Appendix B

COMMENTS OF THE COUNCIL FOR THE NEW ENERGY ECONOMICS REGARDING EVERGY'S INTEGRATED RESOURCE PLAN STAKEHOLDER MEETING HELD ON JANUARY 22ND, 2021

Submitted February 5, 2021

The Council for the New Energy Economics ("NEE") appreciates the opportunity to provide comments regarding Evergy's stakeholder workshop held on January 22, 2021, as part of the integrated resource planning ("IRP") process established by the Kansas Corporation Commission ("KCC") in Docket No. 19-KCPE-096-CPL. The established IRP framework allows stakeholders to comment on presentations from Evergy. NEE believes this framework helps facilitate a collaborative stakeholder process, improves modeling analysis, and better informs decision-makers.

A. Transparency

As NEE recommended in the comments submitted to Evergy on December 31, 2020, collaboration and transparency between the utility and stakeholders are essential to ensure the best outcome for an IRP process. During the meeting held on January 22, 2021, NEE requested that several documents, including the Demand Side Management ("DSM") Market Potential Study ("MPS"), the Electrification Market Potential Assessment, and the Behind the Meter ("BTM") Solar and Storage Forecast reports be provided to stakeholders. Following the stakeholder workshop, Evergy provided this information to stakeholders by filing the studies in the open docket at the KCC. NEE appreciates Evergy sharing this information as it will help stakeholders gain a better understanding into some of the important model inputs related to DSM potential, the electrification load forecast, and the impact of BTM solar and storage.

It is clearly beneficial that Evergy is investing in these studies to better characterize these resources. The overall IRP product will undoubtedly be improved. NEE recommends that additionally in the future, Evergy incorporate development of these reports as part of stakeholder engagement. For example, stakeholders engage with the Indiana utilities prior to finalization of the reports, thereby addressing stakeholder suggestions and concerns before the finalization of the report and improving confidence and buy-in into the study results.

B. Demand Side Management

Based on the information presented to stakeholders, it is NEE's understanding that Evergy will be modeling DSM for the Kansas service territories based on an extrapolation of information from the MPS conducted for the Missouri service territories. Evergy presented information that the energy efficiency ("EE") levels for Kansas will be based on the Missouri Realistic Achievable Potential ("RAP") level for EE, and the Demand Response ("DR") levels for Kansas will be based on the Missouri DR RAP- level. NEE acknowledges and appreciates that Evergy is modeling new EE and DR resources for the Kansas service territories, since these resources are an important component of a cost-effective energy portfolio. However, in the future, it would be helpful to have Kansas-specific EE and DR studies.

We have just begun the process of reviewing Evergy's DSM potential study and do not yet have feedback on the study itself. However, we do have some feedback to offer about how to model DSM in IRPs and some questions for Evergy.

1. Adding an Additional Level of EE. It is very likely the case, as Evergy stated during the presentation, that starting EE programs in its KS service territories will be cost-effective. Given that, it would be very helpful if Evergy could model a second, higher level of EE to evaluate its cost-effectiveness. NEE strongly recommends that Evergy extrapolate the

Missouri study results for a Kansas Maximum Achievable Potential ("MAP") level also. This will allow KCC stakeholders to evaluate the optimal, potential ratepayer savings and economic benefits available in Kansas.

2. Accounting for Avoided T&D and other Monetizable Benefits. One of the ways in which EE and other Distributed Energy Resources ("DERs") are disadvantaged in integrated resource planning is through the exclusion of a portion of the benefits they provide, including avoided transmission and distribution ("T&D") costs. For example, **Figure 1** shows many of the utility, participant, and societal benefits that EE provides. Because IRP modeling is most akin to a utility or societal view of cost-effectiveness, depending on the jurisdiction, it is those categories of benefits that can be overlooked and should be incorporated in IRPs.

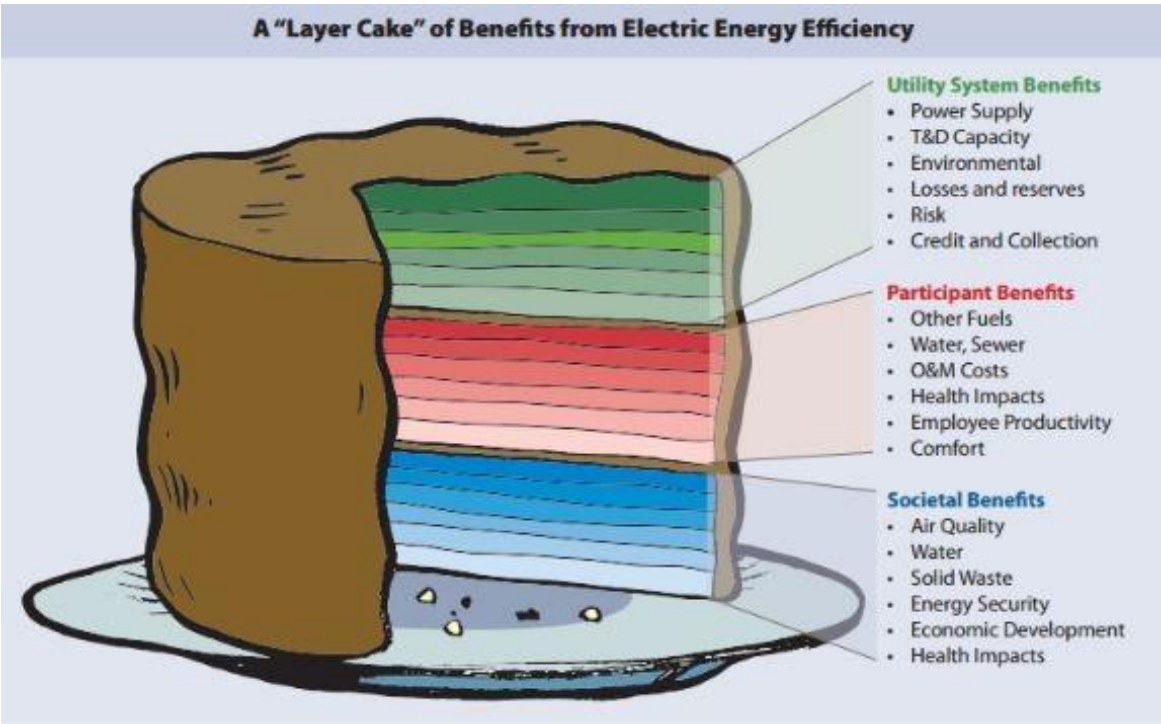

Figure 1. EE Offers a Wide Range of Utility, Participant, and Societal Benefits[1]

[1] Lazar, Jim and Ken Colburn. "Recognizing the Full Value of Energy Efficiency." September 9, 2013. Available at: https://www.raponline.org/knowledge-center/recognizing-the-full-value-of-energy-efficiency/

Where an IRP allows EE to reduce both dispatch and new capacity build, the Power Supply benefits are captured. While Power Supply typically constitutes the majority of the utility benefits, the avoided T&D costs are often substantial as well. Though most IRP models do not have a way to explicitly include avoided T&D costs, these can be accounted for as a reduction in modeled EE program cost. Avoided T&D benefits will likely apply regardless of the primary cost-effectiveness test (total resource cost test, utility cost test, societal cost test, etc.) that Kansas would use for screening EE programs and therefore it makes sense to include them in the IRP.

3. Accounting for Line Losses. Most market potential studies define potential at the meter, *i.e.*, as a reduction in sales. However, IRP modeling is conducted at the generator. So, in order for EE to be correctly accounted for in an IRP it must be grossed up to account for line losses between the generator and meter. Oftentimes, EE savings are grossed up based on an average line loss rate, *e.g.*, 7 percent. However, in actuality, energy efficiency saves energy on the margin, not on average, and therefore the marginal line loss rate should be applied for more accurate modeling. As the Regulatory Assistance Project puts it,

> There are two types of losses on the transmission and distribution system. The first are no-load losses, or the losses that are incurred just to energize the system – to create a voltage available to serve a load. Nearly all of these occur in step-up and step-down transformers. The second are resistive losses, which are caused by friction released as heat as electrons move on increasingly crowded lines and transformers… Losses increase significantly during peak periods. The mathematical formula for the resistive losses is I^2R, where "I" is the amperage (current) on any particular transformer or distribution line, and "R" is the resistance of the wires through which that current flows. While the "R" is generally constant through the year, since utilities use the same wires and transformers all year long, the "I" is directly a function of the demand that customers place on the utility. Thus, resistive losses increase with the square of the current, meaning losses increase as load increases.[2]

[2] *See* https://www.raponline.org/knowledge-center/valuing-the-contribution-of-energy-efficiency-to-avoided-marginal-line-losses-and-reserve-requirements/ at pages 3 and 4.

Therefore, the loss reduction benefit of EE also increases as load increases. A utility with average line losses of 7 percent could have peak line losses of 20 percent or more. To apply losses correctly to EE savings information about when lines are heavily loaded will be needed, which may be unique for each utility. This is a very important benefit of EE that should be captured in Evergy's modeling.

C. Electrification Scenario

NEE has concerns about how Evergy is planning to model the electrification scenario load forecast developed in the 1989 Electrification Market Assessment. Evergy stated it will be modeling the electrification load forecast under all of the carbon price and natural gas price scenarios. If Evergy models the electrification scenario in this manner, it is possible that the result will be contrary to the usual intended policy impetus supporting beneficial electrification, which is to electrify certain end-uses to help reduce carbon emissions. Furthermore, widespread electrification would likely occur as a complementary policy regulating greenhouse gas emissions and a failure to reconcile the two could put Evergy in the position of selecting a plan with unrealistically high and therefore costly carbon emissions, simply because of the projected impact of electrification.

NEE recommends that Evergy model the electrification scenario with an explicit limit on carbon emissions, rather than relying on the carbon price to drive the carbon reduction necessary to be modeled with a beneficial electrification scenario. Otherwise, electrification is modeled unrealistically separated from the public policy that would make that electrification happen. Slide 28 of Evergy's presentation illustrates the impact that the top technologies would have in adding to Evergy's load and there is a significant increase starting in 2028 – 2029. If there is no carbon emissions limit placed in the modeling, then this could lead to a counterintuitive result that

Evergy's carbon emissions should increase in order to serve this "decarbonizing" load. We are concerned that this will be Evergy's modeling result case because without capacity expansion optimization modeling runs, the carbon price has no influence on the selection of resources in any given portfolio. With Evergy's methodology of hand-picking resource plans, the high electrification forecast's impact is only to influence the dispatch of units, thereby influencing the NPVRR results.

Additionally, based on the information provided to stakeholders, it appears that the 1898 Electrification Assessment evaluated overall electrification potential in Evergy's service territory and the electrification load forecast was developed based on one level of potential. It may be beneficial for Evergy to explore different electrification pathways in future IRPs that look at varying levels of technology adoption in order to produce an electrification load forecast that is representative of those different levels (such as a low, mid, and high case).

D. Behind the Meter Solar and Storage

NEE appreciates Evergy providing the BTM Solar and Storage Forecast Summary Report developed by ICF to stakeholders. NEE is supportive of Evergy's approach to take what is effectively a "utility cost test" view of the costs of BTM solar and storage. Ideally, BTM solar and storage could be treated as any other optimizable DER and assigned avoided cost benefits (like T&D benefits) just as would be assigned to EE. It is NEE's understanding that Evergy intends to model the BTM solar and storage by re-running the NPVRR analysis for each alternative resource plan with the reduced load impact from the high BTM solar and storage forecast. We believe that this is a reasonable first step approach to isolate the impact that BTM solar and storage has on the alternative resource plan. However, in order to evaluate whether Evergy should be offering a BTM solar or storage program to its customers, it would need to have a mechanism within its modeling

to back-off other resource additions so that the full potential benefits of BTM resources can be captured. This “avoided capacity” value is most easily captured through the use of a capacity expansion model – a recommendation we made to Evergy in our prior comments.