



California ISO

2018-2019 Transmission Planning Process

Increased Capabilities for Transfers of Low Carbon Electricity  
between the Pacific Northwest and California  
Informational Study

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Stakeholder Call

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ISO Public

## Background and Objective:

- CEC and CPUC issued a letter to CAISO \*
- A informational special study is included in the 2018-2019 TPP
- Evaluating options to increase transfer of low carbon electricity between the Pacific Northwest and California
- Assess what role AC and DC interties can play in displacing generation whose reliability is tied to Aliso Canyon.

\* <http://www.caiso.com/Documents/CPUCandCECLettertoISO-Feb152018.pdf>

## Study Scope:

- The impact of the followings on Increased Capabilities for Transfers of Low Carbon Electricity between the Pacific Northwest and California, will be evaluated:
  - Increase transfer capacity of AC and DC interties
  - Increase dynamic transfer limit on AC interties
  - Automating manual controls on key BPA infrastructure
  - Assigning RA value to firm zero-carbon imports or transfers

## Study Horizon:

- The study will be done for a 10 year horizon
- Short term
  - Utilizing the existing system capability under favorable conditions
- Long term
  - Review resource availability in Pacific Northwest in the long term that could be utilized with increased transfer capability
  - Evaluate alternatives to increase the AC and DC intertie capacity

## Study Assumptions:

- Near term and long term horizon
- Applicable standards
- Study area includes WECC paths and the network to transfer power to/from paths
- California Load forecast will be based on 2017 IEPR
- California Generation forecast based on Default Scenario or 42 MMT Scenario
- The latest load and generation forecast for other entities will be used in the study.

## Study Scenarios in Near Term:

- Favorable conditions in Pacific Northwest for N-S flows:
  - Expected in the spring season
  - More generation comes from southern PNW system
  - Lower load in central and southern Oregon
  - Westbound flow on Hemingway – Summer Lake
- South to North flow
  - High solar generation in California
  - Less generation in the south PNW system
  - Higher loads in central and southern Oregon
  - Eastbound flow on Hemingway – Summer Lake

## Study Scenarios in Long Term:

- Analyze availability of excess hydro resources in Pacific Northwest system to either provide energy or resource shaping to California.
- Under resource shaping scenario, solar power will be transferred to PNW system during the day and hydro power will be transferred to California during evening ramp.
- If production simulation results determines that higher capacity on AC and DC interties are required beyond existing path rating, snapshots to test alternatives to increase the capability will be developed.

# Study Methodology



## Increase the Capacity of AC and DC Interties

- Review Common Corridor Contingency on COI. Conditionally credible P7 contingency versus P6 contingency.
- Review existing congestion due to physical or market limitation (Day Ahead vs. Real Time)
- In the short term
  - Utilizing favorable conditions in PNW by increasing COI limit to around 5100 MW in the N-S direction
  - Addressing PDCI operational limits in the S-N direction
- In the long term (If production simulation indicated increased intertie capacity was required)
  - Increase PDCI rating
  - Increasing AC intertie capability, such as greenfield projects

# Increase Dynamic Transfer Capability (DTC)

- DTC is the amount of within-hour change in power flows a system can tolerate over short periods of time (i.e. five minute) without causing an unacceptable voltage excursion or some other adverse system condition.\*
  - BPA currently limits the DTC on COI to 400 MW. The limit may increase in near future to 600 MW.
- Identify market needs for increased DTC
- Develop and assess alternatives to increase the DTC
  - Leveraging real-time voltage stability analysis
  - Adding voltage support
  - Assess impact and use of BPA synchrophasor RAS

\* [https://www.bpa.gov/Finance/RateCases/BP-18/Meetings/BP-18\\_TxRateCaseWorkshop\\_20160713.pdf](https://www.bpa.gov/Finance/RateCases/BP-18/Meetings/BP-18_TxRateCaseWorkshop_20160713.pdf)

## Control Automation on PDCI

- Determine the market needs and the potential reliability and ramping benefits of the intra-hour scheduling on PDCI
- Determine the required MW of intra-hour scheduling
- Discussions with facility owners to determine the control upgrades/automation required to facilitate intra-hour scheduling on PDCI.
- Evaluate if there are any reinforcements required in the rest of the system to accommodate intra-hour scheduling on PDCI.

## Assigning Resource Adequacy Value to Import

- Discussions with CEC/CPUC is underway to further define the scope
- Explore the maximum annual expected Northwest hydro import capability of the California ISO grid to estimate an upper bound on avoided GHG emissions assuming that RA/RPS counting criteria are not limiting
- Extent to which system capacity and flexibility needs can be met by increased utilization of existing capability and potential increased capability
- Explore if this changes gas retirement headroom

## Next Steps

- Comments are due on 4/25/2018
  - Submit comments to [RegionalTransmission@caiso.com](mailto:RegionalTransmission@caiso.com)
- Final scope to be posted on 5/1/2018
- Preliminary results presentation: November 16, 2018.
- Final results: January 31, 2019
- Final results presentation: February 2019 stakeholder meeting
- Final report: March 2019 final board-approved 2018-2019 Transmission Plan

# Questions

**Your comments and questions are welcome.**

For written comments, please send to: [RegionalTransmission@caiso.com](mailto:RegionalTransmission@caiso.com)

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