Indiana Michigan Power Company

2021 Integrated Resource Plan

Stakeholder Workshop #1 Meeting Minutes

(March 9, 2021)

1. Welcome and Introductions – Dona Seger-Lawson, Director of Regulatory Services

Dona began the meeting at 9:30 and covered slides 1-5.

Dona began the meeting and welcomed participants to the 2021 I&M Integrated Resource Plan (IRP) stakeholder workshop. Dona reviewed a safety moment for electrical safety while working from home and introduced the American Electric Power (AEP), Indiana Michigan Power (I&M) and Siemens Power Technologies International (PTI) team members.

Dona introduced Jay Boggs, Siemens Managing Director, and Moderator for the Stakeholder Workshop.

2. Meeting Guidelines – Jay Boggs, Siemens Managing Director

Jay covered slides 6-8

Jay presented the Meeting Guidelines portion of the presentation and established the role of Moderator for the Stakeholder Meeting. He stated that the purpose of the presentation is to explain the IRP process and collect feedback from stakeholders and that participants would hear from several individuals today from AEP, I&M and Siemens PTI. He introduced the role of Siemens PTI as part of the 2021 IRP Process and provided an overview of the webinar platform and tools.

Meeting guidelines were discussed.

Jay also provided an overview of the Questions and Feedback process, including directing stakeholders to submit comments and stay informed at the I&M IRP Website: http://www.indianamichiganpower.com/info/projects/IntegratedResourcePlan.

In addition, stakeholders are encouraged to submit questions via email to I&MIRP@aep.com

Jay introduced Toby Thomas, I&M President and Chief Operating Officer (COO), to provide opening remarks.

3. Opening Remarks – Toby Thomas, I&M President and COO

Toby covered slides 9-13

Toby welcomed everyone to the meeting and stated that the 2021 IRP will be developed over the next several months and that stakeholder feedback will be critical. He discussed the strategic importance of the 2021 IRP and provided an overview of I&M service territory, reviewing areas served and the Company's generation portfolio. Toby also provided an overview of I&M's energy efficiency and demand response (EE/DR) programs.

Toby went on to discuss the transformation strategy underway at I&M which is focused on generation transmission, modernizing the grid, expanding customer choice, embracing new technology and developing a work force of the future. He explained that the transformation strategy is focused not on generation, but also on the way in which I&M interacted with customers and stakeholders. He also discussed planning for distributed energy resources (DER), electric vehicles (EVs) and expanding customer choices. Toby then discussed the Company's Diversity and Inclusion Strategic Plan Roadmap.

Toby introduced Greg Soller, I&M Resource Planning Analyst.

4. I&M 2021 IRP Process – Greg Soller, I&M Resource Planning Analyst

Greg covered slides 14-16

Greg began this section by reinforcing the objective of the IRP is to provide a roadmap for planning purposes. Greg discussed the major components associated with developing the IRP, including the development of a portfolio of preferred resources and stakeholder engagement.

Greg stated that every year I&M looks at potential IRP enhancement opportunities to implement and provided an overview of the various improvement opportunities I&M has for the 2021 IRP. He mentioned the improvement opportunity to enhance coordination between the distribution and planning teams, which is already underway internally. He also mentioned the new Grid Solutions internal team, which will create enhanced coordination overall among transmission and distribution planning functions.

Greg introduced the Siemens IRP Team, Art Holland, Jay Boggs, and Peter Berini, to present the remainder of the slides in this section.

5. I&M 2021 IRP Process – Art Holland; Siemens Managing Director; Jay Boggs, Siemens Managing Director; Peter Berini, Siemens Project Manager

Siemens IRP Team, including Art Holland, Jay Boggs and Peter Berini, covered slides 17-20

Siemens IRP Team, led by Art Holland, discussed the proposed 2021 IRP Process that will be administered by Siemens PTI. Art discussed the five-step process that Siemens has used to conduct IRP filings across the US. The five steps discussed were: Determine Objectives, Identify Metrics, Create Candidate Portfolios, Analyze Candidate Portfolios and Balanced Scorecard and Report.

Peter Berini provided an overview of Key Vendors anticipated as part of the process.

Jay Boggs provided an overview of the Stakeholder Process. Four stakeholder meetings will be held. There will also be a stakeholder meeting on the all-source RFP and an Aurora technical workshop.

Table 1 Verbal Questions Captured Related to 2021 IRP Process

Question #	Question	Response
Q1	Is there another all-source RFP being issued?	The All-source RFP was agreed upon in the MI IRP settlement and will be used to capture indicative long-term pricing to inform the IRP. It differs from the current Renewable RFP which is designed for a short-term period. The Company will facilitate a Stakeholder Review process for the draft RFP prior to issue.
Q4	How will the All-Source RFP results fit into the process (timing and use)?	
Q6	Why do you have two RFPs?	
Q7	Will you give stakeholders an opportunity to weigh in on all-source RFP?	
Q9	Are you sending the new RFP to all who responded to the first RFP?	
Q11	What are the main differences with the RFPs?	
Q5	Can we get copies of the modeling files as we have in the past?	Yes, we will talk about that in detail at the modeling workshop.
Q10	Where will future workshops be held?	COVID-19 policies prevent us from attending large in person meetings currently.

6. **Objectives and Measures – Art Holland, Siemens Managing Director, Jay Boggs, Siemens Managing Director, Peter Berini, Siemens Project Manager**

Siemens IRP Team, including Art Holland and Peter Berini, covered slides 21-28

The Siemens IRP Team, led by Peter Berini, discussed the I&M IRP team's approach to establishing objectives and measures for use in the IRP analysis. Peter noted that the critical first step in the IRP Process is the determination of objectives in which portfolios will be evaluated against. Objectives will be assigned Metrics, which will feed directly into the Balanced Scorecard and aid in the selection of the preferred portfolio.

Peter discussed how IRPs are generally centered around three main objectives: Affordability, Reliability, and Sustainability objectives. He also noted that each set of stakeholders may have a different set of priorities when examining IRP objectives and it is important to illustrate and identify the various trade-offs stakeholders may have.

Peter then discussed the proposed Objectives and Metrics for use in the study (slide 24)

He then discussed how the preferred resource portfolio will incorporate each of the objectives and measures through a balanced scorecard that weighs attributes in accordance with stakeholder needs, economic and load growth projections, I&M input and practical

considerations. He stated that the Balanced Scorecard allows for broad comparisons of the Candidate Portfolio's and will align with the Objectives and Metrics.

Peter introduced the Siemens IRP Team, Art Holland, Jay Boggs, and Peter Berini to discuss Proposed Scenarios.

Table 2 Verbal Questions Captured Related to Objectives and Measures

Question #	Question	Response
Q14	How will I&M value resource diversity?	The details related to the Resource diversity metric are still be developed but it is intended to capture in some manner, including technology type, location, and count.
Q18	Will you evaluate diversity of resources?	
Q20	Fuel diversity: one method is to consider geographic diversity and total counted generation	
Q22	Do you mean resource count by technology count as a measure of diversity?	
Q19	Will you provide 5-year and 10-yr NPV?	Yes.
Q23	Are your metrics set in stone?	Our goal for today was to provide a preliminary set of metrics to get your feedback. At the next meeting we will look to finalize.

7. <u>Proposed Scenarios – Art Holland, Siemens Managing Director, Jay Boggs, Siemens Managing Director, Peter Berini, Siemens Project Manager</u>

Siemens IRP Team, including Art Holland, Jay Boggs and Peter Berini, covered slides 29-40.

Once a set of objectives and metrics have been determined, the next step in the process is to define the Scenarios for consideration in the selection of alternative portfolios. In the case of I&M, Art provided an overview of the Reference Scenario and four alternative scenarios envisioned for the 2021 IRP Analysis.

In addition to providing an overview of the scenarios, Art mentioned the importance of input diversity in this process. He also noted that scenarios will inform Candidate Portfolio Development but is not the only means. Sensitivities will be applied to the scenarios as well, which were not discussed on the call.

Art introduced Greg Soller, I&M Resource Planning Analyst, to discuss I&M's Going-in Position.

Table 3 Verbal Questions Captured Related to Proposed Scenarios

Question #	Question	Response
Q15	How do we look at CO2 emissions in the Scenarios?	We will subject the portfolios to a broad range of CO2 costs and sensitivities.
Q33	How will the development of scenarios change as you get more certainty around capital costs?	Expectation is the all-source RFP will provide insight to the market cost, which will influence the portfolios that emerge.
Q34	Will there be a metric for diversity and inclusion?	The Company is interested in considering Stakeholder ideas for this matter; at this time, the Company is considering this to be a qualitative discussion regarding the attributes of the Portfolios.

8. **Preliminary Base Case Inputs – Greg Soller, I&M Resource Planning Analyst, Connie Trecazzi, Fundamental Forecasts, Chad Burnett, Load Forecasts**

Greg covered slide 41-42

Greg covered the current plans and capacity needs for the I&M portfolio (slide 42). The slide depicts the Company's net unforced capacity (UCAP) and shows I&M position for reserve margins and load. He noted the amount of capacity required at various intervals of the study horizon, all of which coincide with currently planned retirements or contract expirations at existing facilities. He also noted a drop in the total load obligation that occurs in the early 2030's because of wholesale contract expirations.

Greg introduced Connie Trecazzi, Economic Forecast Analyst, to discuss Reference Scenario Inputs.

Connie covered slides 43-48.

Connie introduced the Reference Scenario inputs and discussed the key market drivers and the fundamental forecast process.

Connie discussed the forecasting process for fundamental pricing. The Aurora model is used for projecting long-term energy prices. It uses a wide range of information in developing the forecast – internal and external. The process is iterative to reflect the impact of changes in power generation demand on underlying fuel prices and the subsequent impact on power prices. The process is repeated until an equilibrium has been reached.

Connie explained that the forecast is a baseline forecast covering the entire country. It is used for analysis across AEP's entire service territory.

Connie also indicated that AEP is in the research phase of the process used to update its fundamental forecast and expects to provide updates once that process is completed. She then discussed a few base case inputs, such as gas prices, coal prices and CO_2 prices.

Importantly, AEP is working to integrate the transmission and distribution planning teams as part of the IRP process.

Connie introduced Chad Burnett, Director of Economic Forecasting, to discuss the Load Forecast process.

Chad covered slides 49-55

Chad discussed the load forecast process as it relates to the I&M 2021 IRP and reinforced the use of county level economic data. He discussed the process whereby customer forecasts by class are used as an input into monthly sales forecasts, which feed into peak demand. The analysis works in demographics, macroeconomics, and weather, and applies efficiency and adoption of new technologies. He then discussed many of the drivers of load, which are consistent between years. Chad noted the importance of population growth and industrial customers on load growth in I&M's service territory.

Chad also discussed the Company's forecasts by class, including the expiration of wholesale contracts in the early 2030's. He also discussed the load forecast scenarios and the assumptions.

Table 4 Verbal Questions Captured Related to Base Case Inputs

Question #	Question	Response
Q13	How will I&M address the cost of climate change?	The modeling will include a cost for carbon for carbon emitting resources.
Q25	How will the level of electrification be forecast?	The level of electrification is in the load forecast.
Q25	How will the OVEC resource be evaluated?	We have a contract for the OVEC resources and will include this as a going in resource. This resource will be included throughout the study period.
Q27	Are you assuming the OVEC capacity is in every scenario, or are you evaluating if it would be economical to shorten the life?	
	How will I&M incorporate better technology to support solar?	Storage and renewable costs will be critical. We have a robust approach to consider battery storage as part of the IRP.
Q30	Will the load forecast change in the final modeling?	Yes. We issue a new load forecast annually. It will be out before the final modeling.
Q31	How will $0 resources affect market prices?	Electric energy market prices are a function, in part, of short-run marginal costs. Short-run

Question #	Question	Response
		marginal costs are the variable costs of production of the last MWh produced. An increase in zero-variable-cost generating technologies in the mix is likely to apply downward pressure on energy market prices. However, producers will expect to be fully compensated for their capital investments before they will enter the market with needed capacity. Therefore, other means to compensate those producers, possibly capacity prices, will adjust to fill in the void left by falling energy prices.
Q35	Will you commit to retire Rockport U1 by 2025 and not pursue power from Rockport U2 after the lease expires? How much profit did you make last year? Will you commit to debt forgiveness for your low-income customers?	No. We are at the beginning of the IRP process and the process will provide transparency into these types of considerations. We are mindful of our low-income customers and have programs in place to assist them.
Q37	Can you provide your capacity cost forecast?	Yes.
Q38	Do you plan to purchase any power from Rockport U2 after the lease is terminated?	We are at the beginning of the process. We are not ready to commit to anything now.
Q30	Will you look at landfill gas as a DER?	We can look at it.

9. **Resource and Technology – Holt Bradshaw, Siemens Managing Director, Jon Walter, Manager EE and Consumer Products**

Holt covered slides 56-59.

Holt discussed the process by which Siemens will incorporate new all-source RFP data to inform capital cost and performance characteristics of resource options. He discussed how Siemens regularly estimates generation technology costs and performance for many alternatives (e.g. sizing). The proposed approach is to use the all-source RFP and apply Siemens technology forecast shapes to project capital costs forward.

Jon covered slides 60-62.

Jon provided an update on the market potential study (MPS), including the sampling, response, and response outcome. The MPS stakeholder engagement is currently ongoing, and Jon noted the importance for Siemens and GDS (The vendor engaged to perform the Market Potential Study) to align on model inputs.

Jon noted the second stakeholder workshop is dedicated to review the results of the MPS.

10. Stakeholder Process and Q&A – Jay Boggs, Siemens Managing Director

Jay covered slides 63-65.

Jay reiterated the Stakeholder Process. Four stakeholder meetings will be held. There will also be a workshop on the all-source RFP and an Aurora technical workshop in addition.

Jay introduced Andrew Williamson, Director of Regulatory Services, to provide closing remarks.

11. Closing Remarks

Andrew covered slide 66.

Andrew provided closing remarks for the meeting. He noted this was a great start of dialogue and that I&M is excited to continue the dialogue with stakeholders. He mentioned that over 100 participants attended for most of the day, and he reminded stakeholders to please submit any additional questions or comments on the material covered during the meeting within 10 calendar days.

12. Appendix A: Poll Results

Over 100 attendees joined the 2021 IRP Stakeholder Meeting #1. I&M facilitated three polls during the meeting. The results are displayed below.

Question: Please Rank Order the Top Three Objectives		
Objective	# of Votes	% of Votes
Affordability	21	43%
Sustainability Impact	18	37%
Rate Stability	15	31%
Market Risk Minimization	10	20%
Resource Diversity	10	20%
Total Responses	49	

Question: Please Identify the Most Important Metric		
Objective	# of Votes	% of Votes
Affordability	20	43%
Sustainability Impact	15	32%
Rate Stability	6	13%
Market Risk Minimization	6	13%
Resource Diversity		
Total Responses	47	

Question: Opinion on Proposed Scenarios		
Response	**# of Votes**	**% of Votes**
Additional Scenarios	19	39%
Scenarios Sufficient	15	31%
Unknown	9	18%
Total Responses	43	

13. <u>Appendix B: List of Questions Answered on Call</u>

Table 5 List of Questions Addressed on the Call Verbally

Question Asked	Response
Can you elaborate on load growth? What was I&M's load growth prior to COVID-19, prior year (2020), forecasted?	As answered by Chad Burnett
Refer to slide 42. Without data prior to 2021, it appears the trendline of your Load Obligation is increasing. It would help if you can show how I&M load trended prior to 2021 (at least going back 3-5 years).	As answered by Chad Burnett
Contrast Slides 52, 53 against Slide 42. What is the driver that will arrest the load decline trend by 2021?	As answered by Chad Burnett
Refer to Slide 42. What supports the 300 MW short in capacity taking in consideration the load decline trend in prior years.	As answered by Andrew Williams
How does I&M address the cost of climate change as it impacts health, weather disruptions of supply chain, etc. as it pertains to "affordability"?	As answered by Marc Lewis and Scott Fisher
Does I&M ever ask customers or address customer choice?	As answered by Scott Fisher
How does I&M evaluate or rank Indiana-based renewable resources for resource diversity? Including looking at economic impact of giving preference to Indiana-based resources to the local economy?	As answered by Marc Lewis and Scott Fisher
Has I&M specifically asked customers about their interest and willingness to participate in a community solar project?	As answered by Marc Lewis
What is driving downward capital costs for fossil fuel in the reference case?	As answered by Scott Fisher and Holt Bradshaw
What does the energy forecast assume about electric vehicles (and other possible electrification)?	As answered by Chad Burnett
Why do you include reliability when you won't plan a system that doesn't meet reliability metrics?	As answered by Andrew
How does I&M value different resource characteristics when considering the resource diversity of a plan (6th metric)? For example, is diversity measured by fuel source used? Operational characteristics (baseload/peaking)? Or some combination of multiple factors?	As answered by Art Holland

Question Asked	Response
Important to look at annual revenue requirements as well as NPV for first five and first 10 years. Will you provide?	As answered by Scott Fisher
CO2 emissions only make sense for cases with CO2 taxes. Assume you plan to look at alternative cases such as net zero by 2035. Is that the case?	As answered by Art Holland.
How does reliability capture risk of curtailments of natural gas supply due to cyber or physical disruptions or freeze-offs?	As answered by Art Holland and Marc Lewis
Is resource recovery using renewable biogas driven generation being considered as a Distributed Energy Resource	As answered by IRP Team
Mr. Soller stated that I&M "will conduct an all-source RFP." Is he referring to the all-source RFP that was already issued and for which bids were received around mid-January? Or is there another all-source RFP being issued?	As answered by Greg Soller
1. How does the timing of the separate RFP allow for incorporation given that IRP inputs, etc. are already being set? 2. Is the RFP that is currently being evaluated going to play a role in this IRP? If not, why not? 3. Citizen Action Coalition of Indiana would request access, subject to an appropriate NDA, to the results of both the current RFP and separate RFP, just as we have received from other utilities in Indiana during IRP processes.	As answered by Marc Lewis
Why is I&M doing a second all-source RFP, as opposed to relying on the one that they are currently evaluating the results from?	As answered by Marc
For sustainability impacts, will you be factoring in the life-cycle CO2 impacts of different resources? For example, for gas plants, there are significant up stream CO2 impacts from the drilling and transport of gas that could be considered in making resources decisions.	As answered by Scott
On market risk minimization, are there specific percent of spot market exposure that you consider to be too high or too low?	As answered by Scott
On resource diversity, how are you defining a "mix of adequate resources"? Are you factoring in the number of generators that I&M would be relying on in order to reflect the fact that a plan that relies on a mix of smaller resources that can be easily scaled up or down, rather than only a few large centralized generating units, would be more responsive if load ends up being significantly different than projected?	As answered by Toby
When you say that thermal generation retirements are driven by unit age limits and announced retirements, are you saying that retirement dates for thermal units are assumed or input into the model, rather than the modeling being used to identify the least cost retirement date?	As answered by Scott
In what scenario(s) are you evaluating retiring Rockport Unit 1 by May 31, 2025, as required in the settlement in your last IRP process in Michigan?	As answered by Andrew

Question Asked	Response
To what extent do the scenarios you are proposing here match the scenarios that other utilities in Michigan are required to evaluate in IRPs submitted to the Michigan PSC?	As answered by Scott Fisher
Does I&M intend to include in its Indiana filing the analyses of the OVEC units and the Rockport Unit 1 2025 retirement that I&M committed to in its Michigan settlement? If not, why not?	As addressed by Andrew Williamson
If the thermal generation retirement dates are an input into the model, what analyses will I&M provide to show that the retirement dates that are input are the most economic dates?	As addressed by Scott Fisher
Has AEP done any backward-looking analyses of how its projections of capacity prices, energy prices, load, etc. from its Fundamentals Forecasts end up comparing to actual capacity prices, energy prices, load, etc.? If so, is that something that can be shared with stakeholders?	As responded by Connie Trecazzi
If we submit comments regarding today's discussion, will those be responded to in writing? And will the 2021 IRP Update at the April 14 meeting include a discussion of how input received today and in writing have led to modifications of the objectives, metrics, scenarios, and inputs that were discussed today?	As answered by Andrew Williamson
Perhaps I missed it, but I didn't see in the presentation your capacity price forecast. Can you provide that forecast?	As answered by Connie Trecazzi
Are you sending the new RFP to all of the entities that responded to your first RFP?	As answered by Marc Lewis
Besides the temporal aspect, what are the main substantive differences with the RFPs?	As answered by Marc Lewis
How are you going to evaluate the OVEC PPA? Is it going to be a sensitivity for all scenarios?	As answered by Andrew Williamson
It looks like the growth reported for the different load scenarios is negative for both the extreme weather and the EV load scenarios. Can you explain what is driving this negative growth in both scenarios? For the extreme weather scenario, is it the case that the reduction in heating load is not being made up for by the increase in cooling load?	As answered by Chad Burnett
Comment to AEP. Zero-variable-cost resources like solar and wind can be economically chosen in an IRP even when there is no capacity need, or at least when there is no capacity need for several years. Running Aurora in capacity additions mode may fail to select resources that reduce NPV revenue requirements.	*Participant left meeting shortly after asking question*
What is the motivation for having Siemens PTI moderate the stakeholder sessions?	As answered by Marc Lewis
Why is the base case on carbon a tax? And what is the basis of a 2028 start date given that Senator Manchin has made it quite clear a carbon tax would not be considered.	As answered by Connie Trecazzi
Why is Net Zero 2035 not considered?	As answered by Scott Fisher
Will the assumed life of new natural gas CC be adjusted to in Net Zero case?	As answered by Scott Fisher

Question Asked	Response
When the Company answered Anna Sommer's question about the resource count as a way to quantify resource diversity, do you mean the resource count by technology type?	As answered by Scott Fisher
Does this mean that AEP's IRP will be based on Aurora rather than PLEXOS modeling?	As answered by Art Holland
Can we get copies of the modeling files when they are available around July as we did in the prior stakeholder process?	As Answered by Jay Boggs
Will you give stakeholders an opportunity to weigh in on the language in the all-source RFP?	As Answered by Jay Boggs
Which variables are you sampling to do those 200 draws to determine the 95th percentile value of NPV?	As answered by Art Holland
Particularly as you move to a fuel-less resource mix, I don't think resource diversity measured by technology type makes sense. That's based on the antiquated concerns around fuel diversity that don't apply if you're not consuming fuel. A better way to measure resource diversity would be the count of generators relied upon.	As answered by Scott Fisher
On the market risk minimization metric, is this an average over time or a snapshot of a single year? And are you showing just purchases or the net of purchases and sales? And if the former, why?	As answered by Art Holland
What other metrics for reliability are you considering? I agree that "reserve margin" doesn't make sense. It's a binding constraint on the optimization so every portfolio must satisfy it. I could see it as a potential metric for whether a portfolio is overbuilt, i.e. if you had a particularly high RM. But again, over what period would you judge that? The whole planning period, a single year?	As answered by Scott Fisher
How will you be forecasting electrification? Are you doing a bottom up forecast of some kind?	As answered by Chad Burnett
If population is decreasing, what drives the increase in non-farm employment?	As answered by Chad Burnett
What causes the tail-end to drop off in energy and peak in about 2034?	As answered by Chad Burnett
Do these load forecast charts align with your intended planning period, i.e. ending in 2035?	As answered by Chad Burnett
Did/will all-source include EE?	As answered by Jon Walters