Questions received for Workshop 1 of the 2021 IRP Technical Conference
Questions received from Denise Abdul-Rahman, Indiana State Conference of the NAACP

1. How much more can lighting efficiency programs be expected to drive down lighting energy use in Indiana?

   AES Indiana response: In 2021-2023, AES IN is still projecting lighting savings through its DSM portfolio. Of note – savings from lighting has gone from ~25% of the Residential Portfolio savings in 2020 to ~9% in 2021. The reason for this reduction – AES IN has removed all general service LED lighting (common a-line style LED bulbs) from programs starting in 2021 due to anticipated baseline changes. With this adjustment, the residential programs are now focused on incentivizing specialty and reflector LEDs. There is still significant lighting opportunity in the C&I programs where lighting makes up 62% of the savings, and there is growing emphasis on lighting controls to grow savings potential.

   Beyond 2023, AES IN is preparing to begin a Market Potential Study this summer to answer this question using current market saturation and codes & standards assumptions. This analysis will define the DSM potential, including lighting, and the DSM resources that will be modeled in the IRP. We encourage stakeholders to participate in this process.

   Energy Futures Group response: The 2007 Energy Independence and Security Act (EISA) established minimum energy conservation standards for general service lamps.[1] In the first phase implemented in 2012-2014, EISA established efficacy levels that could be met by halogen incandescent. In the second phase, the EISA standard was expected to establish a 45 lumens/watt "backstop" efficacy level for all general service lamps as of January 1, 2020. Only LED and CFL products can meet an efficacy requirement of 45 lumens/watt. The Trump administration rejected the implementation of a 45 lumens/watt backstop, but we would expect the Biden administration to reverse that action. Residential lighting programs will no longer provide savings once that backstop is fully implemented, although residential customers can still realize savings. The U.S. Department of Energy estimates that inefficient incandescent and halogen lighting is still used in approximately 20% of residential sockets nationwide.[2]

   On the commercial side, ample opportunity remains to convert linear fluorescent and high-bay lighting to LED. The U.S. Department of Energy estimates that approximately 1/3 of linear and high-bay lighting has been converted to LED.[3] The saturation of LED lighting is projected to reach 75-80% sometime in the late-2020s, and because of this it is essential that C&I lighting programs include a networked control component which provide significant additional savings, but are largely foreclosed if not installed simultaneously with conversion to LED lighting.

   [1]https://appliance-standards.org/product/general-service-lamps
   [2] https://www.energy.gov/sites/prod/files/2019/12/f69/2019_ssl-energy-savings-forecast.pdf, Table 4.13
   [3] https://www.energy.gov/sites/prod/files/2019/12/f69/2019_ssl-energy-savings-forecast.pdf, Table 4.23 and Table 4.26

I&M response: In I&M's recent DSM case, the IURC has agreed with I&M's position in the last DSM case that lighting has been transformed and thus there is no lighting program going forward in Indiana. Based on the Company's last Residential Appliance Saturation Survey in 2019, approximately 2/3 of all lighting fixtures in the I&M-IN service territory had been replaced with an efficient lighting technology. The Company is planning to conduct its next Residential Appliance Saturation Survey in 2022.

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2. Is appliance stock efficiency integrated and is there an analysis that drives the measures characteristic program design, demand resource portfolio, end use load forecast and economic forecast?

   AES Indiana response: I'm going to break this question up to address the distinct components –

   Yes. Appliance stock saturation and efficiency is included in the Statistically Adjusted End Use (SAE) assumptions included in the load forecasting models. The Energy Information Administration (EIA) performs the analysis that drives the SAE forecast.

   AES IN determines the program design and demand response portfolio through the MPS and IRP process and through consultation with program implementors. More specifically, the MPS and IRP define the potential and volume of DSM to be implemented, respectively. Once defined, AES IN works with our implementors to formulate cost effective programs for implementation that will achieve the IRP targets.

   The economic forecast is developed by Moody's Analytics.

   Energy Futures Group response: If the question is referencing the load forecast then, yes, the national level appliance stock efficiency projections are available here (residential) and here (commercial). The Census division level information that AES and I&M would use in their load forecast can be requested from Kevin Jarzomski at the EIA: kevin.jarzomski@eia.gov. The documentation discussing the inclusion of existing appliance standards and a small amount of utility sponsored energy efficiency in these projections is available here (residential) and here (commercial).

   I&M response: Yes. DSM program design is based on the results of a market potential study (MPS) that accounts for trends in appliance stock efficiency.

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3. How skewed is energy efficiency disparate impacts on census tracts in Black/African American communities in Indiana? What will the IURC do to ensure equitable outcomes and resiliency ie old housing, old inefficient appliances ?

   AES Indiana response: AES Indiana has been offering DSM programs on a nearly uninterrupted basis since the mid 1990's, and follows a set of guiding principles for

program planning and implementation which includes inclusivity for all customers. These programs provide energy efficiency measures, like attic insulation, duct sealing and efficient lighting to customers for a reduced cost or at no charge depending on the program offering. The Company plans to continue offering programs for the foreseeable future and will work to define potential for energy efficiency in its next MPS.

Second question is for IURC.

Energy Futures Group response: The CAC would also like to see that information. Duke has done some identification of contribution to peak by housing type and age but to our knowledge no IN IOU has looked at energy consumption and energy efficiency program participation by census tract, by income level, or any other demographic indicator.

I&M response: I&M's EE Income Qualified weatherproofing program is open to any income qualified customer that meets the federal poverty level threshold requirements. I&M's IQ WP program works with local IQ agencies in partnering to address housing stock issues to the extent there are issues in the home that prohibit or impair the opportunity for efficient use of electric energy. I&M's IQ WP also has funding focused on the replacement of less efficient appliances and HVAC units, including efficient refrigerator replacement, HVAC replacement with higher efficiency units, electric water heater replacements, HVAC blower motor upgrades, and HVAC tune ups.

IURC staff response: The Contemporary Issues Workshops for this year were carefully designed to evaluate how energy efficiency programs (and demand response) are evaluated in the IRP modeling optimization process. The intent was to focus on the details of how market potential studies (MPS) are developed and how MPS data is used to evaluate and to develop potential resource options for inclusion as potential resources in the model optimization process. The third workshop will address in part how to translate IRP model results into specific energy efficiency programs. By necessity, this involved getting into a lot of planning or modeling details; in other words, we were in the weeds.

Equity is a critical policy consideration but not easily addressed in IRP models. Equity has always been an important consideration in the traditional rate setting process. However, equity can be difficult to apply when its definition changes depending on the circumstances and the perspective of the various stakeholders. But difficulty in application does not mean it is ignored. The Commission reviews energy efficiency plans in accordance with Indiana statute under IC 8-1-8.5-10. The statute provides a broad range of criteria to be considered as part of the Commission's overall review process.

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4. What are the prioritized and targeted efficiency dollars applied toward end use technologies that have the most significant impact on the utility's loads?

AES Indiana response: The prioritized and targeted efficiency dollars are determined by the volume of DSM identified in the IRP and then approved by the IURC through our DSM filings. For 2021 – 2023, AES IN has approval to spend $105M to achieve 477,303 gross MWh in savings. Lighting is the most cost effective incentivized technology and makes up approximately 42% of the portfolio savings in 2021.

Energy Futures Group response: Administering all cost-effective energy efficiency would have the biggest impact. Focusing on a single program or technology in isolation will have minimal impact on the deferral or elimination of supply-side or T&D investments. And developing a robust, comprehensive program of energy efficiency across all sectors and end-uses is the only way utilities can help foster transformation of the broader market for efficient appliances, weatherization, etc. and a stable ecosystem of contractors and suppliers to provide the needed support for that transformation.

I&M response: I&M's EE programs focus on HVAC upgrades, electric water heater upgrades, energy management and control systems for HVAC and lighting, New Construction efficient appliance, HVAC, water heat installations.

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5. Community solar is an answer for the demand response, which could reduce the need for more funding for energy efficiency in general, as a form of DSM, it also moves equity, & resilience. Will you incorporate into IRP Contemporary issues? Why and Why not?

   AES Indiana response: Question for the IURC.

   Energy Futures Group response: CAC believes that both distributed solar and energy efficiency have important roles to play in achieving equity and resilience.

   I&M response: I&M is not opposed to the IURC including community solar as a future IRP Contemporary Issues Meeting topic.

   IURC staff response: Community solar is a potential topic for future IRP Contemporary Issues Workshops. Typically, Commission staff begin the agenda development process for next year's workshop(s) several months prior to the expected workshop date(s). The 2022 Contemporary Issues Technical Conference date has not been set at this time.