



IRP OOS Resource & Transmission Assessment



CPUC Energy Division
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Overview

- Out-of-state resources, for example, New Mexico and Wyoming wind, could provide resource diversity to California's current solar-heavy renewable development strategy.
- Despite the likely long-term (post-2030) need for resource portfolio diversity, California LSEs have not committed to building large, high voltage transmission lines to access high-quality resources from remote areas of the Western United States.
- Long transmission lines, and large-scale resources that would be sent over the lines, typically take 8-10 years to plan, permit, and construct, and carry some amount of development risk.
- The IRP analysis should utilize available data to provide high-quality information (risks and benefits) to decisionmakers to inform whether procurement of out-of-state resources should be pursued, and if so, on what timeframe and at what scale.

Objectives - 1

- Recognize in the IRP process that OOS resources and associated transmission are fundamentally different than in-state resources
 - Different stakeholder risks
 - Longer lead times
 - Higher costs and risks
- What OOS resources are picked under different sensitivities?
 - Are OOS resources/transmission being picked in the IRP?
 - Under what circumstances are OOS resources being picked by the IRP?
 - How much OOS resources are being picked up?
- What are the risks associated with the projects?
 - Project failure
 - Significant delay
 - Reliability risks in case of delay/failure
 - What is the replacement?

Objectives - 2

- Update/refine OOS resources' and transmission representation in RESOLVE
 - Costs
 - Schedule of availability
 - Resources being accessed
 - Permitting status/risks associated
- RESOLVE can evaluate some quantitative metrics, but not all (detailed metrics on congestion relief, benefits in EIM etc.)
- RESOLVE cannot evaluate qualitative metrics (e.g., local job creation)
 - Gather information from LSEs and developers seeking information that could be used to refine RESOLVE assumptions on OOS transmission
- Goal is to understand when OOS resources are picked.
 - OOS-specific sensitivity analyses

Many Possible metrics can be used for OOS transmission (RESOLVE can check some quantitative ones)

- Direct to CAISO/Ability to use existing headroom
- Resources accessing
- Potential to export during overgeneration
- Regulatory status (should it? – what about generics then?)
- Need for intermediate transmission?
- Under EDAM, will any of these lines look more favorable?
- Most resilient to uncertainty (what are salient uncertainty drivers here?)
- Resource diversity benefits (compared to current and projected CA energy mix) – WY and NM wind
- Congestion relief
- Flexibility in transmission usage?
- Transmission benefitting from/impact on Western coal closures?
- Low barriers to entry
- Taking advantage of any tax credits with the in-service date?

Historical IRP Assumptions & Findings

- Assumed cost of new transmission in both modeling cycles
 - Costs range from \$29-129/kW-yr
- 2017 IRP RSP did not include OOS resources on new transmission
 - These resources were not made available in the core runs due to uncertainty in the cost and feasibility of the required transmission
 - Sensitivities included:
 - 3,000 MW of forced in OOS (WY+NM) wind in 2026, indicating positive value in a 30 MMT GHG target scenario – informational only
 - A 32 MMT sensitivity allowed new OOS transmission to access up to 4,250 MW of NM and WY wind only – Transmitted to CAISO in 02/2019 for as TPP policy-driven sensitivity portfolio
- 2019 IRP made available 3,000 MW of OOS resources on new transmission out through 2045 (1.5 GW to NM and 1.5 GW to WY) in core cases
 - 46 MMT Portfolio: 606 MW of NM wind selected on new transmission in 2030
 - 38 MMT Portfolio: Includes maximum amount for new and existing transmission by 2030
 - 2000 MW of NW/SW wind on existing Tx
 - 3000 MW of WY/NM wind on new Tx

OOS transmission template

- Goal: Collect data on OOS transmission projects under consideration by developers/LSEs so that a generic version of the line, the mix of resources they are delivering, and their costs are represented in RESOLVE
 - Informed representation of OOS transmission line costs, characteristics, lead-times
 - Informed representation of OOS transmission risks (through RESOLVE sensitivity analyses)
- Template has 2 tabs:
 - Transmission (Transmission project characteristics)
 - Resources (Resources being delivered by the transmission project)

Schedule

| Action | Due Date |
|--------------------------------------|------------|
| Release of materials for MAG Webinar | 04/09/2020 |
| Submittal of public questions | 04/13/2020 |
| MAG Webinar | 04/15/2020 |
| Release of final data template | 04/17/2020 |
| Submittal of completed data template | 05/01/2020 |