

COMMENTS ON THE NEW JERSEY INTEGRATED ENERGY PLAN
SUBMITTED TO THE ENERGY MASTER PLAN COMMITTEE, NOVEMBER 15, 2019

About Core Metrics

Franklin Neubauer is Principal at Core Metrics in East Rutherford, NJ. He has fourteen years' experience in energy resource planning, energy modeling and economic research. Franklin's experience began in transportation demand modeling and end-use forecasting for California agencies. In the Pacific Northwest, he provided on-site consulting to Bonneville Power Administration to model energy efficiency policies and impacts to the region. He identified deficiencies in the Christie Administration's Energy Master Plan, and contributed to RGGI program reviews. Franklin is a member of the Association of Energy Services Professionals and has expertise in cost-effectiveness analysis and energy-economic modeling. He has an M.S. in Engineering & Economic Systems from Stanford and a Certificate in Computational Finance from Oregon Graduate Institute.

Integrated Planning and Modeling

I am pleased to submit these comments in response to the October 23, 2019 Notice by the Energy Master Plan Committee requesting feedback on the Integrated Energy Plan (IEP).

New Jersey is just completing its first Integrated Energy Plan using an integrated model developed by a group of consultants. While the IEP process is new to New Jersey, similar planning and modeling efforts have been conducted in other parts of the country since the 1980s, before greenhouse gas (GHG) emissions became a central concern. For six years, I provided consulting support for integrated, electric utility modeling projects in the Pacific Northwest. From that experience, I know that clients and stakeholders bring many preconceptions into modeling exercises such as the one Rocky Mountain Institute (RMI) and Evolved Energy just performed. In addition, stakeholders can fail to learn lessons from the modeling for a variety of reasons. Based on that realization, I am offering comments on the analysis that was done, and on some things that were not done but which would have been constructive.

Planning is regarded as integrated when parts of the energy system and GHG sources normally analyzed separately, like wind, solar, transportation and energy efficiency (EE) are analyzed as an interconnected system. It is important to note that New Jersey routinely outsources energy research through different contracts¹. Outsourcing puts a special burden on the BPU to ensure

¹ Eight contracts are listed in the Draft EMP Appendix, page 98. In addition, Rutgers Energy Institute will study rate impacts. At least 11 organizations and additional colleges are under contract.

overall consistency across its many contracts. Without appropriate guidance, economic assumptions like costs and inflation, and a host of other assumptions might differ a lot between the outsourced studies, and there will often be no way to reconcile those inconsistencies once an outside consultant's work is underway. Consistency across research contracts cannot be outsourced. The RFQ to obtain RMI's services and the RFQ to obtain Optimal Energy's Market Potential Study did not seem to recognize the need for mutual consistency. Fortunately, the Draft EMP seems more alert to this issue, saying the IEP will use results of additional EMP studies "to the greatest extent possible". I would not fault the consultants over this, and consider the issue as something New Jersey needs to fix in the long-term.

The Model and Its Demand-Side Features

Apparently, Evolved Energy used the EnergyPATHWAYS model for its IEP analysis. This model and the related PATHWAYS model have been used to develop decarbonization plans in other states. EnergyPATHWAYS has been reviewed by experts including scientists at NREL.² The model is open-source to promote transparency. For some reason, the model was not identified to New Jersey stakeholders during the webinar.

EnergyPATHWAYS is able to model energy efficiency cost curves³. EnergyPATHWAYS is even able to model cost curves for flexible loads, a capability that led its developers to propose DOE research in 2017. My point is that the model looks quite capable of analyzing demand-side policies for New Jersey, which the consultants did not do in any way that could be useful. I will address this omission and its importance further.

How the Analysis Was Designed

The IEP team worked with stakeholders to identify nine scenarios for modeling, two of which represent different reference cases. Since 2017, New Jersey's clean energy policies have changed considerably due to the Clean Energy Act and the Governor's Executive Orders. I thought it was helpful for the consultants to model two reference cases. The difference between Reference 2 and Reference 1 (the Business as Usual case) illustrates what can be accomplished under existing energy policies that have yet to be implemented. Several policies are included in Reference 2 that were not in Reference 1. It is impossible to disentangle the impacts of these policies using the model results. Based on Evolved Energy's replies to questions during the webinar, it is evident that Reference 2 does not literally implement 2% electric and 0.75% gas savings and corresponding ramps for energy efficiency programs. I am not criticizing the modeling here; however, I am pointing out that the table of input assumptions (slide 14) could mislead stakeholders about how energy efficiency was modeled in Reference 2.

The IEP addressed three overarching questions, one of which was how should we get to New Jersey's goals. The seven scenarios to achieve the goals looked at a wide range of factors and policy decisions driving the cost of achieving the goals. While these scenarios emphasized supply-side concerns like electrification of transportation and buildings and nuclear plant

² See References for NREL/TP-6A20-71500.

³ Sometimes called EE supply curves, this data is comparable to the energy efficiency market potential data developed by Optimal Energy for the BPU.

retirements, at the expense of demand-side concerns like energy efficiency, the analysis was well designed.

Pay More Attention to Electric and Gas Savings in the Analysis

By inviting only a limited group of stakeholders into the June workshop with RMI, the EMP introduced groupthink into the planning process. For years, the focus of New Jersey stakeholders has been on novel aspects of renewables, nuclear costs, and challenges of cutting reliance on fossil fuels. Consequently, there were corresponding scenarios in the IEP. Meanwhile, stakeholders and the BPU have not yet figured out how to move forward with energy efficiency and peak demand reduction programs that are vital to achieving long-term clean energy goals. Those are persistent demand-side concerns. Energy efficiency received inadequate attention in the IEP. A scenario showing delayed EE deployment could easily have been included.

What Evolved Energy called “accelerated efficiency” appears in all seven scenarios to achieve the state’s clean energy and GHG goals. Since energy efficiency appears in all seven scenarios, state agencies and stakeholders are liable to take those savings for granted, which would be an unfortunate mistake. Accelerated efficiency is summarized on slide 14 as installing the “best available technology by 2025” after existing end-use equipment reaches the end of its useful life. Based on my experience modeling energy efficiency policies, I consider this a reasonable approximation for EnergyPATHWAYS to make. However, the IEP report needs to be more explicit about assumptions used in the modeling. Does this mean the scenarios do not permit any lost opportunities to occur? Does this mean that only the incremental cost of EE measures for electric and gas efficiency programs count towards cost? My understanding is that accelerated efficiency depends heavily on assumptions about equipment life. Finally, stakeholders have no way of gauging the aggregate savings on a percentage basis, which would provide context.

Delays Starting EE Programs Would Make These Scenarios Too Optimistic

I have three causes for concern about delays starting the EE programs mandated by the Clean Energy Act. First, the BPU has already delayed its ruling on requirements for new programs from 2019 to spring 2020. Based on the proposed timeline BPU announced in September, the Board will direct utilities to file new EE and peak load reduction programs in spring 2020. Secondly, the utilities have submitted numerous official comments in 2019 pointing out unreasonable expectations the BPU has concerning how quickly utilities can turn around and submit complex EE plans to satisfy new filing requirements. The BPU’s proposed schedule seems to ignore the utilities’ legitimate concerns. Third, through its EE stakeholder processes the BPU is being lobbied to adopt reforms whose earnest supporters fail to realize could delay the launch of programs by months or years. Most stakeholders do not recognize the resources and steps needed to design, plan and deliver cost-effective, large-scale programs. It is vital for the BPU to stick to the spring 2020 date in its proposed timeline, and make clarifying decisions as soon as possible that allow utilities to proceed with their planning concurrently.

In the absence of any IEP scenario to analyze energy efficiency strategies, I used the best available data to estimate the cost to New Jersey of a one-year delay in launching new energy efficiency programs. The energy efficiency potential study conducted by Optimal Energy for the BPU, which concluded in May, was the source of the data. Optimal estimated that net benefits

to New Jersey from a maximum achievable EE potential scenario over the ten-year period 2020-2029 is \$14 Billion (net present value). Using energy savings data and the discount rate from Optimal Energy's final report to the BPU, I was able to estimate that a 1 year delay in launching EE programs would cost New Jersey about \$1.3 Billion (net present value) relying on assumptions from Optimal's analysis. These net benefits come from efficiency programs only, and do not account for electrification of transportation and buildings during 2020-2029. There are reasons to believe this estimate might be high or it might be low; however, without an integrated analysis it is the best estimate that can be made using EMP related data. The large cost of a delay is a big reason why the BPU must stick to its spring 2020 date in the proposed timeline. Acting on schedule will show government accountability, and save money and emissions.

Thank you for the opportunity to submit comments on the IEP. I am available to discuss these comments further, and would like to learn about any steps that EMP staff may take in response to this feedback.

Yours truly,



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References

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