Update on C3ETP/Fresno Area Reliability Assessment

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C3ETP Stakeholder Conference Call
Overview of Meeting Objectives

- Review of September and October 2009 C3ETP Stakeholder conference calls
  - Determination of need for reliability upgrades in Fresno area in 2014

- Describe Fresno Reliability Transmission Plan Analysis and Projects

- Next Steps
Determination of Need

- In the September and October 2009 C3ETP conference calls the ISO stated that a determination of the timing of need for transmission upgrades was driven by a reliability concern in the Fresno area in 2014.
- The analysis approach taken focused on the energy needs in Fresno from Helms.
- A Helms reliability dispatch model was developed for this purpose (described next).
Determination of Need -- Purpose of Helms Reliability Dispatch Model

- Reliable electric service in Fresno is currently dependent on the availability of Helms generation.
- The availability of Helms generation is dependent on its ability to pump.
- Transmission upgrades are needed in the Fresno area to maintain the ability to pump with Helms and would also reduce the amount of Helms generation that is required for local reliability.
- The point in time that transmission upgrades are required to maintain the availability of Helms for the purpose of serving Fresno load is the need date for reliability upgrades.
Determination of Need – Assumptions in Helms Reliability Dispatch Model

- Hourly model of summer months
  - 2007 – dry hydro generation and load shape
- Model transmission constraints
  - Limitations on pumping
  - Requirements for generation
- Generate only to meet load
- Pump to fill reservoir whenever transmission is available to support pumping and load
Determination of Need for Fresno Load Serving Capability

- In 2014 transmission upgrades are required to maintain the availability of Helms for the purpose of serving Fresno load
- A minimum set of transmission upgrades that would alleviate constraints on Helms pumping and reduce demand for Helms generation dispatch for local reliability purposes has been determined
Fresno Reliability Transmission Projects

- C3ETP studies performed by PG&E and the ISO provide substantial evidence that the most effective method for restoring three Helms pumping capability is the construction of a new 500 kV transmission line into Gregg Substation
  - Line cannot be placed in service by 2014 and likely cannot be in-service until at least 2017
  - Need to ensure that constructing the line would be consistent with the overall comprehensive transmission plan
- ISO performed an in-depth Fresno area transmission planning assessment focused on the interim period between 2014 and 2019
Study Assumptions and Scenarios

- Off-peak Scenarios
  - 1 pump on
    - 2019 load level between the hours of 12:00 AM to 8 AM
    - 60 MW of Kings River generation
    - 4285 MW Path 15 flow
  - 2 pumps on
    - 2019 load level between the hours of 2:00 AM to 6 AM
    - 0 MW of Kings River generation
    - 4425 MW Path 15 flow
Study Assumptions and Scenarios

- **On-peak scenarios**
  - 1050 MW of Helms generation
    - 100% of 1 in 10, 2019 load
  - 700 MW of Helms generation
    - 95% of 1 in 10, 2019 load
  - 500 MW of Helms generation
    - 90% of 1 in 10, 2019 load
  - 100 MW of Helms generation
    - 80% of 1 in 10, 2019 load
Mitigation Plan

- Reconductor Panoche-McMullin 230 kV line to mitigate 14 off-peak and 2 on-peak contingency overloads
- Reconductor Panoche-Helm 230 kV line to mitigate 3 off-peak and 1 on-peak contingency overloads
- Reconductor Helm-McCall 230 kV line to mitigate 3 off-peak and 1 on-peak contingency overloads
- Reconductor McMullin-Kearney 230 kV line to mitigate 9 off-peak contingency overloads
Mitigation Plan

- Reconductor Mccall-Henrietta 230 kV line section to mitigate 10 off-peak contingency overloads
- Reconductor Certainteed-Legrand 115 kV line section to mitigate 3 off-peak contingency overloads
- Replace terminal equipment on Henrietta-Gates 230 kV line section (of Gates-Mccall) to mitigate 4 off-peak contingency overloads
- Replace wave traps and obtain interim 910 Amp temperature adjusted summer emergency rating for Panoche-Gates 1 & 2 230 kV lines to mitigate off-peak overloads
Mitigation Plan

- Add two new contingencies and increase pump dropping for ten contingencies to the Helms pump dropping SPS.
- Obtain interim night time temperature adjusted ratings on 7 transmission lines
- Install local SPS to trip Mccall 115 kV firm load for the Helm-Mccall 230 kV Gates-Mccall 230 kV DCTL contingency to mitigate off-peak overloads
- Install SPS to trip firm load for the Helms-Gregg #1 and #2 230 kV DCTL contingency to mitigate 1 on-peak overload
Next Steps

- The need for a long-term project such as a new 500 kV line will be considered in connection with the ISO renewable transmission planning efforts
  - Information on this process is available on the ISO website
  - [http://www.caiso.com/242a/242abe1517440.html](http://www.caiso.com/242a/242abe1517440.html)
- ISO Management will present the Fresno Reliability Projects to the ISO Board of Governors for approval in March 2010