support a 2027 retirement date at San Juan. The justification provided by TEP itself in its Application is largely non-existent. Mr. Sheehan notes that in the San Juan Coal Supply Agreement RFP process, some bidders suggested mine expansion options for both 5- and 10-year extensions beyond 2022. Mr. Sheehan states that post-2022 considerations are largely uncertain, subject to ownership changes, uncertain coal costs, and future

environmental regulations. He uses this as justification for a "mid point" choice of 2027 (a 5-year extension to the supply agreement).

Mr. Sheehan notes that beyond 2022, "some or all of the owner participants in San Juan may choose to exit the project, thus further reducing the plant configuration" and shouldering further capital expenditures on a dwindling subset of owners. Mr. Sheehan also notes risks of mine expansion costs and environmental regulations.[16]

Given the overall uncertainty surrounding the future of San Juan after 2022, and the deteriorating economics of the plant as evidenced in PNM's recent analysis, an expected retirement date after 2022 is unreasonable. Rather than setting a depreciation scheduled based on a 2027 retirement date, TEP should instead use 2022 as the date to set the depreciation rate for San Juan unit 1. Such a rate would be consistent with the broad body of existing evidence on the dim future prospects of San Juan.

Q Does PNM's analysis apply to the TEP system?

A Not directly**.** PNM's analysis incorporated cash benefits that PNM was willing to provide to PNM ratepayers as a result of the supplemental stipulation, largely to avoid risks associated with stranded assets. These benefits would not accrue to TEP ratepayers. TEP should conduct its own replacement analysis, and present that in this docket. Nonetheless, my review of the PNM modeling analysis indicates that there are many reasons to be concerned about the likelihood of continued operation of San Juan after the current coal contract expires. In fact, continued operation until that point is likely borderline

[16] Direct Testimony of Michael E. Sheehan, page 26, line 15 and fn 34

economic. If it were uneconomic for PNM to continue with San Juan after the contract expires, it seems quite likely that the plant will retire. As part of the stipulation agreement, PNM will conduct an analysis of the post-2022 economics of SJGS in 2018. Ongoing review is an important part of resource planning.

IV. TEP'S ANALYSIS DOES NOT ADEQUATELY SUPPORT FUTURE CAPITAL SPENDING AT SAN JUAN

Q Does TEP's analysis in this proceeding provide adequate support for the decision to spend $34 million on SNCR and balanced draft conversion?

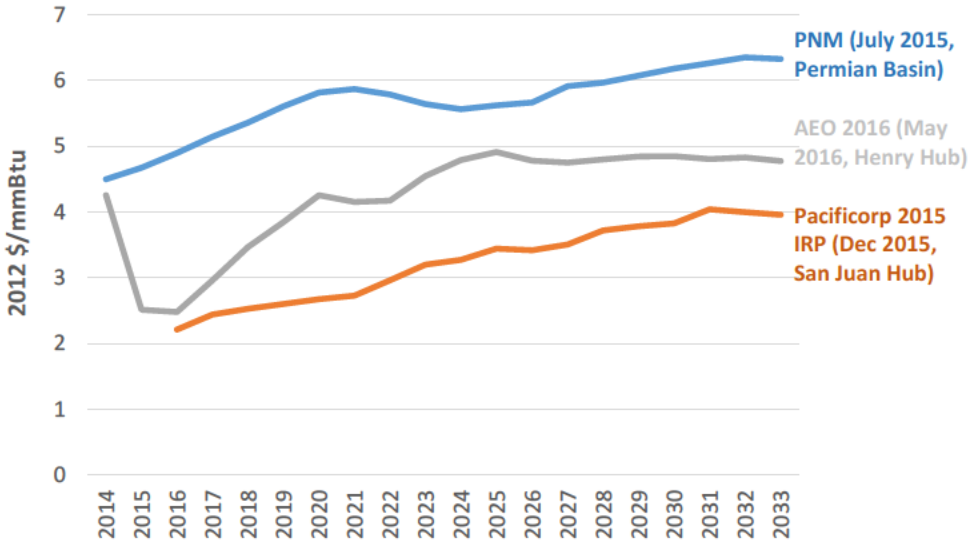
A No. For the same reasons discussed above, TEP did not conduct a robust independent assessment of the value of continuing to operate San Juan unit 1. Rather than conducting its own net present value analysis of those capital expenditures, TEP instead relied primarily on PNM's decision making. PNM's analysis around those decisions have been shown to be vastly inadequate. Therefore, neither TEP's cursory internal analysis nor PNM's flawed analysis support the conclusion that ratepayers will benefit from the installation of SNCR and balanced draft conversion compared to a retirement scenario.

Q Have any major input assumptions changed in the past year that would affect the analyses conducted thus far?

A Yes. Recent changes in fundamentals have further eroded the economic value of San Juan. Gas price forecasts have come down substantially since most of the analyses related to SJGS were conducted. Persistently low prices have already and will continue to drive market energy prices lower, reducing the value of SJGS. Figure 2 below compares the

price used in PNM's analysis of SJGS as of summer 2015 to publicly available forward prices at San Juan from December 2015, this one from PacifiCorp's latest IRP process, as well as the recently released EIA Annual Energy Outlook 2016 (Early Release).[17,18]

Figure 1: Gas price comparison of San Juan analysis



V. CONCLUSION

Q Please summarize your findings regarding TEP's proposed revised retirement date for San Juan Unit 1 and the capital expenditures for the SNCR and balanced draft conversion.

A TEP failed to do due diligence to support its recommended retirement date for San Juan Unit 1 and the capital expenditures at issue in this proceeding. After its 2013 analysis, TEP deferred further decisions to PNM and did not conduct its own analysis specific to

[17] PNM forecast from July 31st 2016 Supplemental Testimony of Patrick J. O'Connell, Before the New Mexico Public Regulation Commission. Case No. 13-00390-UT.
Pacificorp 2015 IRP Update. "December 2015 natural gas OFPC". March 31, 2016. page 39. Available at: http://www.pacificorp.com/es/irp.html
[18] EIA Annual Energy Outlook 2016 Early Release. May 17, 2016. Available at: http://www.eia.gov/forecasts/aeo/er/index.cfm

its ratepayers. It is imprudent for TEP to proceed without conducting an independent analysis of the economics of SJGS and presenting that analysis to the Commission. A number of factors, chief among them natural gas prices, have changed since both the TEP analysis and the more recent PNM analysis; and these factors only hurt the economics of continued operation at SJGS. It is not clear that either PNM or TEP has made any effort to reassess their decisions in light of falling natural gas prices. Based on my own analysis, 2027 is not a reasonable retirement date. Further, given the rapidly deteriorating economic value of the plant, it is unclear whether the decision to spend even $34 million on San Juan unit 1 was reasonable. As natural gas prices (as well as renewable energy prices) have continued to drop in the intervening years since TEP's analysis, the case for any future capital spending at San Juan is even more circumspect.

Q Please summarize the factors that lead you to support a 2022 retirement date as the likely retirement date.

A The expiration of the new coal contract in 2022 is the next opportunity for TEP, as well as other owners, to exit San Juan. Persistently low natural gas prices have and will continue to reduce the benefits associated with ownership at San Juan, lower even than PNM's more recent 2015 analysis. TEP itself references mine expansion development costs as a forward looking risk.[19] Finally, PNM, as part of its supplemental stipulation, agreed to fully depreciate its investments in SNCR by July 1, 2022.[20] The ownership structure of San Juan is such that a single owner choosing to exit the plant in 2022 could

[19] Direct Testimony of Michael E. Sheehan, page 26 at line 16
[20] Supplemental Stipulation page 6-7, Before the New Mexico Public Regulation Commission. Case No. 13-00390-UT. Available at: http://www.pnmresources.com/~/media/Files/P/PNM-Resources/rates-and-filings/Supplemental%20Stipulation.pdf

make continued operation untenable. As a result of these factors, a 2022 retirement date is more likely than a 2027 date.

Q Does this conclude your testimony?

A Yes.