SDG&E Comments Regarding Preliminary Policy and Economic Assessments

Initiative: 2020-2021 Transmission Planning Process

1. **All impacts for allowing RAS as an acceptable mitigation need to be considered**

   With much of the mitigation being proposed coming in the form of RAS instead of transmission projects, the cumulative reliability risks will increase. Specifically, CAISO's methodology does not consider the effect of a generation trip RAS on the planned resource stack. To illustrate this issue, consider a peak summer day where resources are scarce (similar to what happened many times this past Summer). If conditions are such that RAS trips generation, the CAISO BA will be short on resources and there may be a risk of load curtailment. This represents an N-1 reliability issue and the result would effectively be moving the transmission issue to balancing/resource issue. The likelihood of such a scenario increases as more RAS solutions are implemented.

   The traditional concerns regarding RAS still apply. There is a higher risk for SOL violation due to increased system complexity and the level of analysis required. Additional post-contingency with RAS operation evaluation/analysis (i.e., prolonged restoration) are typical with RAS. They represent greater potential for unintended consequences or mis-operation. In any system with an abundance of RAS schemes, multiple RAS interactions and coordination requirements will need to be managed.

2. **The locational difference in interconnection costs need to be considered**

   As CAISO includes more renewable resources and storage facilities in the transmission plan, interconnection costs and feasibility should be accurately represented. This includes locational differences, as costs will vary depending on factors such as capacity at the actual interconnection facility and zip code/city. For example, securing a vacant bay position at one of SDG&E's substations continues to be a challenge, as there are very few positions remaining.

3. **ITC implications**

   Due to the high penetration of renewables, potential impact to ITC incentives needs to be understood. For an energy storage project, ITC's are largely dependent on what percentage of charging energy came from renewable resources. As different strategies regarding storage are considered, there may be options that require a project to reduce the amount of renewable energy used to charge in order to support grid reliability. This will decrease the ITC and the resulting increase in revenue requirements from capital costs need to be considered in CAISO's economic analysis of alternatives.

4. **Broader impacts of off-nominal energy storage (e.g. battery) dispatch**

   Expanding the points above, there may be scenarios where batteries are depended upon to support grid reliability. These instances take them off their ideal economic dispatch. The opportunity cost arising from any deviation from the ideal economic dispatch needs to be considered in CAISO's economic analysis of non-wires alternatives to potential transmission projects.

It is also important to remember that battery storage capacity is limited (compared to a wires or longer-duration storage alternative) by its megawatt-hour rating, and grid reliability need may outlast the storage capability. For example, consider two 40MW batteries that have 4-hour storage capability. Under current RA rules, these batteries would count for 80MW of system RA. However, if these are used to mitigate a reliability issue that lasts longer than 4 hours, these batteries would need to be either dispatched one at a time or the simultaneous output of both resources reduced. Thus, depending on how long the reliability issue lasts, there may be less than 80 MW capability even though 80MW were counted towards system RA.

5. Capital costs of storage projects/non-wire alternatives

CAISO made the comment that storage projects and other non-wire alternatives do not have full capital costs considered. SDG&E requests that CAISO clarify this point as all costs, both fixed and variable on a full and equivalent lifecycle basis, need to be accounted for when determining whether a non-wires alternative (such as a storage project) is more or less economical than a potential transmission project.