Clean Energy Plan Memo - Utility System Planning and Investment

Question: How do we achieve a certain and continuous utility planning and investment process while meeting the criteria that it is flexible, economically efficient, and adaptable, all while maintaining reliable, affordable, safe, and clean energy?

Summary: Using other states as an example, NC can create a stakeholder engaged electric resource, grid, and system planning process, which is transparent and consistent. Holding a regularly scheduled and regulated process generates trust and certainty for the utility, stakeholders, and State's goals.

Across the country, states are reforming the utility planning process. A larger number of players are joining traditional utilities as essential participants and partners in the resource planning and grid investment process. As states pass legislation with the goal of achieving clean energy targets, keeping costs low, and addressing the challenges of a more decentralized and complex grid, resource planning processes must adapt to incorporate input from a diverse group of stakeholders including traditional utilities, ratepayers, clean energy advocates, and renewable energy developers.

North Carolina's current path, of gradual improvements to a traditional planning process, is not adequate to the challenges of integrating deep renewable and distributed energy penetration, which are, in turn, necessary for the state to achieve Executive Order 80's economy-wide GHG reduction targets. Therefore, it is necessary that North Carolina move to a more holistic, iterative, and transparent planning process that incorporates the market solutions, which are driving energy generation costs down, all while maintaining a clean, reliable, affordable, resilient, and secure electricity system.

In North Carolina, two trends run parallel to those developing nationally. First, there is the tension between the projected Integrated Resource Plan (IRP) put forward by the primary utility and the clean energy goals set by the state government. One factor underlying this tension is the lack of accountability and transparency in the goal-setting of the IRP process, which lacks rules governing stakeholder involvement prior to IRP submission, meaning that North Carolina's primary long-term energy planning mechanism is primarily dictated by the regulated utility.

The second tension surrounds the utility's proposed grid modernization proposal, which was rejected by the North Carolina Utilities Commission (NCUC) in 2018. Many stakeholder groups opposed the plan for a variety of reasons, including: overall cost and ratepayer impact, the utility's proposed cost recovery mechanism, and lack of DER opportunity evaluation. More broadly, the failure of the grid modernization plan in front of the Commission indicated the need for a collaborative planning process that is inclusive of, rather than adversarial to, clean energy and ratepayer stakeholders.

The central tension driving differing visions of grid modernization is whether to rely, as the regulated utilities' submitted in their long-term plans, on natural gas to replace retiring coal capacity or to shift toward clean energy as environmental and ratepayer advocates suggest. Nationally, the electricity generation sector appears to be reaching the "coal crossover" point at which renewables are cheaper than existing coal units in North Carolina[1], raising conflicts between utility concerns of stranded assets and ratepayer concerns over least cost generation. Finally, the regulated utilities' proposed legislative changes to the ratemaking process without a prior stakeholder process once again raises concerns over lack of consensus or public input on potential performance-based ratemaking tools as per national best practice as part of any multi-year ratemaking law.[2]

Addressing the tensions present between multiple parties can be achieved through a more defined stakeholder-centered utility planning process, which could be authorized by either the North Carolina General Assembly or the Utilities Commission. This could entail either enabling legislation which defines the planning and investment process at a high level or result from a separate dedicated stakeholder process resource planning docket opened by the NCUC under existing authority. To align with proven success in other states, the process should initially include an Integrated Resource Plan (IRP) and Integrated Distribution Plan (IDP)[3], ultimately moving towards an Integrated System Operations Plan (ISOP) approach, which combines the often-separate processes of generation, transmission, distribution, and distributed energy resource planning.

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[1] **The Coal Crossover: Economic Viability of Coal Compared to New Local Solar and Wind Resources**, Vibrant Clean Energy, March 2019.

[2] **State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities,** Grid Modernization Laboratory Consortium, U.S. Department of Energy, July 2017

[3] A more comprehensive approach to distribution planning using new tools and techniques to accommodate the increasingly complex and diverse grid that incorporates new components such as DER - See the following report for an in-depth report explaining the components and process: **Integrated Distribution Planning**, ICF International, August 2016

These regulated planning processes should be transparent, consistent, data-driven, and involve stakeholders both in goal-setting and planning phases. Such ISOP plans should be submitted on a regular schedule and include defined tools and outcomes. This includes improved data access for industry and stakeholders, which could come in the form of tools such as hosting capacity analysis, creating market opportunities and investment confidence. Any IRP, IDP, and ISOP requirements could be developed and defined collaboratively by the utility, stakeholders, and the NCUC.

To achieve the state's clean energy goals, utilities must update planning models and assumptions to allow full quantification of the operational benefits of renewable resources and energy storage. Current modeling techniques fail to account for the suite of operational benefits these resources can bring to bear, undervaluing potential benefits and encouraging utilities to rely on past operational practices instead of exploring innovation in electrical systems operations.

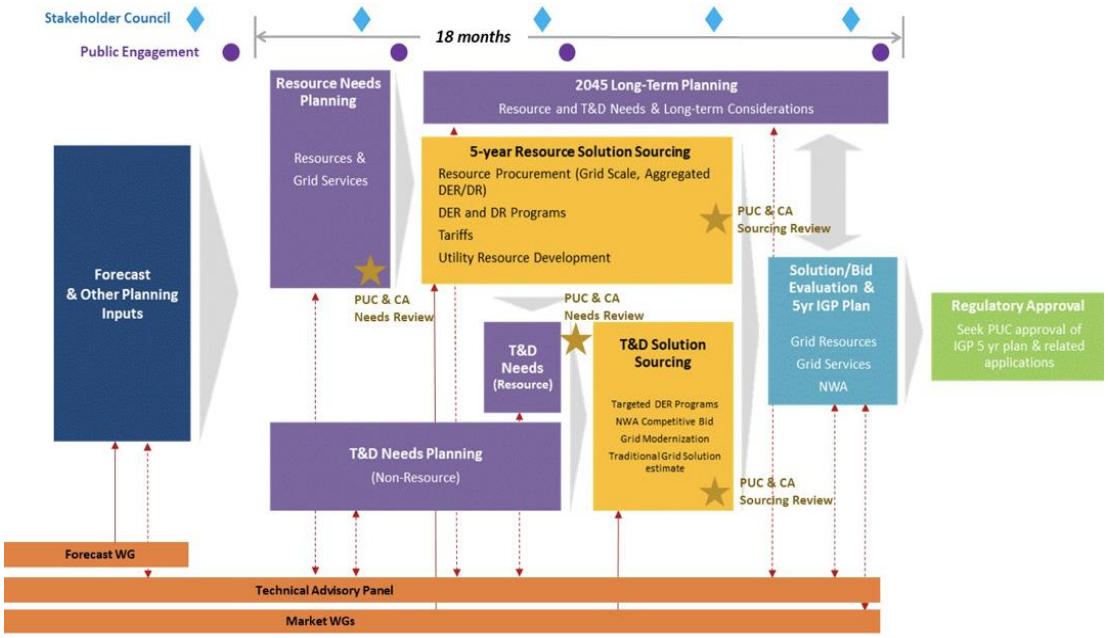

*Figure 1 - Hawaii's Integrated Grid Plan (analogous to ISOP) as an example of the complexity, transparency, and stakeholder engagement (**Integrated Grid Planning Report**, Hawaiian Electric, Maui Electric & Hawai'i Electric Light, March 1, 2018,)*

Fortunately, North Carolina can look to states already developing and implementing holistic planning processes, which balance the goals of the state, utilities, and stakeholders. Some prime examples include Minnesota, Nevada, Hawaii, Colorado, Washington, and California.[4]

Minnesota

Goal: IDP aimed at better incorporating DERs with new and improved modeling/analysis tools

Outcome: Multi-year process now requires the regulated utilities (Xcel Energy) to develop DER growth scenarios for 10 years, evaluate non-wire alternatives, detail DER queue status, and file annual updates on their 5 and 10 year distribution investment plans.

Reference: Docket 15-556

Nevada

Goal: Address distributed resources along with their cost, benefits, financial compensation mechanisms, integration, and barriers to adoption.

Outcome: Distributed Resource Plan proposal including a system load/DER forecast, locational net benefit analysis, hosting capacity analysis, and grid needs assessment, filed every 3 years with the IRP.

Reference: SB 146, Docket 17-08022

Hawaii

Goal: Move to an Integrated Grid Planning (IGP) process to achieve 100% renewables by 2045

Outcome: A planning program which incorporates both distribution and generation planning that will continue to change over time. The IGP includes a capacity expansion model, a substation load and capacity analysis, hosting capacity analysis, and continual stakeholder engagement throughout the 3-year process, producing a 5-year action plan.

Reference: HB 623, Docket 2018-0165

A better defined and inclusive resource planning process can ensure that the needs of diverse grid stakeholder groups are accounted for and that the electric sector is able to do its part first in achieving EO80's economy-wide targets and, long-term, putting North Carolina on the path to a low-carbon future.

[4]We recommend inviting input from representatives of the cited states on how, coming out of the CEP process, North Carolina can transition going forward to a resource planning process which includes the same level of stakeholder engagement and transparency achieved elsewhere.