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April 7, 2020

DECISION MEMORANDUM

TO: Council members

FROM: John Ollis

SUBJECT: Contract with PSR Soluções e Consultoria em Energia Ltda (PSR)

PROPOSED ACTION: Council staff recommends authorization to contract with PSR for cloud computing support services and a total contract price not to exceed \$115,000

SIGNIFICANCE: In development of the 2021 Power Plan, Council staff will use the redeveloped GENESYS model as an analytical tool for understanding the impacts of changes in the hydroelectric system's operation on the regional power system and to assess resource adequacy. However, to efficiently run the redeveloped GENESYS model through cloud computing an adequate remote infrastructure is required due to the intensive processing and storage needs of the model.

BUDGETARY/ECONOMIC IMPACTS

Total contract budget not to exceed \$115,000

BACKGROUND

The GENESYS model is used to assess resource cost-effectiveness, to evaluate the effective load carrying capability of variable generation, and to provide estimates of the power system impacts of various potential 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 with PSR to redevelop the GENESYS model in order

to bring the software code up to current standards and to implement enhancements to the model, including improving the simulation of hourly hydro capability, incorporating reserves into an optimized dispatch to reflect the interaction between assignment of reserves and other system capacity obligations; improving market representation to reflect the trade-off between decisions made for economics and adequacy; and, including fuel accounting and forecast error to represent limitations on operators in dispatching the system.

ANALYSIS

PSR recently delivered the redeveloped GENESYS model, and staff will use the redeveloped model in development of the 2021 Power Plan. However, to run the redeveloped model efficiently via cloud computing, an adequate infrastructure is required to support the highly intensive processing and storage needs of the model. PSR has an existing remote infrastructure, the PSR Cloud system, which employs multiple Amazon Web Service products capable of efficiently running the redeveloped model. Therefore, staff is proposing to contract with PSR to utilize its cloud system in running the model for the 2021 Power Plan.

ALTERNATIVES

The Council does not currently have a remote infrastructure in place to support or to efficiently run the redeveloped model. Thus, an alternative would be for the Council to open an account with Amazon Web Services or another cloud computing provider to develop a Council cloud system. This alternative would require a substantial amount of staff time to set-up and maintain the cloud system and would require the model to be transferred from the PSR cloud to the Council cloud. Further, with this alternative, the Council may still need to contract with PSR for their continued assistance in running the model.