

2021 I&M IRP Website Stakeholder Comment Summary

	Stakeholder	Topic	Comment	I&M Response
CAC and Earth Justice submitted comments on Friday, March 26, 2021 7:39 PM; for tracking purposes Day 1 of the 15 working day clock begins on MARCH 29TH. The comments are due on April 16.				
1.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Metrics/balanced scorecard	<p>the proposed metrics are too narrow, arbitrarily limited to the “balanced scorecard” framework, and do not always capture the variables they intend.</p> <p>The “balanced scorecard” framework is arbitrary for several reasons. First, because it is a table, the metrics that populate it have to be presented as a single value. This would result in CO2 emissions in a single year or in total, for example, being the single measure of “sustainability impact”. But the impact of CO2 emissions on climate change or as an economic risk to I&M and its customers is not the same in any given year. It would be far more informative to present a visualization of emissions for each simulated portfolio throughout the planning period. And the same is true for many of the other metrics, e.g. spot purchases and sales. We should be far more concerned with a proposal to sell large quantities of energy in the near-term than a portfolio that shows that happening in the late 2030s because the results that far out are far less certain than the near-term results. These important details cannot be shared in a scorecard framework. Using a scorecard prioritizes brevity of information over utility of information.</p>	<p>General Note: Please review the responses to these questions in total, as they will provide additional clarity for each individual question.</p> <p>The Balanced Scorecard provides many benefits to decision makers and consumers of the IRP analysis. A principle benefit of the Balanced Scorecard is that it can be used to communicate the balanced nature of the ultimate preferred portfolio. By displaying relevant metrics for sustainability, affordability and reliability, the Balanced Scorecard shows the manner in which these important portfolio attributes are balanced to best meet the needs of all of I&M’s stakeholders.</p> <p>The Company plans to use Time Series metrics in addition to those used in the Balanced Scorecard and will consider the weighting methodologies that could be used within these metrics to address short-term vs. long-term impacts.</p>
2.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scorecard Color Coding	<p>Second, the scorecard is arbitrary because of the color coding.¹ During the IRP workshop, Siemens and I&M both stated that the color coding is intended to make the scorecard easier to digest, but this is exactly the problem with color coding. Rather than allowing the reader to draw his/her own conclusions about the metrics, the color coding is effectively telling the reader which portfolio is preferable. We have observed in prior Siemens scorecards that the red, green, and yellow coding is sometimes assigned based on trivial differences, for example. So the color coding is not providing neutral guidance about what is important, rather it is a product of the totally subjective color coding that Siemens and I&M choose.</p>	<p>As with most visualization methods, colors provide another method of consumption for the information presented but it doesn’t prevent readers from drawing their own conclusions.</p> <p>I&M continues to promote broad and diverse access to its publically available information. We will include in the report, the opportunity for those with disabilities to receive an alternative format.</p>

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			<i>1 It is also important to note that a color-coded scorecard does not communicate anything additional to those who are color blind.</i>	
3.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Metrics	Finally, the metrics proposed do not necessarily capture the concern they purport to. Rate stability is much more of a near-term concern in the sense that cost and rate impacts are more known in the near term. Testing portfolios stochastically and particularly in the manner proposed by Siemens, does not differentiate between near and long-term concerns. Nor do we think this methodology is actually representing revenue requirements. It is our understanding that Aurora is incapable of calculating revenue requirements, all capital costs are represented as a carrying charge (levelized charge) rather than as assets with depreciation schedules, which can have a very different rate impact. We also do not believe measuring reserve margin captures reliability concerns, all portfolios will have to meet that constraint. It would be much more informative to measure how resilient the system would be to a major contingency like a long-duration generation outage and/or to think about other points of weakness such as reliance on a single gas pipeline. Lastly, we do not believe “mix of adequate resources” is a good measure of Resource Diversity. Where fuel supply is not at issue, diversity by resource type has little meaning. A better indicator would be number of unique generators relied upon.	As part of our continuous improvement in IRP’s, new metrics are being considered to which, many different attributes could be considered as part of the evaluation. The Company will continue to consider additional metrics associated with this IRP throughout the process to support the stated objectives. Detailed production cost modeling issues will be addressed in more context during the Aurora Technical Conference scheduled to occur in late May.
4.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Metrics/Scorecard	Our top-level recommendation as it relates to metrics would be to skip the scorecard altogether and talk about each metric qualitatively supplemented with quantitative data that captures the objective of the metric. For example, a discussion of off-system sales and purchases in each portfolio with a chart showing how those change over time. It is much more informative, though no more subjective for I&M to then discuss how it balances these data into the selection of a preferred plan rather than simply color coding the “winning” portfolio.	See response to item 1 pertaining to the use of a scorecard. However, for metrics that change over the planning period, the Company is considering supplemental analysis methods to inform the relative value between portfolios.
5.	Citizens Action Coalition of Indiana (“CAC”)		As it relates to a diversity, equity and inclusion (“DE&I”) metric, because this metric should be reflective of the preferences of affected communities, it makes the most sense to solicit the feedback of those communities. Since those preferences may vary amongst different	Good feedback regarding our impact on communities. We are committed to working with the communities in which we work, live and locate resources. We have a team of

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	and Earthjustice		<p>service territories, we would propose the following as interim metrics. First, a metric that measures whether emitting units in each portfolio are located in low-income and/or communities of color. An example of this as it relates to peaker plants in New Mexico is given below. See comment package for example) .</p> <div data-bbox="682 609 1344 1356" data-label="Figure"> <p>Demographics Near New Mexico Peakers</p> <p>The scatter plot shows the relationship between the percentage of low-income population and the percentage of minority population near peaker plants in New Mexico. The x-axis represents the Minority Population (Percentile) from 0 to 100, and the y-axis represents the Low-Income Population (Percentile) from 0 to 100. A vertical dashed red line is at 50% minority population, and a horizontal dashed red line is at 50% low-income population. Bubbles represent individual peaker plants, with their size indicating the population within a selected radius. The legend shows bubble sizes for 1,000, 20,000, 40,000, and 60,230 people. Most plants are clustered in the upper-right quadrant, indicating higher minority and low-income populations.</p> <table border="1"> <caption>Approximate Data Points from Scatter Plot</caption> <thead> <tr> <th>Plant (Approximate)</th> <th>Minority Population (Percentile)</th> <th>Low-Income Population (Percentile)</th> <th>Population (in selected radius)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10</td> <td>30</td> <td>1,000</td> </tr> <tr> <td>2</td> <td>35</td> <td>48</td> <td>20,000</td> </tr> <tr> <td>3</td> <td>45</td> <td>47</td> <td>20,000</td> </tr> <tr> <td>4</td> <td>45</td> <td>78</td> <td>20,000</td> </tr> <tr> <td>5</td> <td>65</td> <td>39</td> <td>20,000</td> </tr> <tr> <td>6</td> <td>65</td> <td>63</td> <td>20,000</td> </tr> <tr> <td>7</td> <td>70</td> <td>61</td> <td>20,000</td> </tr> <tr> <td>8</td> <td>70</td> <td>70</td> <td>60,230</td> </tr> <tr> <td>9</td> <td>80</td> <td>73</td> <td>40,000</td> </tr> </tbody> </table> </div> <p>The circle size indicates the population within a given radius of the plant and the color, in this case, distinguishes between peakers at their own</p>	Plant (Approximate)	Minority Population (Percentile)	Low-Income Population (Percentile)	Population (in selected radius)	1	10	30	1,000	2	35	48	20,000	3	45	47	20,000	4	45	78	20,000	5	65	39	20,000	6	65	63	20,000	7	70	61	20,000	8	70	70	60,230	9	80	73	40,000	<p>external affairs representatives that engage customers, officials, and community leaders and organizations to understand their interests and concerns and to help them understand our goals and objectives in meeting their needs. For this IRP, we also value the feedback we receive through the stakeholder process and are pleased that it is a diverse group of interests that includes communities we serve, customer groups and individual customers. We are also aware of the demographics of the communities in which we have existing resources and can discuss those as appropriate. The location of new resources is generally not known or specified when developing an IRP and the impact on communities of new resources may be better discussed as part of the review of a specific resource action. For more information regarding I&M's and AEP's commitment to a Just Transition within the communities we serve, please reference our recently issued Climate Impact Analysis.</p> <p>http://www.aepsustainability.com/performance/report/docs/AEPs-Climate-Impact-Analysis.pdf</p>
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			site versus those co-located with a combined cycle plant. We would also note that this is another example of useful information that cannot easily be included in a scorecard. For I&M’s purposes, we would recommend keeping the low-income and community of color axes, but changing the color coding to reflect the fuel burned at emitting units. We would note that a similar graph, but for all fuel types, could be used to identify some of the positive and negative impacts as well as the equity of those impacts of replacement generation once those locations are identified.	
6.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	metrics	<p>We would also propose a second DE&I metric that attempts to capture the potential for benefits of new resources (both supply and demand-side) to low-income and communities of color in I&M’s service territory by quantifying the total investment that has potential to be located in these communities. That investment could include dollars spent on energy efficiency, dollars spent on solar, etc. This is a metric that will need future refinement, but should be accompanied by consideration of programs that will directly address the objective of the metric. Ideally, I&M would also be evaluating programs that directly impact affected communities as part of its IRP, e.g., low-income community solar, low-income electric vehicle incentives, investment in “green zones” in communities located near I&M’s power plants, etc. 3</p> <p><i>3 Clearly, there is an implementation component to this that is important and complementary. And that is to weigh where to invest those dollars also using these metrics (and other metrics) once I&M moves from the generic resources modeled in the IRP to the specific resources it would seek to implement. At that stage, I&M could also supplement this analysis by considering whether historic investment has gone equitably towards affected communities.</i></p>	<p>We appreciate this feedback and input. DE&I considerations are very important to our business goals and objectives. The IRP process typically is focused on a more macro resource plan level, however, consideration will be given to programs similar to what is described in the feedback. For example, IRP modeling could specifically capture some of the factors mentioned as they would be location and situation specific. That said, renewables and demand-side resources will continue to be key elements of the IRP and</p> <p>I&M will be incorporating DE&I considerations into future resource decisions and new customer programs. As an example, I&M recently proposed and received Commission approval of new programs in Michigan that expand opportunities for low-income and customers without broadband access to customize their electric service and manage their electric bill. I&M plans to seek approval of similar programs in Indiana. Also, see response to 5.</p>

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7	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scenarios	<p>We believe the carbon reduction goal for Net Zero by 2050 should be at least a 95% reduction from a baseline year. Because we would have to transition so many end-uses to electricity to meet an economy wide climate goal, there will be extremely limited options to offset electric sector GHG emissions, and the modeled goal should reflect that reality.</p> <p><i>4. A common baseline year is 2005, but we recognize that AEP’s corporate goal is relative to a year 2000 baseline.</i></p>	The Company agrees that a substantial reduction is necessary and is consistent with its recently released Climate Impact Analysis report.
8	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scenarios	<p>Furthermore, because a plan to achieve this goal would most reasonably result in system emissions reductions over time, it will likely make sense to model one or more interim goals. An annual constraint is probably overly limiting, but a 2030 goal could be reasonable. AEP’s corporate goal of an 80% reduction from 2000 emissions by 2030, as applied to I&M’s system, may be a good choice though it’s unclear if this would be achieved by already contemplated reductions such as the retirement of Rockport. And because this magnitude of decarbonization will have to happen system-wide, we recommend two scenarios that include this goal: one with I&M’s base case load forecast as proposed, and the other reflecting I&M’s best estimate of the load impacts of large scale electrification (likely more electrification than would be reflected in the “market electrification” scenario).</p>	The Company expects the final IRP scenarios will address a variety of alternative futures including increased ambitions around climate and scenarios around higher electrification. Further analysis related to the suggested additional high electrification scenario will be considered and reviewed through the stochastics analysis.
9.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scenarios	<p>We also concur with Emily Medine’s recommendation that gas assets should be modeled as fully depreciated, ideally by 2040, in at least this scenario. Finally, we note that in evaluating and modeling resource options, I&M should factor in the lifecycle GHG impacts of each option, rather than considering only the CO2 directly emitted by the resource. This is especially important with regards to gas-fired resources given the significant GHG impacts from the extraction and transport of natural gas.</p>	<p>The Company does not plan to modify the asset lives of its non-CCS fossil resources due to the expectation of the availability of low carbon fuels. Furthermore, the Company may constrain energy production from non-CCS fossil resources to support a “Net Zero by 2050” objective.</p> <p>The Company plans to review GHG impacts from the resource perspective and the lifecycle perspective.</p>

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10.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scenarios	<p>We understand that I&M wishes to keep its scenarios to a manageable number, so we would recommend the following:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Reference</td> </tr> <tr> <td>Net Zero by 2050</td> </tr> <tr> <td>Net Zero by 2050 with Electrification</td> </tr> <tr> <td>Rapid Technology Advancement</td> </tr> </table>	Reference	Net Zero by 2050	Net Zero by 2050 with Electrification	Rapid Technology Advancement	We appreciate the suggestion for a reduced number of scenarios and are considering the final set of scenarios and their inputs based on all the Stakeholder feedback. The Company intends to make adjustments to the proposed scenarios discussed in the Stakeholder Meeting #1 and will share these during Stakeholder Meeting #3.
Reference								
Net Zero by 2050								
Net Zero by 2050 with Electrification								
Rapid Technology Advancement								
11.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scenarios	We are uncertain about the value of the Market Electrification scenario. I&M’s stakeholder presentation implied that High Load is merely reflective of more optimistic economic assumptions, which would not necessarily be reflective of electrification because the shape of load may not reflect the realities of electrification. If that is the case, we think high load is better reflected as a sensitivity than a scenario.	See response to 10.				
12.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Scenarios	We are also uncertain about the value of the Enhanced Regulation Case. Slide 48, pasted below, does not include the High CO2 price, so it is not clear what I&M would model.5 Indeed, this graph raises the question of whether “Base” CO2 means no CO2 price at all, which would raise other concerns about the remaining scenarios.	The Chart shown illustrates only the Base CO2 price in the current fundamentals of \$15/metric ton starting in 2028. The Enhanced Regulation case assumes a higher CO2 burden, as noted in slide 37 of the presentation. The charts will be updated as the Company continues through the process				

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			<p align="center">CO2 Prices (Nominal \$/short ton)</p> <p>5. We note that AEP’s Climate Impact Analysis has a “Fast Transition” CO2 price of \$30 per ton escalating at 3.5% per year, but it’s not clear if this is what AEP intends as the High value. http://www.aepsustainability.com/performance/report/docs/AEPs-Climate-Impact-Analysis.pdf</p>	
13.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Capital Cost Curves and Stochastics	As we stated during the IRP workshop, we do not believe it is appropriate to test capital costs stochastically. Capital costs, particularly those for renewables and battery storage, do not increase in one year, then decrease in the next, and then increase in the subsequent year, a situation that is entirely possible with the probability bands given. Renewable and battery storage capital costs are uncertain, but their overall trend is downward, a dynamic that makes scenario analysis the more appropriate way to examine their uncertainty.	While it may be correct that capital cost recovery for existing units does not vary from year-to-year, this is not the case for overnight costs or financing costs that are applicable for new units in Siemens PTI’s analysis. Perhaps more importantly, capital cost uncertainty is not typically applied to candidate portfolios. Capital cost uncertainty is most frequently applied to the dynamic build logic that is used to add or retire capacity in neighboring energy

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				market areas in response to varying supply-demand conditions across the stochastic simulations. This is necessary to ensure that the simulated inter-tied areas maintain a reasonable supply-demand balance while capturing the uncertainty regarding the technologies that neighboring regions might add.
14.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Resource cost estimates	The proposed solar, wind, and storage costs appear to be roughly similar to National Renewable Energy Laboratory’s Annual Technology Baseline (NREL ATB), which is often used to characterize generic pricing of these resources. However, we’ve found that the NREL ATB often overstates storage costs in particular. A possible solution to this may be to use I&M’s RFP responses rather than Siemens’ capital cost curve (similar to the approach that Vectren and Siemens used in preparing Vectren’s 2019 IRP), and then apply the ATB’s cost curves going forward	The capital costs depicted in the initial slide deck were still in development. The Siemens team will be incorporating the results of I&M’s RFP responses.
15.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Load Forecast	<p>The presentation of I&M’s load forecasts raised several questions. First, it is not clear why the extreme weather forecast would have the same compound average growth rate (“CAGR”) as the Base forecast. If the extreme weather forecast is intended to account for significant climate impacts, it would seem likely that both the air conditioning loads and line losses would grow significantly. We also are not clear why the loss of wholesale customers in approximately 2034 would have such an outsized impact on the CAGR calculated over the entire period from 2020 – 2035.</p> <p>Finally, we renew our request that I&M not use “degradation” to adjust incentivized energy efficiency either in its load forecast or in the modeling of energy efficiency. This is a critical issue to the accurate modeling of energy efficiency in the IRP.</p>	<p>The extreme weather scenario had a neutralizing impact on overall load growth. In other words, the higher loads it created during the summer months (due to warmer temperatures) was offset by the lower heating loads during the winter (also caused by warmer temperatures).</p> <p>The load impact of wholesale contracts ending in 2034 has a significant impact on the compound average growth rates computed for the period between 2020-2035. You could exclude the wholesale load from the comparison, but it would no longer represent I&M’s projected load growth.</p> <p>The Company is committed to accurately modeling the impact of energy efficiency in the IRP and is actively working with our Market Potential Study (MPS) Consultant, GDS, to ensure these resources are included appropriately.</p>

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16.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Stakeholder Engagement –define limits of renewables that will be modeled	We would also request that I&M work with stakeholders to define the limits on renewables that it will model consistent with Section 6(d) of the settlement regarding I&M’s 2019 IRP that was filed with the Michigan Public Service Commission, which states, “I&M will work with stakeholders to define the modeling inputs for the IRP, including scenarios for [...] renewable generation resources”.	The Company has invited all Stakeholders to be part of the process that includes an open and transparent discussion on modeling inputs and scenarios.
17.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Stakeholder Engagement – Rockport 1 5/31/25 scenario	Pursuant to Section 6(c) of the Michigan settlement, we urge I&M to work with stakeholders in establishing the inputs to be used in modeling a scenario that includes a May 31, 2025 retirement of Rockport Unit 1.	See response to item 16
18.	Citizens Action Coalition of Indiana (“CAC”) and Earthjustice	Stakeholder Engagement – OVEC	We also urge I&M to include on the agenda for the next stakeholder meeting discussion of the approach to evaluating the costs to customers of the Inter Company Power Agreement and the economics of terminating the operation of the OVEC units under the ICPA by the end of 2030, as required by Section 10(k) and 12 of the Michigan settlement.	As discussed in I&M’s first stakeholder meeting, I&M has a contractual obligation to purchase power from OVEC until 2040. The OVEC purchase is part of I&M’s diversified resource portfolio and will be modeled as a going-in resource consistent with the term of the agreement and other I&M resources that are owned or under long-term purchase agreements. Given this, Section 10(k) and 12 of the referenced settlement agreement were specifically written to provide supplemental information and testimony that I&M will prepare and file in support of I&M’s Preferred Plan as part of its next Michigan IRP filing.
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