SDG&E's Remarks for the DOE Congestion Workshop

December 15, 2011

ARE DOE'S 2009 CRITICAL CONGESTION AREAS STILL VALID?

- 2009 Study: "Southern California remains congested, and…it should retain its status as a Critical Congestion Area."
- DOE's 2009 determination was appropriate
- Determination should be revisited for the 2012 congestion study
  - Major new XMSN approved and under construction
    - Tehachapi Transmission Project (under construction)
    - Sunrise Powerlink (under construction)
    - Colorado River-Devers-Valley #2 (approved by CAISO and CPUC)
  - Recent CAISO studies indicate that with addition of Balancing Authority (BA)-approved transmission, remaining congestion in southern California not economic to mitigate
  - CTPG studies suggest existing West of River transfer capability adequate to accommodate significant renewable resource injections in southern Nevada and central Arizona

IS THERE "CONDITIONAL CONGESTION" IN THE WECC?

- Very large renewable resource development potential in the WECC
  - For example, there is over 70,000 MW of generation in the CAISO interconnection queue
  - California's 33% RPS requirement can be met with about 15,000 MW
- DOE needs to scale-back this potential to levels reflecting states' renewable resource requirements, goals and associated timing
- A renewable resource development portfolio that is consistent with states' renewable goals will:
  - Allow a more location-specific evaluation of where and when conditional congestion is likely to exist
  - Enhance the ability to conduct analysis that evaluates whether it is economic to add transmission to reduce/eliminate this conditional congestion

WHAT FACTORS SHOULD BE LOOKED AT WHEN EVALUATING CONGESTION?

- Renewable Integration Requirements
  - The amount and location of new dispatchable generating capacity required to accommodate intermittent renewable resources can affect the location and severity of congestion
- Displacement of Fossil-Fired Generation
  - The amount and location of fossil-fired generation that will be displaced by renewable resources can have significant affects on congestion
  - CTPG's work suggests over 50% of displaced fossil fired generation will be outside California
    - Reduces fossil imports into California
    - Allows more renewable imports
- The amount of distribution-level generation that is likely to be added
  - Generation located close to loads tends to reduce flows on the transmission system
  - Can create issues for the distribution system
- Cost-competitiveness of new renewables versus gas-fired generation
  - If renewables become economically competitive with gas-fired generation, renewable development may not be limited to RPS requirements and goals

WHAT ARE THE OPTIONS FOR MITIGATING "SEVERE CONGESTION"?

- "Severe congestion" is an ambiguous concept
- It is either economic or uneconomic to reduce/eliminate congestion, whether "severe" or not
- The test is whether the life-cycle benefits of adding new transmission (relative to other alternatives) exceed the costs of that transmission. Benefits may include:
  - reducing/eliminating congestion
  - reducing losses
  - enhancing generator capacity value
- Other feasible alternatives could include
  - Out-of-economic-merit-order generator redispatch
  - Contingency based generation tripping/controlled load drop
  - Expanded demand response programs
  - Strategically located new generation (including incremental distributed generation)
- If the benefits of new transmission do not exceed the costs of the transmission, then another alternative is better and should be pursued

WHAT ARE THE CONSEQUENCES OF CONGESTION?

- In a well-designed and operated market, congestion has economic consequences but does not affect grid reliability
  - In the CAISO, congestion is managed through the exercise of bids submitted by market participants
  - Congestion management protocols are specifically designed to ensure grid operations are reliable when desired grid uses exceed grid capability
    - Generation will be redispatched as necessary to mitigate potential contingency-based overloads that could occur based on the desired griduses
  - Environmental constraints can be reflected in the bids submitted by market participants
    - e.g., a generator subject to emission penalties for operating above certain levels, would submit very high-priced bids for increasing output in order to manage congestion
    - Similarly, a generator that has must run requirements (e.g., downstream water requirements) ,would submit very low-priced bids for decreasing output in order to manage congestion

IN PREPARING 2012 CONGESTION STUDY, WHAT DATA SOURCES SHOULD BE LOOKED AT?

- Column Ten of Table 71 in the WECC Board-approved September, 2011 "*Ten Year Regional Transmission Plan, 2019 Study Report, TEPPC 2010 Study Program.*"
  - Assumes 12,000 gWh of renewable generation potential is added in specific states outside of CA
  - Results indicate whether adding proposed interstate transmission would reduce congestion by enough to offset the costs of the new transmission
- CAISO's recent annual reports (reviews actual congestion on CAISO grid)
- CAISO's December 8, 2011 presentations describing congestion analysis and evaluating whether congestion is economic to reduce/eliminate with new transmission
- California Transmission Planning Group (CTPG) studies indicating locations where congestion could arise
  - Unlikely on West of River path
  - Possibly on Path 15 and Pacific AC Intertie
  - CTPG's studies are "snapshots" so do not provide any indication of the economic consequences of potential congestion