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May 9, 2023

DECISION MEMORANDUM

TO: Council members

FROM: John Ollis
Manager of Planning and Analysis

SUBJECT: Authorization to amend contract C2023-30 with PSR Soluções e Consultoria em Energia Ltda (PSR) for Cloud Computing Support Services

PROPOSED ACTION: Council staff recommends authorization amend the existing contract (C2023-30) with PSR for cloud computing support services in an amount not to exceed \$75,264. This covers the annual server fee (\$30,240) to be renewed in June 2023 and additional cloud computing costs support ongoing usage and enhancement of the GENESYS tool in FY 2023 (\$45,024).

SIGNIFICANCE: The GENESYS model is a key quantitative tool used in the Council's power planning processes. Specifically, the GENESYS model is the primary quantitative tool used by the Council to understand the impacts of changes in the hydroelectric system's operations on the regional power system and to assess resource adequacy.

BUDGETARY/ECONOMIC IMPACTS

With an amendment amount of \$75,264, the total contract budget not to exceed is \$135,504.

BACKGROUND

The GENESYS model is used to assess resource cost-effectiveness, to evaluate capability of resource portfolios to meet system needs, and to provide estimates of the power system impacts of various scenarios. GENESYS is also used to assess the impacts and costs of non-power related constraints on the regional power system, such as timing and flow restrictions at the dams.

The Council previously contracted PSR to redevelop the GENESYS model in order to bring the software code up to current standards and to implement several enhancements. PSR delivered the redeveloped GENESYS model and staff has utilized it in development of the 2021 Power Plan, a hydro operations review and most recently the 2022 Adequacy Assessment. The Council continues to have two contracts with PSR, one of which is for the license and maintenance and the second specifically to support cloud computing. It is this second contract for which the staff is seeking an amendment.

Because of the processing and storage requirements, the Council uses a remote infrastructure that supports GENESYS modeling and development. PSR has an existing remote infrastructure, the PSR Cloud System, which the Council currently utilizes through this contract. The PSR Cloud System employs multiple Amazon Web Service products capable of efficiently running the model, and PSR's Cloud System operates as a pay as you go model, employing an upfront payment method with the cost of each run deducted from the total amount paid and the cost of each run varying depending upon the processing and query times for the model execution as well as the server and storage costs. With this structure, there is not a set termination or expiration date typical of other agreements, rather, staff may continue to execute runs utilizing the remote infrastructure so long as we have sufficient funds to do so.

Due to the timing of contracting and payment, the current contract includes:

1. The annual server fee for the period of June 2022-June 2023. Staff is seeking an additional \$30,240 to the contract to cover server costs for the period of June 2023-June 2024.
2. Cloud computing credits that are essentially "pay as you go" credits to support GENESYS modeling and development. Staff have used most of the cloud computing credits to complete the model enhancement work and adequacy assessment completed earlier in this FY. To continue model enhancement, staff is seeking an additional \$45,024 of cloud computing credits. This will support all anticipated work required for the remainder of this FY, including understanding how to better incorporate the full set of climate change runoff data, better representation of WECC-wide renewable generation uncertainty, and honing hydro constraints/operations in response to suggestions per an ongoing collaboration with BPA staff. While staff anticipates needing all of these credits, it is important to note that any unused credits will be applied to work in FY 2024, including the next adequacy assessment.

Collectively, this request is to amend the budget in the amount of \$75,264 for a new contract not to exceed amount of \$135,504.

ALTERNATIVES

Staff is actively working with PSR on a remote infrastructure that will run the model using limited functionality and alleviate some of the variable costs associated with cloud computing. Staff is also creating a local set up to reduce some long-term cloud computing costs. Neither of these options are currently not in place. The Council could choose to open an account with Amazon Web Services or another cloud computing provider to develop a Council cloud system. However, this would require a substantial amount of staff time and resources to set-up the cloud system and would require the model to be transferred from the PSR cloud to the Council cloud, both of which may adversely impact planning timelines and objectives.