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1.	Craig Smith, Beacon Heights Church of Brethren, Fort Wayne, IN.	1a. One suggestion concerns residential solar power and the other covers energy storage. During John Torpey's afternoon presentation covering portfolio characteristics, he said that it would be harder to predict the growth of residential solar due the installation being out of the control of AEP. I agree with this, but I think a possible solution may be for AEP to own the residential solar system and to "lease" rooftop space from AEP customers in the form of a percentage off the customer's monthly bill. The benefit of this would be that AEP would not need to locate and buy land for an equivalent solar farm. No environmental impact study would need to be made, and no land would need to be rezoned. AEP could control the type of solar system used, from the PV panels themselves to the operating hardware and software. The systems could be installed by subcontractors and, if you employee contracts allow it, maintained by contractors as well. The benefit to the customer would be that they could get rooftop solar without an outlay of capital and would receive a modest reduction in their electric bill. The benefit to the environment speaks for itself.	**I&M will review its preliminary DG assumptions at the April 11 stakeholder meeting. For planning purposes I&M will assume DG growth consistent with PJM assumptions. Actual ownership of DG is a topic that could be explored outside of the IRP process. Currently, universal solar installations have a price advantage over smaller scale residential installations**
		1b. Another topic that was brought up was energy storage of excess wind and solar energy. Batteries were the only storage solution mentioned, but I would like to point out that there are other solutions that may work as well or better than batteries. Modern batteries do have the benefit of having more energy density than old battery technology and I agree with the presenter who said that battery technology will only improve. However, for the use of wind and solar storage, small size is not a benefit. Energy storage	**I&M and AEP have been and will continue to evaluate storage technologies. For planning purposes I&M has assumed in the past, and will continue to assume that storage resources will be part of its portfolio and has included storage in past IRPs. As I&M looks to implement storage resource solutions it will consider the cost and performance of technologies that are available in the market.**

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		will be entirely stationary, so the mobility that small batteries provide does not matter. I would encourage AEP to look at other storage solutions such as gravity. For example, excess energy could be used to pump water to a top of a water tower and when more energy is needed, the water could be released to power a turbine. These towers are scalable, have the benefit of being "deep cycle" and hold a very low environmental impact. Compressed air storage is another idea worth exploring. Another storage solution that I would recommend exploring actually is a traditional battery. A so called "salt water battery" such as the batteries manufactured by Aquion, are quite large and bulky. But that does not matter as they would be used in a building, not a car. They're called salt water batteries because their electrolyte is sodium sulfate. They have the added benefit of being deep cycle and are more environmentally friendly than lead acid batteries.	
2.	Carolyn Yvellez	2a. As a customer of Indiana Michigan Power, I am expressing my input for the 20 year IRP. Given that I&M has already decided it will not continue to lease its Rockport Unit when the lease expires, I believe that this IRP process should focus on a transition away from dirty coal energy to more clean, renewable energy sources. We already know that severe environmental damage done by coal, including causing public health disasters for our communities in which coal plants operates. I further plead that I&M not consider a heavy investment in a natural gas plant. While it may look like a lucrative investment, we all understand that natural gas is nothing more than a transition resource, and that ultimately renewables, especially with increased	**I&M plans to review its preliminary resource portfolio assumptions at the April 11 stakeholder meeting. Stakeholders are encouraged to provide input to portfolios they would like I&M to evaluate as part of the stakeholder process. I&M will consider multiple factors in designing its preferred resource plan including environmental benefits as well as cost to customers.**

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		investment in battery technology and storage, will be the energy of the future. Unless I&M wants to be back here in 20 years losing AGAIN on an investment that didn't pay off in time before the demand for renewables spiked, I highly encourage I&M instead model a carbon free utility. I&M has the opportunity, now, to lead as Indiana's first carbon free utility! Why not set the path for the course that ultimately we will have to follow anyways. I would also like to speak to my value system. The planet cannot afford another 20 years of burning oil and coal, business as usual. We desperately need a rapid transition to clean energy, if we are to leave a livable planet for future generations. I am a senior in college, and this IRP process is really a plan that dictates not yours, but my future and well-being.	
		2b. As a customer of the Shine program through Indiana Michigan power (which by the way is a rip off--you are making us pay twice for the cost of solar with your premium. As a utility you are responsible for making the energy investment, and have it paid off through bills, not premiums!) and as a participant of these IRP workshops, I am using my voice and pocketbook to make my values heard. I urge I&M to shut down its remaining Rockport unit as soon as possible (before 2028) and model and adopt a carbon free utility option for the sake of our community's future!	**I&M does not have a "Shine" program. I&M offers a <u>voluntary</u> Green Power Rider, which provides customers the opportunity to support the development of solar power by subscribing each month to a specific number of 50 kWh blocks of Solar Renewable Energy Certificates. The revenue produced by the Green Power Rider is flowed through the Solar Power Rider as a credit toward the CESPP revenue requirement and thus reduce the rates charged under the Solar Power Rider. The Green Power Rider is a first generation offering to meet customers' interest and I&M has lowered the initial price of the offering and proposed a second generation option, known as the Renewable Energy Option, that offers a different approach for customers to voluntarily demonstrate their support**

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			for renewable energy.
3.	Jennifer Washburn, CAC; Kerwin Olson, Executive Director of CAC (received 4/11/18)	This letter and the enclosed report are the comments that CAC would like to offer to I&M on its IRP at the present time. The enclosed report describes a new decrement avoided cost approach to modeling DSM that we would like to see I&M employ in this IRP. We've previously discussed this approach with AEP's IRP team and hope that this report helps clarify the outstanding questions you had. We do not offer any other substantive suggestions or comments at this time, however, because there remains the question of how transparent I&M intends to be with its modeling in this IRP. Whether intentionally or through accident, in prior IRPs Indiana utilities have not modeled "stakeholder" scenarios and portfolios that were consistent with the requests of those stakeholders. The only assurance we have against such an outcome occurring here is the ability to see the model inputs for all runs and have I&M make requested changes to those runs so that the results faithfully and accurately reflect our suggestions. I&M has so far not agreed to provide the model inputs and model manual during the IRP review process let alone during the stakeholder process. I&M has also not agreed so far to allow us to otherwise participate in reviewing and changing the actual modeling runs. As such, we cannot participate more meaningfully and substantively than we have to date. Indeed, we are concerned that even if I&M employed the decrement avoided cost approach described in the attached report, we have no ability to review I&M's implementation of that approach or the assumptions that it made and	**To clarify, there is no such I&M "policy" as referenced in the Comment. It is I&M's practice to honor its contractual commitments to protect the intellectual property created by others. I&M is also committed to a transparent IRP process in which stakeholders have a meaningful opportunity to provide input. To that end, I&M is arranging access to a non-executable license of its modeling software, PLEXOS, for use by stakeholders, which will allow stakeholders to view model inputs for all runs and the model manual as requested. Interested stakeholders will be able to access the software on an I&M computer through the I&M network after they have signed a non-disclosure agreement and fulfilled I&M security requirements. The details of the access are being finalized and I&M will update stakeholders when those details are worked out.** **Supplemental Response (provided on May 18, 2018): In response to the use of the "new decrement avoided cost approach to modeling DSM" discussion, I&M supports the effort to investigate alternative approaches to modeling EE in IRPs. The concern is valid that forecasting cost and performance characteristics of EE measures over the IRP planning period is difficult. However, the Company works with its internal and outside industry experts to identify reasonable proxy cost and performance inputs for EE programs modeled**

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		cannot be sure that it was accurately employed. We would certainly welcome a reversal of I&M's policy regarding the sharing of information from its modeling and a commitment to full transparency of its modeling for stakeholders, which would enable us to participate more fully in I&M's stakeholder process.	**as alternatives in the IRP. Additionally, this same difficulty exists in forecasting the cost and performance of other supply-side resources included in the IRP.** **The benefits of the proposed approach include:** **(1) Identifies the dollar value of avoided energy and capacity due to EE decrements;** **(2) More straight forward modeling approach; and** **(3) Affords flexibility in how much EE to include in the load forecast.** **The challenges and concerns with the proposed approach include:** **1. Does not include EE as a selectable resource in the IRP model;** **2. Challenges the precept of optimal resource selection;** **3. Does not recognize the costs and potential savings limits to achieving such EE savings;** **4. Does not account for the decision point, risk and reliability of customer action and response required, which serve as the basis for utility EE assessment;** **5. The uniqueness of each EE measure or end-use group of measures is not evaluated;** **6. Could lead to unfounded expectation and conclusion that the predefined levels of EE decrements can be achieved regardless of EE measure savings, cost to achieve, and other economic factors; and**

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			7. Fails to recognize the constraints for EE resources. **The Company appreciates the CAC's interest in its IRP and offers the prospect of continued discussions on this matter. At this time, while the benefits of the proposed approach from the CAC are recognized, the impactful nature of the concerns listed above complicates resource alignment within the IRP analysis. Therefore, the Company does not intend to use the load decrement approach for modeling in the November 2018 IRP for determining the type and quantity of EE resources to reflect in the Preferred Plan. However, the Company may include sensitivities on its final Preferred Plan that may represent increased levels of EE resources as intended under a load decrement approach as described in the paper.**
4.	Emily Medine (received May 30, 2018)	What is the source of the PRB coal price forecasts on Page 33 of the February 15, 2018 Stakeholder handout?	**I&M, through American Electric Power Service Corporation (AEPSC), has a diverse source of licensed and publicly available Research Information which includes, but is not limited to: 1) Investment Community - Equity and fixed Income analysts, 2) Third-Party Consultants - IHSCERA, PIRA, WoodMackenzie, 3) Industry Groups - Edison Electric Institute, 4) Government Agencies - EPA, DOE, NERC, FERC, 5) Trade Press - Argus Air Daily, Coal Daily, Coal Weekly, The Energy Daily,Megawatt Daily, Gas Daily, 6) Various**

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			Stakeholders - Independent System Operators, Interest Groups (Environmental and Industry), 7) Energy Companies - Listen to earnings calls, press releases, SEC filings, etc., 8) Internal Information - experience from other organizations within American Electric Power, and, 9) Independent Studies - Proprietary research studies. It is this collective insight on fuels, energy and emissions (supply/demand and resultant price) along with iterative feedback from the AURORAxmp Energy Market Model that shapes AEPSC's long-term North American energy market forecasts, including various qualities of Powder River Basin coal.
5.	Becky Gonzalez (received May 31, 2018)	Why is your parent company investing in large wind and solar projects in Ohio and Oklahoma, but you aren't here in Indiana? When will we see large scale renewable projects in Indiana? Will you invest in the communities you serve?	**In 2015-16, I&M built four solar generation plants; three are in Indiana, the fourth is in Michigan. I&M is the first investor-owned utility in Indiana to build and operate a solar generation plant. In addition, I&M buys energy from three Indiana wind generation plants equivalent to powering 100,000 homes or 450MW and carbon free hydro generation. I&M's 2015 Integrated Resource Plan calls for adding additional wind and solar in the years to come.** **I&M is engaged in economic development in the communities we serve to support community growth. I&M's economic development team works with local, regional and state economic development groups to identify potential customers and scope out sites that would be**

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			conducive to meeting a prospective customer's needs. We also support activities that enhance the quality of life features of a community that are increasingly important to businesses and their talent attraction and retention needs. I&M offers an Economic Development Rider tariff, which promotes economic development in a manner that assists state and local governmental entities, along with I&M's customers. The Economic Development Rider tariffs offer incentives to attract a wide array of new business and industry to I&M's service area, thereby investing in the communities I&M serves. **In addition, the settlement agreement approved by the Indiana Utility Regulatory Commission in I&M's latest base rate proceeding will support I&M's proactive infrastructure improvements designed to reduce the number and extent of power outages. The settlement agreement also positions I&M to better serve customers in a number of other ways. I&M also supports a number of non-profit agencies within our service territory.** **Another way I&M invests in communities is through employment and taxes. A November 2017 story at News-Sentinel.com listed I&M as Allen County's second-largest property taxpayer, with nearly $5 million in property taxes in 2017.**
6.	Becky Gonzalez	Will you consider the environmental impacts of your decisions moving forward? Or will they continue to be ignored?	**Yes, this is always a consideration for decisions within the Company, and I&M maintains compliance with applicable environmental laws**

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			and regulations. I&M does not agree that it has "ignored" environmental compliance. From a generation perspective the Company has recently retired the Tanners Creek Plant in part due to the imminent application of new environmental regulations, I&M has made significant environmental investments in the Rockport plant, and I&M continues to invest in its emissions-free nuclear plant. **Furthermore, I&M uses the Integrated Resource Plan (IRP) process as a tool for making cost-effective, long-term, environmentally compliant resource decisions. The IRP represents a set of facts, circumstances and assumptions as of a point in time that helps I&M provide a balanced approach to managing its business in an ever evolving industry, mindful of impact long-term decisions have on customers' bills. I&M's generation objectives are focused on maintaining resource adequacy and at the same time transforming toward a more diverse set of resources, while also prioritizing investments and making decisions to provide the greatest benefit for its customers. A key aspect of I&M's decision making has been to retain flexibility and optionality to better manage and balance the needs of our customers with future risks and uncertainty. To accomplish this, I&M has made and continues to make environmental investments in the Rockport Plant and investments in the Cook Nuclear Plant to**

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			ensure they are available to supply safe, reliable, and efficient generation for customers' needs. As I&M moves forward, the Company continues to evaluate its mix of generation resources in light of changing technological advancements, power market conditions and evolving environmental compliance obligations. **Specific to the Rockport Plant environmental investments, I&M has undertaken three major environmental projects: (a) installation of DSI technology on both Units, (b) installation of SCR technology on Unit 1, and (c) installation of SCR technology on Unit 2.** **Last, in 2017, 60 percent of the energy generated by I&M was emission-free.**
7	Becky Gonzalez	How are you going to improve your energy efficiency standards?	**I&M pursues energy efficiency standards that are reasonably achievable and economic from a variety of different perspectives but balanced against customer decisions to participate.** **Through robust and flexible energy efficiency programming, I&M seeks to meet the needs and expectations of all customers based on how they choose to use energy, and to the extent practicable and feasible, their unique preferences for how they participate.** **I&M's current IURC and MPSC approved portfolio of energy efficiency programs and measures offer customers a broad spectrum of options ranging**

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			from the more traditional and proven methods to improve end use efficiency to more technologically advanced options such as thermostat management for demand and energy use reduction services and distributed energy resource integration.
8	Becky Gonzalez	How are you preparing now for the retirement of Rockport?	**I&M uses the Integrated Resource Plan (IRP) process as a tool for making cost-effective, long-term decisions. The IRP represents a set of facts, circumstances, and assumptions as of a point in time that helps I&M provide a balanced approach to managing its business in an ever evolving industry.** **The Indiana Utility Regulatory Commission recently approved I&M's proposal to advance the depreciation date of Rockport's Unit 1 from 2044 to 2028 in order to give I&M more flexibility to further diversify our generation sources.** **In general, the potential loss of the capacity and energy from the Rockport plant is one consideration of the Company's upcoming IRP. The Company's initial considerations have been presented at both IRP Stakeholder meetings and at the second Stakeholder meeting on April 11, 2018; slide 53 provides an initial look at the analyses the Company is considering regarding its future energy and capacity needs. As shown on this slide, the Company is considering a wide range of both supply and demand side resource options as well as market purchases. Furthermore, the Company is**

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			interested in hearing your approach and thoughts related to this issue.
9.	South Bend (received June 2, 2018)	*Developing Load Forecasts* The Load Model should account for increased electricity demand due to more heating degree days, increased number of extreme heat days per year, increased pumping during extreme rainfall events, and other shifts in weather projected for the future	**The Company has developed a weather scenario that assumes an aggressive warming pattern over the forecast horizon (81% increase in CDD and 14% decrease in HDD over the next 30 years). The result of this load scenario is still within the High and Low Economic load scenario that is traditionally modeled in the IRP process.**
10.	South Bend	*Developing Load Forecasts* The Load Model should consider increased electricity demand due to increasing vehicle electrification.	**The Company has developed an electric vehicle forecast scenario which is within the bounds of the High and Low Economic load forecasts that are traditionally modeled in the IRP process.**
11.	South Bend	*Developing Load Forecasts* The Load Model should consider decreased electricity demand due to load management by large customers (via microgrid, energy storage, or other internal curtailment program).	**The Company does consider the impact of load management programs by our customers and accounts for these impacts as part of the IRP process.**
12.	South Bend	*Developing Load Forecasts* The Load Model should account for customer-owned distributed generation and acknowledge the potential intermittency of these resources.	**The Company's load forecast does account for the customer-owned distributed generation resources that have already occurred, and the Company's final IRP report includes the projections for these resources as part of the IRP reports.**
13.	South Bend	*Developing Load Forecasts* The Load Model should account for energy efficiency using assumptions and parameters that are transparent and communicated to the public. An alternative load forecast should consider an increase in energy efficiency and demand side management representative of increased utility investment and subsequent customer uptake.	**The Company uses energy efficiency assumptions that come directly from the Company's IURC and MPSC approved DSM Plan. Also, the Company has developed a load scenario which assumes increased efficiency due to new efficiency standards being implemented in the future and the results are within the bounds of the High and Low Economic**

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			load forecasts that are traditionally modeled in the IRP process.
14.	South Bend	*Developing Load Forecasts* The Load Forecast should not include any off-system sales, since this is not capacity required to serve ratepayers.	**Off-system sales are not included in the internal load forecast that is modeled in the IRP.**
15.	South Bend	*Scenarios for Resource Modeling* Selection of resource portfolio should consider the relative resilience of different resources and downtime due to extreme weather events including extreme heat days, flooding, or lack of available water.	**In general, the IRP modeling represents normal conditions. Any "extreme weather" downtime is reflected in the historical performance of the existing resources and for new resources is included in the design considerations of the resource.**
16.	South Bend	*Scenarios for Resource Modeling* Carbon-free, low-carbon, increased efficiency/DSM, and increased customer-owned distributed generation scenarios should be modeled.	**The Company is planning on including Portfolios similar to what is described.**
17.	South Bend	*Scenarios for Resource Modeling* A range of possible natural gas *plus* renewable energy scenarios, at varying levels of non- renewable and renewable capacity, should be modeled to replace Rockport capacity. This recognizes the benefit of the incrementalism that both renewables and gas generation provide.	**The Company provided an initial list of Portfolios for consideration at its 2nd Stakeholder meeting shown on slide 53.**
18.	Craig Smith, Beacon Heights Church of Brethren, Fort Wayne, IN. (received June 1, 2018)	We would strongly encourage you to consider expanding your energy efficiency program to target residential rental property owners, especially for those who rent to low income tenants, as part of your next Integrated Resource Plan.	**I&M recognizes the involvement and inclusion of property owners as instrumental to improving the individual energy efficiency of rental units. I&M's current approach is to offer EE measure incentives for rental units as part of I&M's current IURC-approved DSM Plan where I&M seeks to engage both rental unit residents and property owners, as appropriate and according to unit ownership and responsibility for the electric bill, but also**

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			depending upon the unique circumstances for each property. **While I&M's IRP process doesn't contemplate specific and singular EE program design in its modeling process, many of the EE measures that are appropriate for rental units are modeled in the IRP.** **I&M is working hard to ensure these measures are modeled fairly and appropriately in the IRP.** **While today's EE programs can accommodate rental units and properties, I&M will take into consideration in its next three year EE plan filing whether additional programming is needed and appropriate to accommodate any unique needs that may be present.**
19.	Sierra Club (received June 4, 2019)	**Comments on April 11 Meeting Minutes** We suggest the following edits to correct the minutes of the April 11 stakeholder meeting: Page 10-11: Preliminary Solar Resources for the IRP (slide 48) Scott indicated that the model includes two tranches of solar. Each will be 150MW and uses a 24.4% capacity factor. Comment – J. Perras -- AEP OH has issued an RFP for a 400MW solar project that would be built in Appalachia to provide jobs in coal country, with a preference for hiring veterans. At that level it is big enough to attract manufacturing. It is a project that would be transformational. She had a concern that I&M's 300MW	**The Sierra Club edits are now reflected in this document, the 2018 I&M IRP Website Stakeholder Comment Summary, which is available publically on I&M's website.**

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		proposal is too constraining. Page 12: Q. J. Perras; Sierra Club – She supports the idea to not build NGCC through 2022. Why are we not considering that? A – John said no CPCN filing is needed for the Rockport U2 retirement since capacity is expected to be available in the market at that time. A peaking solution can be done quickly. The real decision to be made is in 2028 when U1 goes away. We don't know what the future will bring in technology improvements, such as solar plus batteries. It's a big commitment in putting in a $1 billion power plant and locking in that solution at this time.	
20.	Sierra Club	<u>Demand Side Management</u> Slides 14-16: In Slide 15, you show retail load forecasts declining significantly in the 2012, 2013 and 2014 forecasts. This was attributed during the last stakeholder meeting to using a different Brattle Group approach to modeling. After 2015, forecasts were flat instead of declining. 1) Were the DSM forecasts in 2011-14 actually attributable to Indiana's energy efficiency resource standard, which was repealed by the Indiana General Assembly in 2015? 2) Does the post-2015 modeling reflect the loss of energy efficiency standards and I&M's preferred plan to keep loads flat, rather than reduce demand over time to reduce the need for capacity to replace retiring power plants?	**1. Every forecast is influenced by the input assumptions used as well as the modeling techniques deployed. Indiana's energy efficiency mandates were assumed in each of the forecast vintages from 2011 through 2016. The first forecast that used the long-term DSM assumptions from the Company's most recent IRP filing was the 2017 Forecast. As explained during the presentation, I&M's approach to modeling the DSM assumptions has evolved over the years to improve its forecast accuracy.** **2. No. As mentioned above, the law replacing the energy efficiency mandate with the current rule which links the energy efficiency targets to the Company's IRP did not happen until mid-2015 which was after the 2016 Forecast had been developed. The Company had already switched to the current methodology in the 2015 and 2016**

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			Forecast vintages before the mandate assumptions changed.
21.	Sierra Club	Demand Side Management Slide 32: Sierra Club believes realistic achievable potential of 12.1 percent by 2036 and maximum achievable potential of 16.1 percent by 2036 are woefully inadequate over a 20-year planning period. 1) Is I&M planning to meet Michigan's 1% annual EERS or the 1.5% EERS that comes with additional incentives in Michigan? 2) How do the Michigan requirements affect I&M's goals in Indiana or the modeling used in the IRP? 3) Will I&M achieve less DSM savings in Indiana than in Michigan and group the programs together in one cumulative savings number? 4) Please split out the Indiana and Michigan DSM programs and savings projections so they can be compared and provide that information to stakeholders before the next meeting. The side-by-side comparison should show the information contained on the April 11 slide 22 for both Indiana and Michigan. It should include annual savings goals for each program in 2019, cost per kwh in each state, and percent of customers expected to be served.	**1-2. The Company will comply with any EE performance standards that exist in either of its jurisdictions. While Michigan Energy Waste Reduction requirements allow for a mix of renewable and EE resources to be used for state specific compliance purposes, the Company's IRP will factor any state specific requirements for levels of EE in as part of the IRP scenarios that are developed. The overarching objective for this IRP is to facilitate the selection of a range of proxy EE measure bundles to be selected based on their relative cost and benefits to other resource options, as part of the optimal resource mix. The Company is also considering how the CAC's approach to EE modeling may be factored into that optimal selection process. 2. See also the response to question #1 above. Any individual state, or jurisdictional, EE goal requirements are treated as common measure bundles in the IRP modeling process. The IRP model assesses resource options at an I&M system level, not per jurisdiction served. Since the IRP will also assess EE measure bundles that are developed to be representative of both jurisdictions, EE resource selections from the various scenarios are assumed to be I&M system level resources applicable to both jurisdictions. While pursuing the optimal resource selection, the various IRP model scenarios will necessarily have to**

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			factor in any respective EE requirements for each jurisdiction. **3. The Company does not claim actual EE results (achievements) through the IRP modeling process. The IRP modeling process will result in various optimal resource mix selections based on the different modeling scenario parameters used. The level and type of EE measure bundle resources selected in any one modeling scenario will be considered as system level resources.** **4. Please refer to the plan filings in IN Cause No. 44841 and MI Case No. U-18263. The percent participation calculation has not been performed, was not presented in either of the filings either. Further, as described in the responses above, IRP modeling is performed at the I&M system level where individual EE plans and program energy savings levels should be assessed for impact to the respective I&M system load shapes since the IRP relies on system load shapes for resource requirement determinations.**
22.	Sierra Club	<u>IRP Inputs and Assumptions</u> 1) Run base model underlying all scenarios with higher gas commodity prices than shown in current assumptions. Rationale: Greater use of gas in electric sector, transportation and increased gas exports along with likely higher environmental compliance costs will likely raise gas significantly from current and forecasted price.	**As described on slide 32 from the 1st Stakeholder meeting, the Company is planning on analyzing portfolios under the following commodity price scenarios: base, high, low and no carbon, as well as sensitivities that include a high load growth case and a low load growth case.**
23.	Sierra Club	<u>IRP Inputs and Assumptions</u> Run base model underlying all scenarios with lower solar	**The Company is considering performing a sensitivity around lower renewable costs and plans**

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		and wind costs Rationale: AEP's solar and wind cost assumptions for the future are higher than current costs and remain significantly higher throughout planning period. See latest surveys of levelized costs in Lazard.com, where wind/solar are 30-50% lower than I&M assumptions for current costs.	**to discuss the sensitivity case at the next stakeholder meeting.**
24.	Sierra Club	<u>IRP Inputs and Assumptions</u> Evaluate short-term vs. long-term options regarding replacement capacity, paying attention to attendant risks/uncertainty in meeting goals and fulfilling future energy needs and environmental requirements. Rationale: With much uncertainty existing over future gas prices, renewable costs, and carbon constraints, I&M should evaluate short-term resource options in a way that prevents "locking in" long-term fixed fossil fuel-based costs that will burden ratepayers for 40-50 years. For example, we ask that I&M develop one portfolio that constrains the model from building any new utility-owned, ratepayer-financed gas plants or fossil fuel infrastructure before 2028, meeting capacity needs through renewables, DSM, demand response, storage and/or PJM market purchases.	**The Company plans on following a similar approach. The Company is planning to evaluate short-term and long-term replacement capacity options.**
25.	Sierra Club	<u>IRP Inputs and Assumptions</u> Slide 47-48: Please explain why AEP is limiting low-cost solar and wind resources to 300 MW per year. 1) How will AEP's limits on renewable resources constrain the model's ability to replace Rockport with renewable energy options in 2022 and 2028? 2) How will AEP circumvent any model constraints during procurement to choose the lowest-cost energy options for customers?	**1. There are practical limits on the amount of wind and solar resources that can be added by the Company in a given time period due to site identification, permitting, construction, PJM interconnection requirements and regulatory factors. For planning purposes, it would be unrealistic to assume that I&M could develop or purchase the output from an unlimited quantity of wind or solar projects. As the question suggests,**

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			the assumptions within an IRP serve as a guide for resource solicitation, which is typically a separate process conducted outside of the IRP process. The resource solicitation results, coupled with the IRP analysis, will ultimately drive the amount of economic resources selected. At that time, the Company can choose its path forward and initiate the process to obtain regulatory approval for the resource action.
26.	Sierra Club	IRP Inputs and Assumptions Slides 51-53: Please explain AEP's initial assumptions for the IRP regarding the future of the Rockport units. 1) How do your 2018 assumptions differ from AEP's initial assumptions in the 2015 IRP? 2) Please explain what you mean by the asterisk on page 53: "*RP1 FGD addition and the extension of RP2 current lease terms will be evaluated relative to alternative resources."	**1. In 2015 I&M assumed the Rockport lease would continue beyond 2022. In 2018 the initial assumption is that the lease will terminate at the end of 2022. In addition, in 2015, the Rockport units were assumed to require an FGD in 2025 for one unit and 2028 for the second unit. In 2018, I&M assumes only Unit 1 will be operating after 2025 and will be retired at the end of 2028.** **2. In response to stakeholder input, the Company is including in the IRP an analysis that quantifies a RP1 FGD addition, and another analysis will be completed that quantifies an extension of the current RP2 lease.**
27.	Sierra Club	IRP Inputs and Assumptions Slide 53: We are pleased that I&M appears to be planning to end the Rockport 2 lease when it expires in 2022. 1) What will happen with the operation of Rockport 2 once the lease ends? 2) Under the lease-operate agreement with the Rockport 2 owners, what is AEP obligated to do if AEP continues to operate Rockport 1?	**1 -2. I&M intends to comply with our contractual obligations to operate Rockport Unit 2. The future of Rockport Unit 2 after the lease ends will be determined by the lessors.** **3. I&M has not made any final determination concerning the disposition of Unit 1. Subject to this clarification, please see the response to question 1.**

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		3) What is AEP obligated to do under the lease-operate agreement after AEP retires Rockport 1 in 2028?	
28.	Sierra Club	<u>Considerations for Evaluating Risk</u> Slide 46: I&M lists a coal-fired power plant with 90% carbon capture as a resource option. We believe carbon capture may become a best available control technology for gas plants in the future. 1) Please provide similar input information for combined cycle and combustion turbine gas plants with 90% carbon capture, and run those as sensitivities for a carbon constrained future.	**The Company is looking into this technology and will provide an update at the 3rd Stakeholder meeting.**
29.	Sierra Club	<u>Considerations for Economic Scenarios</u> 1. I&M should construct a scenario that will test higher-range gas prices, a higher carbon "price" and carbon budget to comply with multi-national goal to comply with 2 degree Celsius limit on global temperature rise. The International Panel on Climate Change has recommended a global carbon budget to meet this goal. For example, the IPCC says global emissions must peak by 2020 and then steadily decline in order to cost-effectively meet the 2oC target. I&M should quantify what it needs to do to reduce carbon emissions to meet the global carbon budget. Rationale: Modeling needs to test reasonable range scenarios that depict a possible future of carbon constraints in a higher gas price world. The mayors of Fort Wayne and South Bend have both joined the Climate Mayors and We Are Still In networks for mayors advocating for climate action.	**I&M believes the scenarios currently put forth adequately reflect a reasonable range of possibilities related to carbon and natural gas pricing. There is considerable long-term uncertainty what global carbon limitations may be required, how enabling regulatory mechanisms would develop and how emission reduction responsibilities would be apportioned to individual entities. Reasonable scenarios for resource planning and analysis include consideration of economic costs and pace of change, which aspirational policy scenarios may not necessarily capture. I&M operates as part of the AEP system, which has already achieved a 42% reduction in carbon emissions since 2000, and has established goals based on the integrated resource plans of the member utility companies that are sufficient to achieve a 60% reduction in carbon emissions by 2030 and an 80% reduction in carbon emissions by**

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			2050. This trajectory is consistent with the goals established by the IPCC.
30.	Sierra Club	Considerations for Economic Scenarios 2. I&M should construct an all-renewable/efficiency replacement scenario, particularly for the anticipated 800 MW capacity shortfall for Rockport 2's lease expiration, using lower current and forecasted costs for solar and wind from the Lazard study, et al. Renewables, demand side management and demand response should be supplemented with only enough storage or market purchases to meet peak demand and capacity requirements. Rationale: Modeling should reflect investigation of portfolios that would meet growing customer demand for renewables and their lower capital costs, O&M costs and elimination of fuel costs.	**As discussed at the 2nd Stakeholder meeting on slide 53, the Company plans to consider this Portfolio for evaluation.**
31.	Sierra Club	Considerations for Economic Scenarios Before seeking a Certificate of Public Convenience and Necessity from the IURC for new resources, I&M should commit to issuing an all-source, fuel-neutral RFP for replacement of its 800 MW capacity shortfall by 2023.	**The IRP is a resource planning tool and is separate from the resource acquisition process.**
32.	Sierra Club	Evaluation Measures The Michigan IRP requirements spell out in detail the information that I&M must provide in an IRP. At the first stakeholder meeting in February, AEP staff said they intend to prepare an IRP that meets both states' requirements. Please include in your IRP information to allow stakeholders to evaluate your proposed plan, according to these Michigan IRP requirements related to environmental impacts and financial/rate impacts.	**I&M will file with the IURC a multistate, total Company integrated resource plan that includes I&M's service areas in both Indiana and Michigan. This IRP will follow the IRP requirements in Indiana. I&M will then submit this IRP to the Michigan Public Service Commission under MCL 460.6t(4).**

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33.	Sierra Club	Environmental: Describe how the utility's proposed IRP will comply with all applicable local, state, and federal environmental regulations, laws, and rules: (a) Include a list of all environmental regulations that are applicable to the utility fleet. Identify which regulations apply to which resources;	**All resource options evaluated and identified in I&M's 2018 IRP assume I&M's current and future generation resources comply with all known environmental, regulatory and permitting requirements at the federal, state and local levels. Environmental compliance is largely demonstrated on the basis of operational limits and I&M includes within in its analysis O&M and capital expenditures associated with meeting those limitations. The 2018 Corporate Accountability Report (see the following link) provides additional detail on this topic.** **Link to AEP's 2018 Corporate Accountability Report → http://www.aepsustainability.com/.** **In addition, I&M's 2018 IRP will include a discussion of the key environmental issues and implications facing I&M.** **Finally, I&M can provide certain emission data on various emissions (if available as output from the Plexos modeling) for its 2018 IRP preferred resource plan.**
34.	Sierra Club	Environmental: b) Include all capital costs for compliance with new and reasonably expected environmental regulations for existing fleet assets in the utility IRP	**See response to question 33. In addition, the company plans to include the capital cost of compliance with known and reasonably expected environmental regulations in its IRP analysis.**
35.	Sierra Club	Environmental: c) Provide an annual projection of the following emissions	**See response to question 33.**

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		for the study period differentiating between existing and new resources within the proposed IRP: i. Tons of sulfur oxides; ii. Tons of oxides of nitrogen; iii. Tons of carbon dioxide; iv. Tons of particulate matter; and v. Pounds of mercury.	
36.	Sierra Club	Environmental: d) Provide the total projected emissions of the items listed below through the study period for the utility's proposed plan, as well as the scenarios identified in the MIRPP as approved in Case No. U-18418, or modified by Commission order: i. Tons of sulfur oxides; ii. Tons of oxides of nitrogen; iii. Tons of carbon dioxide; iv. Tons of particulate matter; and v. Pounds of mercury	**See response to questions 32 and 33.**
37.	Sierra Club	Rate Impact and Financial Information Projected year-on-year impact of the proposed course of action (and other feasible options) for the periods covered by the plan, covering the following accounts: a) Revenue requirement; b) Rate base; c) Plant-in-service capital accounts; d) Non-fuel, fixed operations and maintenance accounts; e) Non-fuel, variable operations and maintenance accounts; f) Fuel accounts; g) Emissions cost; h) Effluent additive costs; and	**The Company will provide the cost information detail as provided in its 2015 IRP.**

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		i) Projected change in generation plant-in-service.	
38.	Sierra Club	Rate Impact and Financial Information The utility shall describe the financial assumptions and models used in the plan. The plan shall include, at a minimum, the following financial information, together with supporting documentation and justification: a) The general rate of inflation; b) The allowance for funds used during construction rates used in the plan; c) The cost of capital rates used in the plan (debt, equity, and weighted) and the assumed capital structure; d) The discount rates used in the calculations to determine present worth; e) The tax rates used in the plan; f) Net present value of revenue requirements for the plan; g) Nominal revenue requirements by year; and h) Average system rates per kWh by year.	**See response to Question 37.**
39. (follow-up question related to question 4)	Emily Medine (received June 15, 2018)	Thank you for your response. However, it is inadequate. The question was asked because EVA is aware of no sources that support the I&M forecast of PRB coals. The Indiana Coal Council and EVA are willing to enter into an NDA to review the information that you suggest was relied upon.	The referenced forecast for Powder River Basin (PRB) coal was created at a time when major export projects were still considered likely. The Company would concur that the broad environmental opposition and weakened Asian demand to these projects would currently exert considerable downward pressure on PRB coal prices. I&M will discuss the PRB price forecast and options for evaluating additional scenarios based on alternative coal price forecasts at the August 1 stakeholder meeting.