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November 8, 2022

MEMORANDUM

TO: Council Members

FROM: John Ollis, Manager of Planning and Analysis

SUBJECT: GENESYS Review Process and Preliminary Adequacy Results

BACKGROUND:

Presenter: John Ollis and Dor Hirsh Bar Gai

Summary: Staff has been working towards the 2027 Resource Adequacy Assessment, which will provide the first check on the Council's 2021 Power Plan resource strategy. Part of this work has included a focused effort revisiting assumptions to better understand the operating limitations of the Northwest hydro system to improve modeling in GENESYS.

At the Power Committee, staff will provide another update on all of these efforts, building on to the discussions from previous committee meetings. Specifically, staff will update the Power Committee on the progress of updating hydro operations in GENESYS, focusing on the vetting of the revised limitations and capabilities reviewed with stakeholders and regional experts. Staff will also provide the first look at preliminary results for the adequacy assessment.

Staff is continuing to work on these efforts with a goal of providing a draft final 2027 Resource Adequacy Assessment for committee review and discussion in December and full Council consideration in January 2023.

Relevance: The Council conducts an annual resource adequacy assessment to provide an early look at resource adequacy. The 2027 Resource Adequacy Assessment is the first one that will provide a check on whether the Council's 2021 Power Plan resource strategy continues to ensure an adequate system.

The Council uses the GENESYS model as one of the major tools in analyzing resource adequacy. GENESYS also provides hydroelectric system output to both the AURORA model and the Council's Regional Portfolio Model and was used to validate that the power plan's resource strategy will produce adequate supplies. Because of the critical role that GENESYS plays in developing the Council's power plan, the model was evaluated and enhanced in the lead up to the 2021 Power Plan to improve forecasting reliability as well as to improve its data management capabilities and to make it less cumbersome to use. Staff have been working on model enhancements to address stakeholder concerns and continue to improve Council modeling capabilities.

Background: The Council's 2021 Power Plan was developed during a time of significant change and uncertainty in the power system. The resource strategy and plan recommendations aimed to provide a path forward for an adequate, economic, efficiency, and reliable power supply, while balancing the uncertainty in the road ahead. The Council also recognized that new information could prompt reconsideration of the strategy, and the Council committed to monitoring and evaluating the regional power system and policies as part of plan implementation. This adequacy assessment is one piece of that continued evaluation.

The 2021 Power Plan included a resource strategy with several elements, including:

- Acquire between 750 and 1000 average megawatts of energy efficiency
- Acquire a minimum of 3500 megawatts of renewables
- Examine demand response products that can provide value during ramping periods and offset emissions (specifically time of use rates and demand voltage regulation)
- Expand the use of reserves to improve the utilization of the existing system

Inherent to this strategy are several underlying assumptions. This includes the incorporation of climate change data to inform future resource availability and loads. It also assumes existing transmission capability utilized efficiently is sufficient to implement the resource strategy, noting two main observations. First, that the current transmission system is underutilized and has additional capacity in most hours of the day, despite being limited from a long-term firm contractual basis. Second, as significant resources are added over time more efficient utilization of transmission resources likely will require broad regional coordination on

transmission usage, additional transmission capability or a modified resource strategy.

With respect to GENESYS, the Council redeveloped the model leading up to the 2021 plan. Many of the assumptions were locked in early in the planning time period with not enough time to revisit them during the plan. As staff learned more about the actual system operations it became clear that some of those planning assumptions would need to be refined to better represent the hydro system operations on a project-by-project basis.

During the late stages 2021 Power Plan, there was limited capability and time to make drastic assumption changes in the model. However, it was deemed valuable during the plan to hold a technical workshop to walk through hydro system on a project-by-project basis with regional stakeholders. After the plan, an effort was made set aside time to revisit feedback from stakeholders and assumptions in the model on a more holistic basis to better understand limitations and capabilities of the regional hydro system.

More Info: [GENESYS Technical Conference](#)

[RAAC Technical and Steering Committees](#)