REPLY COMMENTS OF DUKE ENERGY INDIANA REGARDING THE COMPANY'S 2018 INTEGRATED RESOURCE PLAN

I. Introduction

On July 1, 2019, Duke Energy Indiana submitted its 2018 Integrated Resource Plan ("IRP") to the Indiana Utility Regulatory Commission ("Commission"). The Company's process included a six-meeting stakeholder engagement process in which the Company and participants discussed the methodologies and assumptions utilized in the IRP modeling and the results of that modeling prior to finalizing the IRP. Duke Energy Indiana seriously considered and responded to stakeholder comments throughout the process, as documented in the IRP. In accordance with the IRP rules, additional comments have been received from the Commission's Director of Research, Policy and Planning, Dr. Bradley Borum, and a group of stakeholders – the Clean Grid Alliance, Indiana Advanced Energy Economy, Indiana Coal Council, the OUCC, the Industrial Group, and the Joint Commenters. Duke Energy Indiana is providing responses to both sets of comments in this document.

II. Duke Energy Indiana's responsive comments to Dr. Borum's March 3, 2020 Draft Report

Dr. Borum's Draft Report sets forth areas of concern that Duke Energy Indiana will address. Specifically, he discusses four areas of desired improvement: load forecasting; energy efficiency and demand response; retirement analysis; and confidentiality concerns.

One theme that seems to underly a number of Dr. Borum's comments is that the audience for the IRP needs to be better identified. The Company, consistent with the adoption of the stakeholder process and Executive Summary, prepared the 2018 IRP with the understanding that the IRP rules over the past several years have had the intent to make the IRP process more accessible and user friendly. To this end, the Company lightened the amount of detailed technical information in the document and attempted to speak to the reader on the higher-level themes of resource planning. In doing so, some detail that had been addressed in previous IRPs and in the stakeholder process were not included. Additionally, the Company viewed the specific details, as not as relevant to a more general audience, while interested stakeholders could obtain the detailed technical data and also the confidential data by signing a non-disclosure agreement.

After reviewing the comments of Dr. Borum, Duke Energy Indiana understands that a better balance between user-friendly content and specific technical details must be found. The Company is committed to preparing the IRP in a way that is most beneficial to all interested parties and commits to working with stakeholders and Commission staff to better tailor its next IRP document for the intended audience.

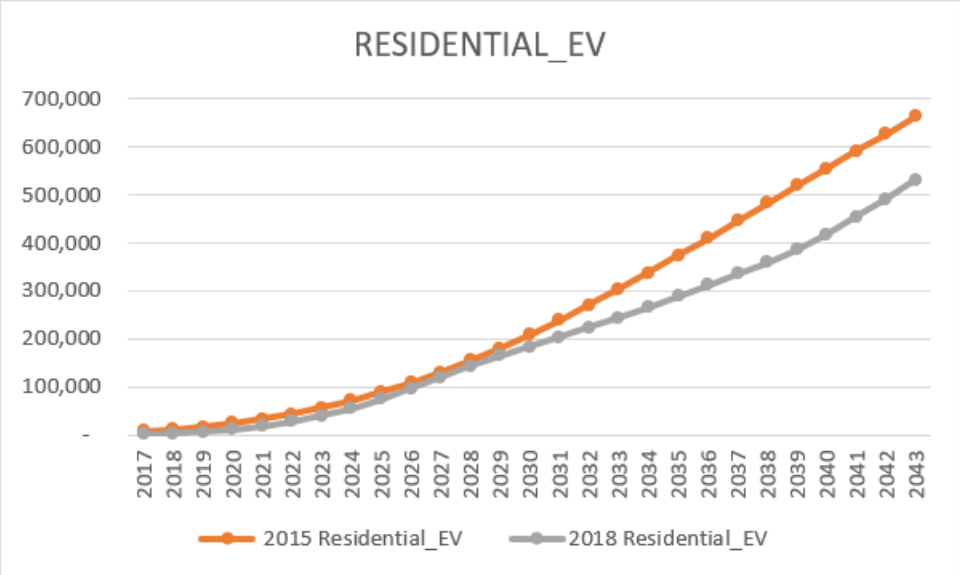
A. Load Forecasting

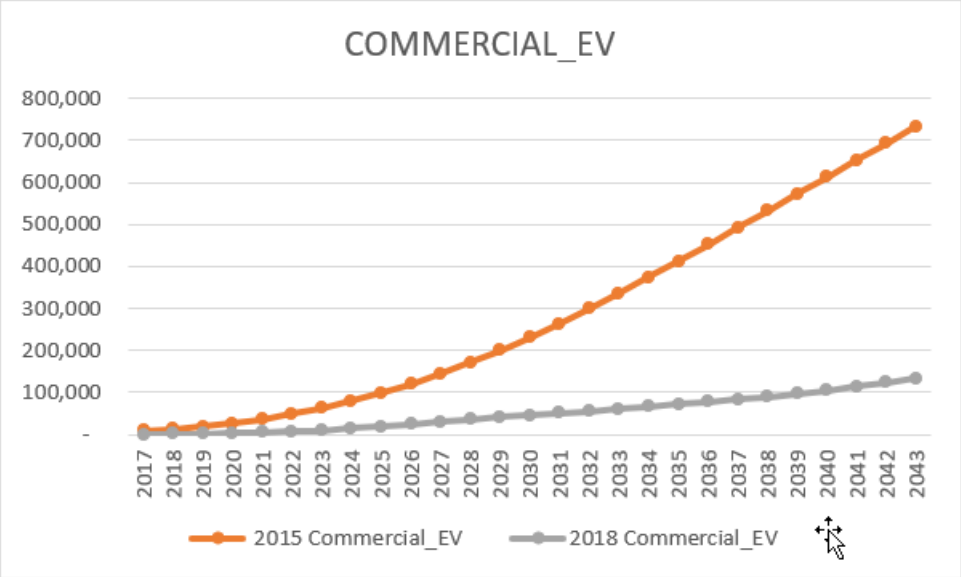
Dr. Borum stated that, in prior IRPs, the Company provided more information and detail about its load forecasting methodology. After reading the IRP, Dr. Borum was left wondering what revisions, if any, were made to the Company's load forecast for the 2018 IRP. Specifically, what were the impacts of electric vehicle penetration and distributed energy resources on the load forecast. Did ITRON forecast changes to industrial, street lighting and public authority loads?

In response, Duke Energy Indiana is providing additional explanation as follows:

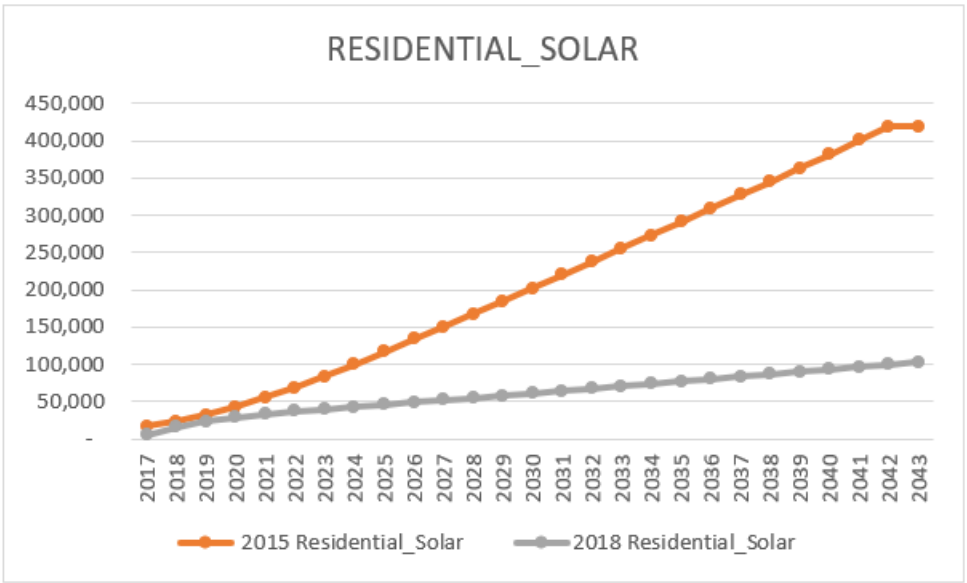
The load forecast methodology has not changed or been modified from the 2015 IRP filing to the 2018 IRP filing. The language was scaled back substantially between the two filings, but the change was not meant to withhold information or fail to elaborate the details of the load forecast. Dr. Borum's concerns will be taken into consideration in future IRP filings, supplying additional detail into the load forecast methodology and changes reflected in the data supporting and/or resulting from the forecast.

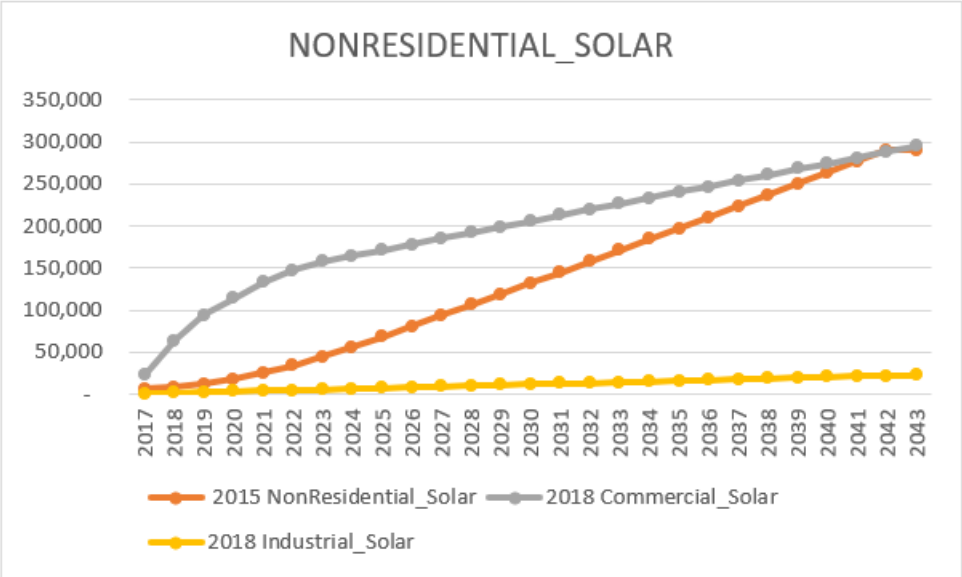
The current load forecast shows slower electric vehicle adoption, especially in the commercial class. The adoption rates are informed by EPRI's long-term electric vehicle forecast and recent trends in actual vehicle registrations. See the following two tables representing electric vehicle adoption in the residential and commercial classes.



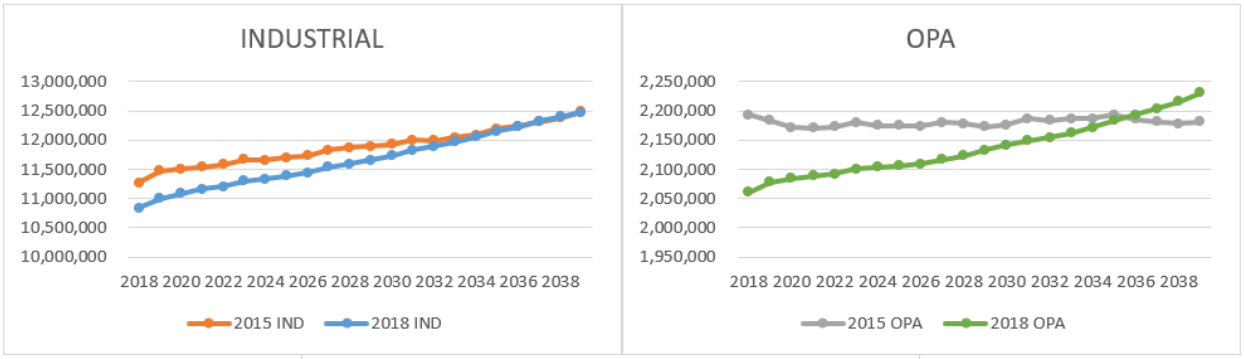


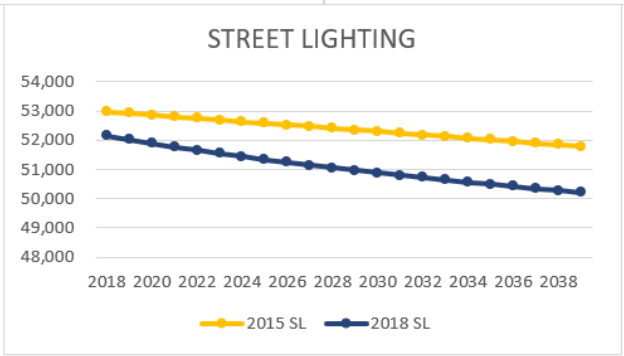
The solar forecast for the 2015 IRP filing showed two categories, residential and non-residential. The current IRP filing for 2018 has residential, commercial and industrial classes reported individually. While residential adoption has slowed, the commercial class is assumed to adopt rooftop solar more quickly than what was assumed in the 2015 IRP. The changes in adoption rates are primarily informed by actual adoption rates over the past few years and cost projections for future adoption. See the two tables below reflecting solar adoption among the customer classes.





The forecasting methodologies for Industrial, Other Public Authorities ("OPA") and Street lighting are very similar to the processes used in the 2015 IRP filing. As shown below, sales to these classes are little changed.





B. Energy Efficiency and Demand Response

The Director makes the following comment about the modeling of Energy Efficiency (EE) and Demand Response (DR):

2. *There was very little information on how energy efficiency (EE) and Demand Response (DR) were modeled. Unfortunately, there was more detail, limited as it was, in three of the Stakeholder meetings than was contained in DEI's written IRP. Stakeholders should be able to find the narratives and sufficient detail within the IRPs. In the November 9, 2018 stakeholder workshop for instance, there was a promising discussion of "savings shapes" (daytime, night time, 7X24, seasonal, HVAC, etc.) to construct 20 energy efficiency bundles based on increasing incremental cost. The Director's belief was that savings shapes would eventually morph into, what is now called, the "Time Value" of EE and other Distributed Energy Resources (DERs). However, DEI did not seem to advance the effort or allay concerns raised by the Citizens Action Coalition, Earth Justice, Energy Matters Community Coalition, Carmel Green Initiative, Environmental Working Group, Distributed Energy Alliance, Sierra Club, and Valley Watch (collectively referred to as "CAC Joint Commenters"). The Director recognizes there are both data and computational limits that are barriers to improved modeling of EE and other DERs but it is not clear DEI has a plan to enhance future analysis as called for by the IRP rule. This is somewhat surprising given DEI's acknowledgement that "Challenges remain in how EE is included in the load forecasting process, the uncertainty of EE forecasting, and combining EE programs into a bundle that can be modeled with supply side resources like natural gas fired combined cycle or solar resources." (DEI IRP p. 6)*

The Company believes it provided substantial information regarding how EE and DR were modeled in the IRP. The Company does concede that the full details of the process to model EE and DR were presented in the body of the IRP (Volume 1) at a high level, however the inclusion of the detailed information in Volume 2 of the IRP, which includes the Stakeholder Meeting presentations and summaries, shows that the process used to model EE and DR in the IRP was explained in detail.

The Director refers to a "promising discussion of 'savings shapes'" in the November 9, 2018 stakeholder workshop, but the Company believes that the Director intended to refer to a meeting on November 9, 2017, rather than 2018. The Director further goes on to state that his "belief was that savings shapes would eventually morph into what is now called the "Time Value" of EE…" The Company agrees and contends that this is exactly what was accomplished in this IRP analysis.

In the initial Stakeholder meeting, the Company presented a plan to disaggregate the forecast of EE into a series of discrete "bundles" that were grouped based on the hourly savings

that those EE savings could contribute to the reduction in the load, *i.e.,* "savings shapes". This initial stakeholder presentation represented the modeling plans in place in November of 2017 and a detailed discussion of this proposed methodology was captured in the summary document related to the Stakeholder meeting.

In the second Stakeholder meeting, the process for modeling EE was further refined to include preliminary results from the Company's Market Potential Study along with a further explanation of the process of grouping EE measures into bundles based on their hourly savings shapes. In addition, a methodology to assign different future trajectories to EE program costs was explained and discussed with the stakeholders.

In the third Stakeholder meeting, the Company presented a high-level overview of the proposed process for creating savings shapes bundles using the results of the Market Potential Study along with some graphical representations of some typical savings shapes and how those would correspond to actual EE measures. At the time of this Stakeholder meeting, the Company expected to have 120 discrete bundles based on a total of 8 savings shapes times 3 achievement levels from the MPS (Achievable, Enhanced and Technical Subset) across 5 time buckets.

In the fourth Stakeholder meeting, the Company explained further refinement of the bundling process showing that 6,270 individual EE measures had been grouped into 6 residential and 6 non-residential savings shapes and how these savings shapes were further subdivided into 5 discrete time buckets and 3 levels of achievement were modeled (now renamed as Base, High, Extra-High). This resulted in a total of 180 combinations which were further consolidated into a more manageable group of 70 buckets as explained in detail by the Company in the presentation. Examples were shown of what typical savings shapes would look like and how they would relate to actual EE measures.

Through the combination of the explanation included in the body of the IRP and the presentations and summaries from the Stakeholder meetings, the Company believes that the IRP, as filed, provides a detailed explanation of how EE was modeled and provides clear evidence that the Company advanced the effort to improve the modeling as called for by the IRP rule.

Further, the Director states that the Company did not "allay concerns raised by… the CAC Joint Commenters", however, review of the summaries from the Stakeholder meetings shows that the Company addressed the concerns presented by these and other stakeholders in both the meetings as well in follow up discussions and discovery request.

The Director goes on to provide a detailed description of the process used to model EE programs (see page 9-11) and this explanation was based on information provided in the IRP document. The Director characterizes this explanation as "limited". As noted above, if all the

stakeholder communications and the language of the IRP are taken together, the Company believes it provided a detailed analysis. However, the Company takes to heart the Director's desire for more detail in Volume 1 of the IRP going forward.

Finally, the Company would like to address its demand response modeling. Demand response is added to the resource mix based on a Company forecast. Demand response is a program that allows customers to better manage their energy costs. The implementation of the program and customer preferences are such that offering and withdrawing the DR program is not efficient or effective. The Company's demand response program is a means of securing capacity for the system at costs well below the long-term cost of peaking capacity.

C. Resource Optimization and Risk Analysis

Dr. Borum had several comments regarding the Company's resource optimization and risk analysis. Specifically, Dr. Borum commented on concerns about a lack of transparency in forecasting supply and demand-side costs.

The Company procures the best supply and cost data possible from various vendors. While this data is typically proprietary, Duke Energy Indiana understands the value of transparency of the data to stakeholders. For the 2021 IRP, the Company will investigate the use of as much public data as practical.

Dr. Borum also commented that by not considering the Company's newest power plant, Edwardsport, for retirement, the Company missed an opportunity to evaluate the potential for an accelerated retirement of Edwardsport or the possibility of closing gasification and running the station solely on natural gas.

Edwardsport IGCC Modeling:

Duke Energy Indiana was transparent in its stakeholder meetings and presentation slides how it was modeling retirements, including that it did not plan to model retirement of Edwardsport IGCC given its short operating life. Duke Energy Indiana also provided all stakeholders the opportunity to present their own portfolios, which Duke Energy Indiana would have modeled in the various scenarios. However, no party offered alternate portfolios, which could have included the retirement or operation on natural gas of Edwardsport as of a certain date. Duke Energy Indiana has discussed the many issues associated with operating Edwardsport solely on natural gas in various Commission filings and will not repeat those valid concerns herein. Given the desire of the Director to see modeling of retirements, including newer units such as Edwardsport, Duke Energy Indiana will include plans for such modeling in its next IRP to be submitted November 2021.

Further, when discussing the model choosing to purchase from MISO, Dr. Borum noted a fundamental disconnect between wholesale market results and Duke Energy Indiana's Company-specific results.

Market Purchases:

At a general level, any market participant's purchases from the market or sales net of load will be due to differences between the supply curve of the market and the supply curve of the respective market participant relative to its load. This dynamic changes with every hour and Duke Energy Indiana, as well as other market participants, will likely be sellers during some hours and buyers during other hours.

The Company believes that it should build a portfolio of resources that can satisfy its own load if needed (capacity view) but will always buy from the market when it saves customers money. Consider three utilities:

1) Nuclear- this utility meets its peak need with nuclear resources which have a low variable cost. As a result, its generation is almost always in the market and the utility is a significant net seller into the market.
2) Natural Gas Combustion Turbine- this utility meets its peak with combustion turbines that have a relatively high variable cost. As a result, its generation is frequently out of the market and this utility is a significant net buyer of market energy.
3) Renewables portfolio- this utility meets its peak with renewable resources subject to the contribution to peak rules of the RTO which means that it would need multiples of its demand obligation in renewable resources. On the energy side, this utility's generation would always be in the money when generating and would likely be a significant seller during afternoon periods and a significant buyer during non-afternoon periods. Obviously this would change with fleet composition, but on balance a high renewables utility will mitigate its market purchases by overbuilding its system on a capacity basis.

All three of these utilities satisfy its resource adequacy requirement, but have different levels of market purchases- none of them are inherently bad but reflect different risk appetites. Duke Energy Indiana's perspective is that it needs to ensure serving customers on its own but will also take advantage of the market to its customers' benefit.

Furthermore, the Company does not believe it is prudent to assume that the balance of the RTO will evolve in a different manner than the utility in question and that the utility in question can then rely on the RTO to meet the shortcomings of the utility's fleet.

Dr. Borum commented that the model could be keeping coal for capacity while also purchasing low cost energy.

The Company looked at this issue and it makes sense. At the root of this issue, the model looks to see if it is lower cost to continue operating the coal units at their respective O&M costs less energy production value relative to the cost of building replacement capacity, net of its energy production value. The ongoing O&M of the coal units is less than the cost of a new CT.

This is true down to low capacity factors at which point it makes sense to retire a coal unit. But depending on prevailing market conditions, relevant capacity factors can be higher or lower.

D. Stakeholder Process and Confidentiality

Dr. Borum's Draft Report stated that Duke Energy Indiana applied lessons learned from prior IRPs and started the stakeholder process early. He also stated that some of the meetings did not prove to be as productive as they could have been with more preparation had the Company provided information for review earlier in advance of the meetings. In addition, he stated that the slide decks in the early stakeholder sessions were especially light on content with limited information presented overall. Dr. Borum also noted that the Company relies "excessively" on requiring stakeholders to review voluminous information on site and needs to develop a different means of sharing confidential data in the future.

In response, Duke Energy Indiana is providing additional explanation as follows:

As previously stated, the Company will endeavor to make more of the data used in upcoming IRPs publicly available.

E. Future Enhancements

As part of the Company's normal business practice, it frequently evaluates new modeling tools. Changing over to a new modeling tool can be a significant undertaking with the testing, benchmarking and necessary IT infrastructure requirements. Duke Energy Indiana has been considering new or additional tools for the next IRP and has already been discussing these modeling tools with its stakeholders.

III. Duke Energy Indiana's responsive comments to stakeholder comments

Stakeholder comments were received from the Clean Grid Alliance, Indiana Advanced Energy Economy, Indiana Coal Council, the OUCC, the Industrial Group, and the Joint Commenters (collectively, "Commenters").

Clean Grid Alliance

The Clean Grid Alliance filed comments on the Company's IRP as follows: 1. Duke's Plan is overly conservative on renewable development and does not account for growing customer demand for renewable generation; 2. Duke's modeling should be modified to reflect more reasonable assumptions on renewable generation, evaluate system needs on an hourly or sub-

hourly basis, and should procure a balanced mix of renewable resources and not continued reliance on natural gas resources; 3. Duke should use verified third-party data sources for cost and performance assumptions; 4. delaying wind additions until 2024 misses an opportunity to benefit from the production tax credit; 5. Duke should use an all-source RFP on an annual basis; 6. Duke should offer a well-designed green tariff program; and 7. Duke should plan transmission expansion to deliver electricity from its forecasted generation to its customers at the lowest overall production cost of electricity.

Duke Energy Indiana Responsive Comments:

The Company would like to respond to each point of the Clean Grid Alliance. Items 1 and 2 are judgement calls based on its preferences and the utility maintains that its preferred portfolio is a reasonable transition to a greener and more diverse generation fleet. Item 3: the Company uses data from industry leading experts. Item 4 is true in that not building wind until 2024 does miss the current definition of tax credits, but the utility would point out that wind generation is not needed until later. Item 5 about a green tariff is subjective and something the utility is willing to discuss further. Item 6 concerns the use of an all-sources RFP and the Company is open to this idea at the time resources are needed. Item 7 concerns implementing transmission planning into its IRP process. This concept is valid, but extremely complicated and the Company is investigating this issue.

Indiana Advanced Energy Economy

Indiana Advanced Energy Economy filed comments on Duke Energy Indiana's IRP as follows: 1) By deploying additional renewable energy and storage on a more expedited timeline, Duke Indiana could realize greater savings; 2) Duke Indiana should add more renewable and storage capacity to its preferred portfolio to account for near-term commercial and industrial demand; 3) Demand side resources could be incorporated more heavily into Duke Indiana's preferred portfolio; and, 4) The Commission should closely scrutinize Duke Indiana's plan to invest in combined cycle gas plants against cost-effective advanced energy alternatives.

Duke Energy Indiana Responsive Comments:

The comments of the Indiana Advanced Energy Economy are subjective and reflect its preferences and beliefs. The Company maintains that it uses quality data from industry leading resources and evaluates portfolios in a number of different scenarios. Additionally, the Company evaluates the different portfolios based on cost, risk and carbon reduction.

Item 4 concerns the use of new combined cycle generation relative to alternatives which is what the Company will do at the time development of a new resource needs to begin. The IRP is

based on the prevailing information at the time of its preparation, but at the time of project development and the CPCN process, the analysis will be updated with then-current information.

Indiana Coal Council

1. *DEI has an appreciation of its coal assets. In 2018, DEI's largest two coal plants, Cayuga and Gibson ranked #1 and #2, respectively, in terms of capacity factor when compared to the other utility-owned coal-fired plants in Indiana.1 Both Gibson and Cayuga had heat rates, the primary measure of efficiency, well below 11,000 Btu/kwh in 2018, with Cayuga the most efficient utility plant in that year. DEI indicated that it believes, with the exception of Gallagher, its remaining coal plants will continue to operate economically through at least 2021. While DEI has not committed to any retirements except Gallagher, DEI indicates that its primary motivation for a phased retirement of its coal units is not economics. Rather it is a diversification strategy in recognition of the relatively large share of generation provided by coal and the resulting exposure to potential carbon related costs.*
2. *DEI's long-term plan suggests that natural gas is generally the lowest-cost replacement for the retiring coal plants. ICC believes that DEI did not give adequate consideration to total carbon emissions from natural gas because its measurements focused only on generation plant annual emissions. The appropriate analysis of a new gas plant is through a life cycle analysis (LCA) of carbon emissions that not only considers emissions from the plant through its expected useful life but also considers upstream emissions, i.e., emissions at the wellhead and during transportation. Significant methane is liberated in the production and transportation of natural gas. Methane is a much more potent greenhouse gas (GHG) than carbon.*
3. *DEI did not evaluate what role carbon capture can play in its future resource plans. The Edwardsport generating plant was originally designed to employ carbon capture. Even though that element was abandoned prior to the completion of the plant, Duke's IRPs should continually re-evaluate whether the plan for carbon capture should be revived. Further, given the current availability of Section 45Q tax credits and DEI's concerns over its long-term exposure to carbon, it appears timely as well.*
4. *DEI did not consider strategic alternatives to a phase out of its coal plants during the 20year forecast period. Such alternatives could include diversification of ownership of the plants (e.g., with other regulated in-state utilities, merchants, and third parties) and retrofit of carbon capture onto the existing plants. Nor did DEI evaluate carbon offset options, which could be lower in cost while achieving the same net reduction in emissions, and which could also address DEI's perceived risk.*
5. *ICC identified a number of problems with DEI's modeling that could be improved when DEI prepares its next IRP or considers alternative resource plans. For example, DEI acknowledges it did not consider all transmission expenses associated with integration of renewables in the system nor did DEI consider a scenario in which natural gas prices rose significantly and coal prices did not.*
6. *DEI indicated that its next IRP will reconsider all options. DEI also indicated that it was not limited to the IRP schedule. Should events dictate earlier reconsideration, DEI would*

proceed to do so. DEI made no mention of the legislation-mandated task force referred to as the 21st Century Energy Development Task Force (Task Force). The Task Force is required to do the following: (1) examine and evaluate specified aspects of the state's policies concerning electric generation portfolios; (2) develop recommendations for the general assembly and the governor concerning any identified challenges with respect to Indiana's electric generation portfolios; and (3) issue a report setting forth the task force's recommendations not later than December 1, 2020. ICC believes it would be appropriate for DEI's next IRP to provide adequate time for consideration of the Task Force's recommendations.

Duke Energy Indiana Responsive Comments:

1) The Company does appreciate the value inherent in all of its generating assets.
2) The Company discussed life cycle carbon costs with stakeholders, and it becomes a challenge as the analysis goes deeper and deeper into the supply chain. The Company is open to this perspective, but deciding on a definition that all stakeholders can come to terms with will be needed.
3) Carbon capture and sequestration is considered, but typically screened out due to its cost and the resulting cost per ton mitigated.
4) Diversifying ownership of the coal units would be a way to replicate retiring units, but the end result could be entirely the same, and at considerable cost to negotiate those transactions. For example, a utility could retire 10% of its coal fleet per year or sell 10% of its coal fleet per year and get the same result.
5) Implementing transmission planning into its IRP process is valid, but extremely complicated and the Company is investigating this issue and willing to discuss this issue further.
6) Duke Energy Indiana will consider the outcomes of the 21st Century Energy Development Task Force in the development of its 2021 IRP.

Office of Utility Consumer Counselor

1. *With regard to environmental regulations or concerns, Duke appears to have conducted a thorough analysis of environmental regulations likely to impact its existing and future generating resources. The company's Appendix F was helpful in determining the equipment or measures the company's generating units may have to take in complying with existing environmental regulations.*
2. *The OUCC is growing concerned with the trend of Indiana electric IOUs delaying IRP filings to coincide with the filing of a rate case or a certificate of public convenience and necessity (CPCN) filing. In Duke's case, it waited to file its 2018 IRP until after it filed a new rate case where it introduced projects into the future test year that were allegedly supported by its IRP. However, with the timelines imposed on the Commission, the*

OUCC and intervenors to complete a rate case, the OUCC and Intervenors were unable to consider the Director's report in their analysis of the rate case. This is problematic because the Director's report offers a valuable perspective on how well the utility has considered all relevant factors when planning for future resources. If the utility has neglected to include a key assumption or has biased the results of its IRP as determined by the Director, the Commission should be aware of this in determining whether a utility should receive cost recovery of new utility investment in either a CPCN filing or changing depreciation rates in a rate case. The OUCC is concerned that this is a utility's strategy to deflect any critique for the project or plan for which it is seeking cost recovery by ensuring that the Director's report will not be filed in time for the Commission to take it into consideration whenever making a decision regarding a utility's resources. Utilities should attempt to limit simultaneous filings of IRPs with a request for new construction project or rate case. If a utility is concerned that there is not enough lead time to build the new resource or add to an existing resource, the utility can seek Commission approval to record and defer any pre-construction or planning costs for a project until the IRP comment process is complete and the final Director's report is released. The OUCC has already noted above why this is problematic in the context of a rate case or CPCN filing, but it is also problematic because a utility could use an active filing before the Commission to avoid questions, comments, or discussion of a relevant topic at an IRP stakeholder meeting for fear of violating ex parte rules due to a Commissioner or Commission staff attending the meeting.

3. *The OUCC is concerned with Duke hardwiring in renewable energy. All resources should compete equally in the modeling process. The OUCC is aware the general market price for renewables is favorable and sees no reason to burden the modeling process.*

Duke Energy Indiana Responsive Comments:

The Company appreciates the OUCC's participation in the stakeholder process and comments on how the IRP addressed environmental regulations.

The comments about the timing of the IRP and rate cases does prompt a larger question about the timing of multiple regulatory timelines and other periodic business activities. The Company is willing to discuss this matter going forward.

Regarding the hardwiring of renewables, the Company modeled optimized portfolios for each of the five scenarios considered, each of which resulted in a different profile and level of renewable additions. The question then becomes which future will come to fruition. Since this is unknown, the Company developed hybrid portfolios that made use of the lessons learned from the optimized portfolios and in doing so one could say that the renewables were hardwired in the hybrid portfolios, but that simply reflects the composition of the hybrid portfolios.

Industrial Group:

Given the significant financial impact of the Edwardsport plant, Duke should have conducted an IRP that considered its options with respect to Edwardsport more broadly. In particular, Duke should be required to conduct IRP modeling in the following separate scenarios:

a. Conduct the IRP analysis in a manner that permits the model to determine whether continuing to run Edwardsport as a syngas unit, running Edwardsport as a natural gas unit exclusively, or whether retiring Edwardsport is the most economic option (as well as the recommend timing of any such changes). In evaluating the option to run Edwardsport as a natural gas unit only, the model should include only the costs necessary to run Edwardsport as a natural gas unit, and remove other costs (including removing labor and other O&M costs, post in-service capital costs, and other costs that are only necessary if the plant is run on syngas).

b. Conduct an IRP that models O&M and outages based on Duke's actual experiences with Edwardsport. Though Duke projects that O&M will decrease in the future, Duke's track record with Edwardsport is that actual costs (whether they are capital costs or O&M costs) have been consistently significantly higher than Duke's projections.

c. Conduct IRP modeling that evaluates the possibility of running Edwardsport as a natural gas unit.

Duke Energy Indiana Responsive Comments:

a) As stated in the Duke Energy Indiana rate case testimonies of Park, Pike and Gurganus, the Edwardsport IGCC is still in the process of being optimized with operations having improved considerably with a focus on costs being the next priority. The Company is open to discussing this issue further with stakeholders.
b) Historical data is not always the best source for forecasted data. The Company believes that historical data is an important part of forecasting and uses it in the development of its O&M forecasts. Historical data is weighted more for process that have achieved steady state behavior.
c) See response to item a.

Joint Commenters:

DEI's 2018 IRP fails to adequately incorporate the impacts of climate change into its resource planning based on current best practices. In addition, Joint Commenters raised the following main categories of concern:

• Duke applies its reserve margin requirement to all months of the year rather than just the MISO coincident peak (Section 3.1);

• Duke requires the model to self-supply capacity in all months of the year rather than purchasing from other utilities (Section 3.2);

• Duke tries to solve the problem of unrealistic market purchases by imposing a hurdle rate on purchases, but this is a band-aid on the problem and an imperfect one at that (Section 3.2);

• Coal unit retirements are unnecessarily limited to 2024 or later and only to Duke's existing pulverized coal units (Section 5.2);

• Duke's energy efficiency bundles are unreasonably high in cost and suffer from other flaws that prevent the selection of the optimal portfolio of energy efficiency measures (Section 3.5);

• Capital costs for renewables are higher than is justifiable (Section 5.1); • Capital costs for combined cycles are lower than is justifiable (Section 5.1);

• Wind and battery storage is limited to 250 MW per year without basis (Section 3.4);

• A $5/MWh adder for new solar resources is based on a study for Duke's Carolina service territory that has no relevance to Indiana and was rejected by the North Carolina Utilities Commission (Section 3.4);

• Duke refused to provide copies of the System Optimizer and Planning and Risk model manuals except in person despite having done so in its prior IRP (Section 1);

• Duke did not deliver the modeling files required for the Technical Appendix in Indiana's IRP rule (Section 1); and

• Duke's pre-IRP stakeholder process was frustrating in a number of respects including the tendency of Duke to push stakeholder recommendations off to the next IRP filing (Section 2.1).

Duke Energy Indiana Responsive Comments:

The Company responded to the Joint Intervenors report on the IRP in the Rate Case Testimony of Park and in its pending Energy Efficiency filing. Please refer to that testimony for Duke Energy Indiana's responses.

IV. Conclusion

Duke Energy Indiana's IRP process, assumptions, and methodologies were reasonable, especially in light of the fact that the IRP is a planning document meant to provide insights into the future rather than acting as decisional document. Duke Energy Indiana appreciates the opportunity to address comments provided by Dr. Borum and stakeholders to further the understanding of the Company's 2018 IRP.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing reply comments were mailed electronically this 2nd day of April, 2020, to the following:

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Dated this 2nd day of April, 2020.

Elizabeth A. Herriman