SUMMARY OF DECEMBER 15, 2022, TECHNICAL SESSION #9

On December 15, 2022, PNM held the ninth in the series of technical sessions for stakeholders devoted to discussing the advantages and disadvantages regarding the application of different technical methodologies within the modeling framework for the IRP (Integrated Resource Plan). Representatives from Siemens presented their price forecast for the wholesale electricity market, and representatives from Itron presented their work on the load forecast. PNM's pricing department presented information on the assumptions and rate structures underlying PNM's plans for decarbonization, including the time-of-day pilot program.

MEETING ATTENDEES

Forty-two stakeholders, not including PNM, Itron, and Siemens staff, attended the virtual meeting, including members of the public and representatives from InterWest Energy Alliance, New Mexico State University, Office of the New Mexico Attorney General, PNE USA, and Sandia National Laboratories, among others.

Meeting slides can be found here.

Stakeholders raised the following questions.

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Stakeholder	Question/Comment	Categories
PNM	So, the on-peak non-solar hours, the reason that's higher, that's mainly due to the fact that those would be your morning ramp and your afternoon ramp prior entering the evening hours? Is that right?	**Modeling**
InterWest Energy Alliance:	This curve [Slide 14] to me does not show any penetration of storage. Is that correct?	**Modeling**
Sandia National Laboratories:	Does the Palo Verde [graph] on Slide 14 refer to the pricing at the Palo Verde hub, or the price at the Palo Verde power plant?	**Modeling**
InterWest Energy Alliance:	My question goes back to your slide on your market drivers [Slide 11] and capital costs in particular. You mentioned a number of factors that you looked at on those cost assumptions and one of them was some preliminary assumptions on the IRA [Inflation Reduction Act]. I'm wondering if you can give us some more clarity or detail on what your assumptions were on the IRA. I understand the rules have not come out. It's early days for everyone but I'm wondering how you took that into account.	**Modeling**
Member of the Public:	I'm not quite following all that pricing that was just presented [Slide 11, in response to question from InterWest Energy Alliance on	**Modeling**

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	cost assumptions]. Could we get a slide or something to show that in the future?	
InterWest Energy Alliance:	I understand the curves here [Slide 11] don't reflect or include these PTC assumptions, but do you have a sense at this point how much [the IRA tax credits] will affect these price curves?	**Modeling**
Sandia National Laboratories:	Could you elaborate on the methodology used to obtain the hub pricing forecast? You mentioned that you did a capacity expansion model on the Western interconnect. Did you then run a nodal production cost model for each year, or the forecast obtained from the capacity expansion planning model?	**Modeling**
Member of the Public:	Will the hub prices change as the IRA [Inflation Reduction Act] credits are included?	**Modeling**
Sandia National Laboratories:	I have a question about the carbon price forecast. Could we flip back to [Slide 10]? The reference case forecast reflects a carbon policy starting in 2025. On the federal price, do you foresee any possibility that the incoming Congress will pass this, a federal CO2 price, or what exactly is the story that would explain a federal price going into effect in 2025?	**Modeling**

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InterWest Energy Alliance:	In your trends that you're seeing--if you could go back to your high temperatures [Slide 26] -- I understand that's [an average] over 24 hours. But are you seeing an increase in daytime temperatures or are you seeing an increase in nighttime temperatures or are you seeing both or neither or a blend?	**Modeling**
Member of the Public:	Do the behind the meter PV numbers include community solar?	**Modeling**
InterWest Energy Alliance:	Looking at the nonresidential curve on that top graph [Slide 33], and it looks like you're assuming or forecasting that non residentials, which I assume include both commercial and industrial--kind of your medium commercial and your larger load customers--are going to be adopting some behind-the-meter generation, but not at the same rate as residentials, or not to the same extent. Is that the trend that you guys have been seeing so far that commercial and industrial customers don't want to use behind the meter so much, they just want to use more of PNM's system?	**Modeling**
Sandia National Laboratories:	Could we elaborate on the assumptions used for the increase in the residential solar and does this assume full AMI [Advanced Metering Infrastructure] deployment?	**Modeling**

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PNM:	Does this also assume that net metering is allowed to continue or is that an implicit assumption within the model, or is that not considered?	**Modeling**
Office of New Mexico Attorney General:	Does this electrification scenario [Slide 41] incorporate the new IRA [Inflation Reduction Act] tax credits and rebate programs?	**Modeling**
Sandia National Laboratories:	For this analysis on the rates [Slide 42], was it considered to be a voluntary or a mandatory time of use rate?	**Modeling**
InterWest Energy Alliance:	I'm seeing your numbers here [Slide 31] about your peak, your summer peak day being 2.6 degrees warmer, your winter peak day is 12.2 degrees colder. I'm going to reiterate my [previous] question [to be clearer.] For example, the summer peak day, being 2.6 degrees warmer – is that effect more from nighttime temperatures being warmer or daytime temps being warmer? And then same question for your winter peak day being 12.2 degrees colder. Is the larger contribution to that from nighttime temps being colder or daytime temps being colder? I understand what you're looking at is an average [Slide 29]. I'm just wondering--you may not have this information--but. in developing your average, were you able to notice or identify whether the contribution to the change in	**Modeling**

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	temperature is more from daytime or nighttime? I understand you might not have done the analysis. I'm just wondering if when you did, did you notice that at all?	
PNM:	On the modeling side [Slides 26-27], at least, you're calibrating 24 different hourly models to that daily average temperature. And so, I'm assuming, of course those are going to be statistically significant. So, you're, you're capturing the effects of the increasing daily temperature, whatever the daily temperatures are on an individual hourly basis. It's not like you're ignoring the hourly piece of it. And so, if you were to change this framework up and look at more hourly data on the temperature side, you'd be recalibrating each of those models and it probably is not going to change that relationship much. And when you do this, each time you reforecast a load, you're recalibrating to more current load/weather relationships. So, if there is a change in that relationship that's going to be captured within the calibration process before you reforecast.	**Modeling**
New Mexico State University:	As I'm reading it, the high PV [photovoltaic] scenario included	**Modeling**

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	1,141 megawatts of total PV on the system [Slide 35]. Looking at the 2020 IRP most cost-effective portfolios (MCEPs), the no new combustion scenario, obviously that's the scenario that would end up with the most PV and that portfolio has 3,165 megawatt hours of solar. This doesn't line up in my mind that our high PV scenario from last time around [which] appears to be 3,165. You seem to have about one third as much solar in what you've modeled. So, maybe someone can explain this and if not, would you please do a scenario that matches what I expect will come out again this time in the model?	
Sandia National Laboratories:	[On Slide 54] it seems like there's a lot of different variables there with different high, medium and low assumptions. And then there's probably even more. I guess you do have economic forecasts in there. So, I guess in general, there's a lot of variables with three different choices. So, it turns into a very large combinatorial problem. I was just curious if you could comment on the methodology for coming up with these different combinations. Was it based off of just going back and forth on what scenarios you	**Modeling**

	think are critical and would have an effect on your IRP outcomes? Or was there some other kind of mathematical scenario reduction techniques out there? That might be getting too into the weeds here. When do you know when you feel comfortable with all these scenarios and how you book-ended them?	
Member of the Public:	Is the BTM [Behind the Meter] solar assumed to be mostly fixed-tilt?	**Modeling**
Sandia National Laboratories:	Can a residential customer participate in the pilot without having a smart meter installed?	**Modeling**
PNM	If you were a customer that had a behind-the-meter photovoltaic system, and you were getting a net metering benefit on the current residential 1A rate, would the value of net metering from BTM PV change as the time-of-day rates are implemented or if the customer enrolls in the TOD pricing structure?	**Modeling**
Member of the Public:	[How] might changes in usage patterns be included in the pilot as more people continue to work from home instead of going into a central workplace?	**Modeling**
Member of the Public:	I'm beginning to learn how your slides are working [referring to Slides 70-74], but, basically, "off	**Modeling**

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	peak" rates mean high peak, peaking renewable power/solar power generation. Do you think we could find another term so that we don't get the word "peak" used in different ways twice?	
Member of the Public:	As cost allocation will change, is some change in tax structure expected to make up for the government revenues that will be lost as we use less fossil fuels?	**Modeling**
Member of the Public:	[Asked relating to an earlier comment from Sandia National Laboratories regarding behind the meter solar and storage in Hawaii (Hawaii residential rate structure incentivizes storage paired with rooftop solar)]: Is the example of Hawaii indicating a move toward more fixed or variable rates?	**Modeling**
Sandia National Laboratories	Given the changes taking place at the PRC [Public Regulation Commission], when is your anticipated decision on the rate case filing and pilot proposal?	
InterWest Energy Alliance:	I [recall from a previous presentation] that PNM gets a lot of economic development inquiries that they turn away. How will your analysis and forecast take that into account? Do you plan to hold the public advisory meeting on this topic and identify how economic	**Modeling**

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	development opportunities may affect your forecast and needs?	

All IRP questions and answers can be found here.

The latest future meeting schedule can be found here.