Indiana Michigan Power Company's 2024 Indiana Integrated Resource Plan

Stakeholder Workshop #3B

January 27, 2025

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Welcome & Introductions

Kayla Zellers covered Slide 1.

Kayla Zellers, Director of Resource Planning at American Electric Power Service Corporation (AEPSC), called the meeting to order at 1:00 PM on January 27, 2025. Kayla welcomed participants to Stakeholder Workshop 3B for I&M's 2024 Indiana Integrated Resource Plan and introduced Andrew Williamson, Indiana Michigan Power Company (I&M) Director of Regulatory Services.

Andrew Williamson covered Slide 2.

Andrew welcomed stakeholders to Stakeholder Workshop 3B. Andrew reiterated that this IRP is a collaboration between I&M and its stakeholders and that feedback, questions and comments are encouraged during this meeting and at any time during the process.

Andrew then introduced the remainder of the I&M Leadership team present at the meeting before introducing Josh Burkholder, Managing Director of Resource Planning for AEPSC.

Josh introduced the remainder of the Resource Planning Team and the Infrastructure Development Team, who would be available to answer any questions about market condition assumptions. Finally, Josh introduced 1898 & Co., a consulting firm assisting I&M with coordinating stakeholder engagement and conducting technical portfolio analysis.

Josh reminded stakeholders that this is a continuation of Stakeholder Workshop 3A and presented an overview of the meeting's contents. Eight scenarios and sensitivity results are being presented.

Josh reintroduced Kayla, who walked through the agenda for Stakeholder Workshop 3B and welcomed Brian Despard, Senior Project Manager at 1898 & Co.

Brian Despard Covered Slides 4-5.

Brian discussed stakeholder participation - questions would be allowed anytime during the presentation via Microsoft Teams' "Raise Hand" and "Q&A" functions. Any questions regarding the Indiana IRP can be submitted to I&MIRP@aep.com anytime. All questions and answers recorded during this meeting (or shortly after, via email) have been provided within these minutes.

Finally, Brian presented guidelines for constructive participation.

Review of Stakeholder Meeting 3A

Kayla Zellers covered Slide 6.

Kayla reestablished which scenarios and sensitivities have already been discussed in Workshop 3A and provided an overview of the sensitivities being presented in Workshop 3B.

Kayla called special attention to the two additional Expanded Wind Availability Cases modeled under Base and Enhanced Environmental Regulations (EER) assumptions. These cases were added due to new information received by I&M regarding the market availability of wind. In addition to these cases, I&M analyzed cases representing small adjustments to the Base Reference Case. As such, many of the results presented during this meeting show strong similarity to the Base Reference Case. All four (4) scenarios and eleven (11) sensitivities presented in Stakeholder Workshops 3A and 3B will inform the Preferred Plan.

Kayla welcomed Mohamed Abukaram, Director of Resource Planning at AEPSC to present expansion plan modeling results.

Expansion Plan Modeling Results

Mohamed Abukaram covered slides 7-27.

Base Reference Case Portfolio Review

Mohamed revisited the results of the Base Reference Case. This scenario was designed to project the optimal mix of resources to meet capacity and energy requirements under base load and commodity prices. This case is a reference for all scenarios and sensitivities for this IRP.

Mohamed reacquainted stakeholders with the nameplate capacity table for Base Reference results. The capacity table shows market purchases to fill short-term (2025-2027) capacity needs before selecting natural gas and renewable resources in 2028 to meet capacity and energy requirements. Wind, solar, and storage are also selected to provide energy and capacity value. Consistent with the cases presented in Workshop 3A,

the D.C. Cook Nuclear plant was selected to be relicensed in every case presented in Workshop 3B.

Expanded Wind Availability (Base) Portfolio

Mohamed reviewed the changes made in the two Expanded Wind Availability Cases. In these cases, wind availability was expanded annually and cumulatively from 2028 to 2030 due to new market intelligence gathered by I&M. The Expanded Wind Availability Portfolios had increased annual build limits for the 15-year wind resource class from 200 MW to 1,200 MW annually and a cumulative build limit increase from 400 MW to 1,200 MW. These modified assumptions were used to create a new case under Base assumptions and a new case under EER assumptions.

Mohamed presented the Expanded Wind Availability results under Base Reference Case assumptions. In this case, the maximum of 1,200 MW of wind first available in 2028 was selected. Even with this increased wind, natural gas resources were still selected to meet capacity and energy needs in the same years and amounts as in the Base Reference Case. Due to the increased wind capacity selected, less solar and no storage capacity is selected compared to the Base Reference Case.

Mohamed reintroduced stakeholders with the firm capacity and energy supply charts used to present results. For all cases, the firm capacity chart shows existing capacity provided by D.C. Cook, Rockport, hydro, and renewable assets supplemented with short-term capacity purchases to meet immediate (3-year) capacity obligations. The model also optimized the license extension of Elkhart and Mottville hydro resources, selecting these units for renewal in each case. Throughout the study period, nuclear and gas resources provide the majority of firm capacity due to their high-capacity accreditation values. Existing renewables offer smaller amounts of firm capacity due to the lower capacity accreditation value assigned by PJM for wind and solar. Results show a significant increase in total firm capacity beginning in 2034 due to capacity purchase expirations and load increases from 2034 to 2037.

The energy supply graph shows the first few years' energy being sourced mainly from D.C. Cook and the energy market. Throughout the forecast period, most of the energy needs are met by natural gas combined cycles (CCs), with a higher contribution of wind than in the Base Reference Case. On average, 30% of load is served by market purchases through 2030, which drops to 16% from 2031 onwards.

Expanded Wind Availability (EER) Portfolio

In the Expanded Wind Availability (EER) Case, compared to the EER Case presented in Meeting 3A, far more wind is selected when first available in 2028. Even with this sharp increase in wind, large amounts of natural gas resources were still selected to cost-effectively meet capacity and energy needs. The substantial wind additions result in less solar and storage resources being selected in this case.

In the Expanded Wind Availability (EER) Case, 1,000 MW of wind was selected in 2028 - slightly lower than the 1,200 MW selected in 2028 in the Expanded Wind (Base) Case. This smaller selection is interpreted as the model pacing itself to not exceed a 4,000 MW cumulative build limit met by the Expanded Wind Availability (EER) Case in 2038.

The firm capacity chart for this case shows an increased contribution from wind, particularly due to the expanded wind build-out. Model results also show an increase in demand-side resources. Capacity additions from 2031 to 2034 are necessary for I&M to abide by market import limits and meet load increases from 2034 to 2037.

The energy mix chart displays a higher contribution from wind and solar additions compared to the Base Reference Case, resulting in decreased natural gas energy contribution. Wind contribution increases because of the increased wind build in this case due to the expanded wind availability.

Base with High Load Portfolio

Mohamed introduced the Base with High Load and Base with Low Load Sensitivities, driven by changes in load under base commodity prices. No change in hyperscaler load was assumed for these sensitivities.

Increased capacity and load requirements under base commodity price assumptions drive the Base with High Load Sensitivity. In this case, the annual wind build-out limit is 200 MW in 2028, the same as the Base Reference Case, resulting in more solar and wind being selected to meet the growing energy needs compared to the Base Reference Case

Increased combustion turbine (CT) capacity was selected in this case compared to the Base Reference Case because of the increased capacity obligation that comes with the higher load assumption.

The firm capacity chart is similar to the Base Reference Case, with most of the capacity provided by gas resources. Additionally, 700 MW of nameplate solar was selected for its

energy contribution, but these solar additions do not provide a significant amount of accredited capacity due to low ELCC value. However, solar does provide some energy contribution.

The energy supply chart shows a less proportional contribution from natural gas resources than in the Base Reference Case. Higher contributions from wind and solar resources are shown due to the increased build-out of renewables needed to meet the additional load.

Base with Low Load Portfolio

The Base with Low Load Portfolio aimed to form a portfolio of resources to meet lower capacity and energy needs, using base commodity price assumptions.

In this case, no solar or storage capacity was selected, and less CC capacity was selected compared to the Base Reference Case due to the lower energy needs and capacity obligations. More wind resources were selected relative to the Base Reference Case to offset these decreased needs.

The capacity and energy charts show that contributions from nuclear and gas resources account for most of I&M's load and capacity obligation requirements.

High Technology Cost Portfolio

Mohamed presented drivers for the High Technology Cost Sensitivity, designed to evaluate the impacts of increased technology costs under base load and commodity prices. Cost increases assumed in this sensitivity are summarized in the table on Slide 18. Wind, solar, nuclear, and storage cost percent increases are based on cost spreads observed between the moderate and conservative scenarios in the 2024 NREL Annual Technology Baseline publication. Natural gas CC and CT cost increases are reflective of I&M market intelligence.

For the High Technology Cost Sensitivity, the resource selection is the same as the Base Reference Case because large capacity and energy needs require the selection of CCs, CTs, and wind regardless of the higher costs. Solar and storage are also selected in the same manner as the Base Reference Case.

Firm capacity and energy supply are unchanged from the Base Reference Case, so the two graphs on slide 20 match those presented for the Base Reference Portfolio.

Rockport Unit 1 Retires 2025 Portfolio

Two cases were run evaluating the early retirement of Rockport Unit 1. The Rockport Unit 1 Retires 2025 Sensitivity aims to evaluate the most optimal solution under base assumptions with Rockport Unit 1 retiring on May 31, 2025. The only change from the Base Reference Case for this sensitivity was the addition of short-term capacity purchased in 2025 through 2027 to replace Rockport Unit 1 capacity lost through early retirement.

Rockport Unit 1 Retires 2026 Portfolio

This case evaluates the optimal solution under base assumptions, with the retirement of Rockport Unit 1 by May 31, 2026, a year later than the previous sensitivity.

Model results show additional short-term capacity purchased in 2026 and 2027 to fill the capacity void left by the Rockport Unit 1 retirement.

The removal of Rockport capacity for 2026 and 2027 is offset by increasing capacity purchases, as shown on the firm capacity chart.

Exit OVEC ICPA in 2030 Portfolio

The Exit Ohio Valley Electric Corporation (OVEC) Intercompany Power Agreement (ICPA) in 2030 Sensitivity evaluates the most economical solution under base assumptions, with the OVEC units terminating operation at the end of 2030.

Compared to the Base Reference Case, this portfolio shows changes in timing to existing CT and CC selections. These selections converge with the Base Reference Case by 2031.

This case also has increased demand-side build-out to support the deficit caused by exiting the OVEC ICPA.

Q&A Related to Expansion Plan Modeling Results

Question 1

1. You mentioned that there is not a lot of variation in the resources being added and operated across some of these scenarios, including the different load cases. This is not surprising because the difference between the low and high load forecasts is 10,000 GWh by 2030, and the lowest increase in energy requirements from today's energy requirements to 2030 is 30,000 GWh over and is above about the 20,000 that you have right now so even in the low load forecast there is quite a jump. I wonder if

another sensitivity needs to be run for the purpose of understanding the rate impacts of hyperscaler loads to do a case that's much closer to the level of energy requirements that you have right now. I say that in part because of the activity in the stock market today related to the announcement from a Chinese AI model that uses significantly less energy than USA models appear to. I'm wondering if you can talk through how those load forecasts relate to assumptions about the energy that the customers will need as opposed to the energy that they have contracted for.

a. I&M does not anticipate the recent developments surrounding AI (DeepSeek) in China as having a material impact on our contracted data center load or energy assumptions. The projects associated with I&M's hyperscale activity are at the forefront of this infrastructure development and are anticipated to support both cloud and AI services. What is more, hyperscale customers in other AEP jurisdictions have demonstrated the ability to switch from cloud to AI and back again with minimal interruption to service. Hyperscale customers have also re-emphasized on recent earnings calls that there will be a continued rapid increase in the need for computing power, regardless of whether that's being used for cloud or AI services.

Results Comparison and Draft Portfolio Performance Indicators

Kayla Zellers covered Slides 28-33.

Kayla discussed the results comparison slides, which have the same information as the individual case slides for firm capacity, energy generation, and resource selection, but displayed as a comparison between cases. Kayla stated that, similar to meeting 3A, I&M wanted to display a comparison of these metrics for stakeholder awareness.

The firm capacity comparison chart shows a more than 100% increase in capacity between 2025 and 2034, the first ten years of the study period. Notable differences from the Base Reference Case capacity position can be observed over time in the Expanded Wind Availability (EER) Case, Base with High Load Case, and Base with Low Load Case. The Rockport Retirement and OVEC Exit Cases closely match Base Reference Case. Key observations include the similarity of all cases in 2025, the reliance on natural gas in 2034

and 2044, and the comparatively higher amounts of accredited wind capacity in the Wind Availability Cases.

The generation mix chart, similar to firm capacity chart, shows the most variation over the study period in the Expanded Wind Availability (EER) Case, with other cases, such as Rockport Retirement, High Technology Cost and OVEC Cases showing little difference from the Base Reference Case. Key observations include the similarity of all cases in 2025, increased energy contribution from natural gas resources in 2034 and 2044, and a substantially higher amount of wind and solar energy in the Expanded Wind Availability (EER) Case compared to Base Reference Case.

The resource selection table on slide 30 shows significant similarities in many cases, with the primary exception being in the Expanded Wind Availability (EER) Case. This case shows similar capacity additions to the EER case presented in Stakeholder Meeting 3A. Another key observation is the similarity of Rockport Unit 1 Retirement and Exit OVEC ICPA Cases to the Base Reference Case.

Kayla shifted the discussion to portfolio performance indicators on slide 31. Kayla noted that these metrics have not changed since they were presented during Stakeholder Meeting 3A. Kayla walked through each of the IURC Five Pillars and the criteria representing each in the IRP case evaluation.

Reliability is measured by market purchases and sales, average target reserve margin over 10 and 20-year periods, and resource diversity. Affordability is measured on 20-year Net Present Value of Revenue Requirements (NPVRR) and 7-year Compound Annual Growth Rate (CAGR) of Power Supply Costs. Portfolios for which risk analysis is conducted will carry a third component of affordability to be presented in Stakeholder Meeting 4: portfolio resilience will be shown as the difference between high and low NPVRR for each case. Resiliency is measured by resource diversity and fleet resiliency, represented by the percentage of dispatchable capacity available to serve peak load over 10- and 20-year intervals. Grid Stability is also measured by fleet resiliency. Finally, Environmental Sustainability is measured by the percent reduction of specific emissions compared to 2005 baseline levels, presented for 2034 and 2044.

Kayla walked through the draft portfolio performance of the presented cases on slides 32 and 33, reiterating that certain cases' results are very similar to the Base Reference Case. Key observations for the Affordability pillar included relatively high CAGRs for the Expanded Wind Availability (EER) and High Technology Cost Cases and slightly higher

NPVRRs for Rockport Unit 1 Retirement and OVEC Cases due to increased market purchases. The Base with High Load and Base with Low Load Cases show the highest and lowest NPVRRs, respectively, while Expanded Wind Availability (EER) shows a higher NPVRR to the Base Reference Case, along with a higher CAGR.

Evaluation under the Environmental Sustainability pillar showed similar results for all cases, as the energy generation mix differed little between cases. CO_2 emissions differ slightly as a function of renewables selected per portfolio, resulting in cases such as Expanded Wind Availability (EER) showing a greater decrease in emissions. Finally, all portfolios perform well under NOx and SO_2 standards.

On slide 33, the Reliability metrics show similar market sales for each portfolio but differences in market purchases. The Wind Availability (Base) Case carries lower market purchase risk than Base Reference Case, while the Exit OVEC ICPA Sensitivity results in greater need for market purchases. Kayla shared I&M's observation that there is a direct correlation between the energy market risk associated with sales and the amount of renewable capacity selected in each portfolio. This observation is reflected in elevated market sales for the Expanded Wind Availability (EER) Case. The planning reserve metric under reliability aims to meet the Reserve Margin targets of -3% and -5.5% for 10- and 20-year averages, respectively. The Base Reference Case shows the lowest average planning reserves, while other cases show little variation for 10-year and 20-year outlooks.

The resource diversity metric for Reliability and Resiliency shows a 10% and 20% change from the 2025 diversity indexes. All cases show an improvement in energy and capacity diversity, with these indexes most impacted by adding renewables. The Expanded Wind Availability (EER) Case shows the greatest increase in energy diversity - over 300% in 20 years.

Finally, the Grid Stability and Resiliency metrics show significant dispatchable capacity due to the relicensing of D.C. Cook and the selection of natural gas resources in all cases. For the first 10 years, Expanded Wind Availability (EER) has the highest dispatchable capacity percentage due to incremental natural gas selections. For the 20-year evaluation, Base, Base with High Load, Base with Low Load, and Exit OVEC Cases have the highest dispatchable capacity percentage value, with the lowest value across all portfolios being 92%. Although the Expanded Wind Availability (EER) Case had the lowest dispatchable capacity percentage in the 20-year period, 92% of dispatchable resources compared to peak demand remains a good resiliency value.

Q&A Related to Results Comparison and Draft Portfolio Performance Indicators

Questions 2-4

2. If new load growth customers demand higher percentages of no-carbon energy and capacity, how would you adjust your buildout scenarios without reducing the demand that exists already in your area from various entities for that kind of power and capacity?

    a. I&M ran two cases called the Low Carbon Cases that address exactly your point. Results for these cases were presented in Stakeholder Meeting 3A. I would recommend that you look at the build-out plans associated with those two sensitivities. The Stakeholder Meeting 3A presentation is posted on the I&M Indiana Resource Planning Portal along with the meeting minutes associated with Stakeholder Meeting 3A. If there is any additional discussion or questions you have about the resource build-out plan, do not hesitate to reach out. Our goal as we evaluate all the various model runs and start working towards a Preferred Portfolio is to develop a resource plan that would balance the various needs of our customers and stakeholders, whether it be environmental requirements, energy policies, or our I&M goals around balancing this transition to a clean energy future. To the extent any of I&M' customers would have an interest in further developing or expanding clean energy resources, there are opportunities to do that outside of I&M. There may also be opportunities for us to partner with our customers on low carbon options in a way that can deliver additional resource benefits that help offset the costs of those resources to make them economic for the entire customer base. So, it is certainly something that's front of mind for us. We are always happy and willing to work with our customers on evaluating low carbon opportunities.

3. Do industrial and hyperscaler customers particularly have the ability to obtain resources outside of I&M that would lower your load growth as well?

    a. Yes, as the resources relate to environmental attributes including renewable energy credits. It is pretty common in the marketplace for large industrial commercial customers to enter into what's called virtual PPAs where essentially, they enter into an agreement with a developer, or owner of a

generation resource to acquire the clean or renewable attributes off that facility. It does not change the service that they're receiving from I&M, but it is a way for customers to acquire additional renewable attributes beyond what I&M's service and resources are able to provide.

4. On Slide 32, where a percent decrease in the cost of power supply was presented, is that inclusive of existing generation resources that are in operation today?
    a. What you are referencing is the compound annual growth rate under the affordability pillar. Yes, that includes our existing generation resources that are in operation today. It includes not only existing generation resources but also all the new resources that are selected as part of the build-out plan.

Remaining Modeling and Next Steps

Kayla Zellers covered Slide 34.

Kayla discussed the remaining timeline for the Indiana IRP process. The next stakeholder workshop, Meeting 4, is to be held on March 5, 2025 and will cover stochastic risk analysis and Preferred Portfolio selection. I&M will publish its 2024 Indiana IRP no later than March 28, 2025. Kayla invited Andrew Williamson to provide further remarks.

Andrew discussed initial considerations for Preferred Portfolio selection, including the impact of modeling results and stakeholder feedback. Andrew mentioned I&M's specific attention to the Expanded Wind Availability (EER) Case due to its leveraging of near-term wind resource opportunities and other favorable attributes to support IURC's Five Pillars. Andrew also discussed I&M's consideration of PJM interconnection rights and the value added to the re-development of existing resource sites.

Andrew also provided that I&M holds a strong interest in the use of Small Modular Reactor (SMR) technology in the Preferred Portfolio, referring to an application that AEP submitted seeking a grant from the United States Department of Energy to support permitting to reduce project costs and support the development of SMR, potentially on what is currently the Rockport Coal Plant site. Several I&M customers have expressed an interest in SMR technology, and the Indiana State Legislature is actively considering bills that would support SMR development.

Q&A Related to Remaining Modeling and Next Steps

Question 5

5. In the modeling results, my interpretation is that none of them select SMRs as a cost-effective part of your portfolio for at least the next 20 years. Do I have that correct?
    a. The Low Carbon Sensitivities selected SMRs. So, in a scenario where you place value upon achieving a certain amount of low carbon generation for your portfolio, an SMR is selected. That is based on our assumptions around resource costs. As we consider the potential for an SMR project in the future, we are certainly going to take steps to gain as much support as we can from all areas to reduce that cost and make a SMR as economical as possible.

Open Discussion

I&M staff thanked stakeholders for their participation. Any additional questions or feedback can be submitted to the IRP Email address at I&MIRP@aep.com. Staff fielded all remaining stakeholder questions and adjourned the meeting at 2:14 PM.