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January 7, 2021

MEMORANDUM

TO: Power Committee Members

FROM: John Fazio, Senior Systems Analyst

SUBJECT: Update on Power Plan needs assessment (ARM)

BACKGROUND:

Presenter: John Fazio

Summary: To ensure that the resource strategy in the 2021 power plan will lead to an adequate supply, the Council's adequacy standard is incorporated directly into the Regional Portfolio Model via the Adequacy Reserve Margin (ARM). The ARM represents the amount of surplus generation above the expected load to cover unknown future conditions, such as extreme temperature events, low river runoff conditions, poor wind and solar generation and generating resource breakdowns. The ARMs are calculated using the Council's GENESYS adequacy model.

At the August 2020 power committee meeting, Council members were briefed on preliminary ARM values based on analyses done with the classic GENESYS model. For the 2021 power plan, however, the Council will use ARM values based on its newly redeveloped version of the GENESYS model, which (among other enhancements) provides a more detailed representation of hydroelectric operations. To ensure that the model's simulated operation appropriately represents real-life operation, an extensive vetting process was undertaken and is nearly complete. It is particularly important to verify that fish and wildlife operating requirements are properly implemented.

Unfortunately, the final vetting process for the redeveloped GENESYS model has taken longer than expected, primarily due to the significant effort required to ensure that the priority of hydroelectric operating constraints is properly maintained. This vetting process may not be completed in time to present final ARM results at this meeting.

Relevance: Through its power plan, the Council is mandated to ensure an adequate, efficient, economic and reliable power supply. Toward that end, the Council adopted a regional adequacy standard in 2011. By using the ARM targets in its planning models, the Council can ensure that future resource acquisitions will be adequate (i.e., will not lead to costly overbuilt systems nor to inadequate underbuilt systems).

Workplan: A.5.2 Related to power supply adequacy assessments

Background: The Adequacy Reserve Margin is the amount of surplus generating capability above the expected load required to maintain an adequate power supply. The ARM thresholds are derived from resource and load data taken from GENESYS studies that produce precisely adequate systems (i.e., they exactly meet the Council's 5% LOLP adequacy standard). The theory is that acquiring sufficient new resource capability to meet the ARM threshold will result in a power system that, when analyzed, will yield a 5% LOLP.