



California ISO

Los Angeles Basin Black Start Service Request for Proposal

May 17, 2021

Stakeholder Web Conference

Reminders

- This call is being recorded for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO permission.
- Calls are structured to stimulate an honest dialogue and engage different perspectives with the expectation that stakeholders have read the meeting material.
- Please keep comments friendly and respectful.
- We encourage stakeholders to submit questions via the Webinar chat feature.
- If time permits, verbal questions/comments will be addressed and time limits may be used to ensure we hear from all stakeholders.
- Please refrain from repeating or reiterating what has already been said so that we can manage the time efficiently

Topics

- Cost Allocation
- Area of Consideration
- Selection Factors and Evaluation Criteria
- Black Start Resource Requirements
- Facility Information
- Individual Unit Data
- Analysis Methodology
- Compliance Criteria

Procurement of and cost allocation for black start capability has evolved in the CAISO balancing authority area

- CAISO has traditionally secured black start from utility owned or contracted generation under agreements with a \$0 reservation fee
 - Utility retail bundled customers pay costs
- CAISO tariff changes approved in 2017 revised cost allocation rules to facilitate black start agreements with generators that involve new capital investment and operating costs
 - Generator owner files agreement with FERC reflecting cost of service rates
 - Costs are designated as reliability services costs under the CAISO tariff and allocated to the PTO whose area the generator is located
 - Costs are recovered by the PTO pursuant to PTO's reliability services tariff

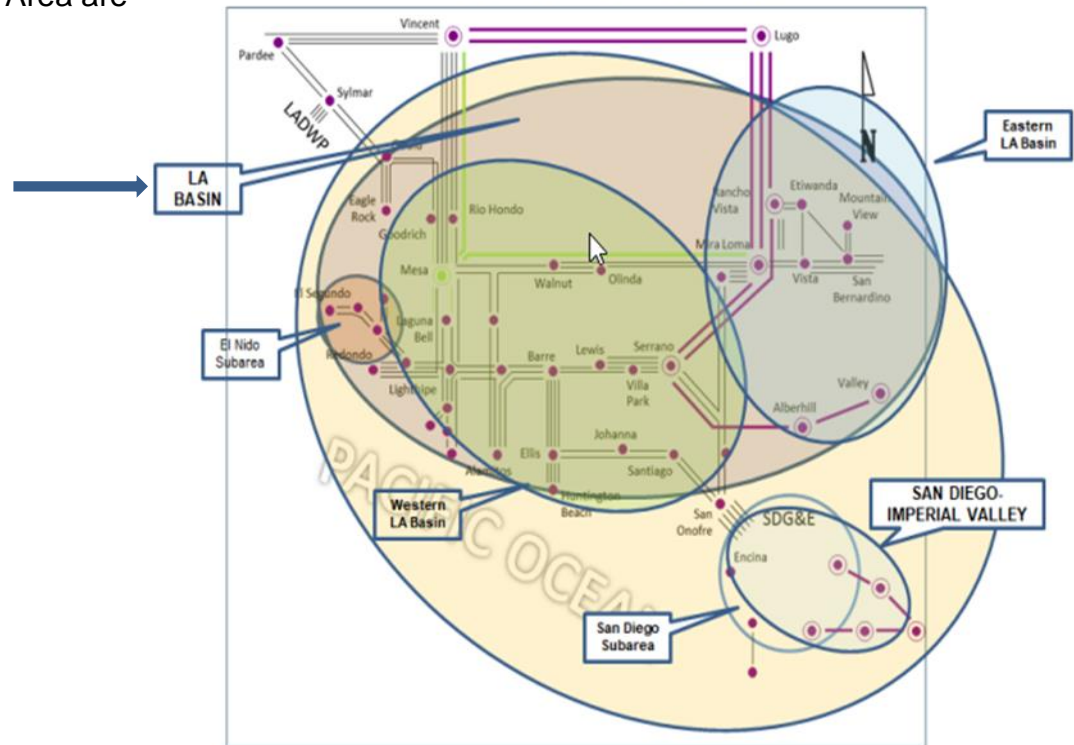
Geographic Area

LA Basin LCR Area Diagram

The Substations that delineate the LA Basin Area are

- San Onofre is in San Luis Rey is out
- San Onofre is in Talega is out
- Mira Loma is in Lugo is out
- Rancho Vista is in Lugo is out
- Eagle Rock is in Sylmar is out
- Gould is in Sylmar is out
- Mira Loma is in Vincent is out
- Mesa is in Vincent is out
- Rio Hondo is in Vincent is out
- Devers is in Red Bluff is out
- Mirage is in Coachella Valley is out
- Mirage is in Ramon is out
- Mirage is in Julia Hinds is out

Figure 3.3-87 LA Basin LCR Area



Geographic Area

- Goal is to create multiple stable 230kV islands in the Los Angeles Basin for faster system restoration
- Generating resources that are not located within the defined geographic area may submit a proposal provided that they can meet the technical requirements of energizing a bus and establishing an island in the LA Basin 220kV system

Selection Factors and Evaluation Criteria

- Calculated time to energize 220kV bus in the LA Basin
- Calculated switching steps to first potential target unit
- Examples of technical ability to meet restoration requirements
 - Real and Reactive Power
 - Protective Relaying
 - Ramping
- Restoration Flexibility
- Locational Diversity
- Commencement/ In service date of black start
- Costs
- Probability of completing contract

Black Start Resource Requirements

- Must be able to satisfy the NERC definition of Blackstart Resource

“ A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for Real and Reactive Power capability, frequency, and voltage control, and that has been included in the Transmission Operator’s restoration plan.”

Black Start Resource Requirements

- Must be able to supply own startup power
- Must serve own plant load
- Must be able to modify protective relay settings to meet system requirements during a black start event.
- Must be able to operate for 48 hours continuously
- Must be able to energize dead transmission bus within 3 hours

Facility Information

- Interconnection Voltage and Location
- Type of unit - Fuel
- Operational Characteristics and Limitations
- Single Line
- General Black Start restoration procedures
- Estimated dead bus restoration time
- Facility Reliability

Individual Black Start Unit Data - Modeling

- Electrical Characteristics
- Transformer Impedances and Tap settings
- Tie Line impedance
- Generator Impedance
- GE PSLF models
 - Steady state
 - dynamic

Analysis Methodology

- Technical
 - Validate submitted data
 - Map resource and run preliminary steady state analysis.
 - Determine switching requirements/steps to energize 220kV bus and potential target unit.
 - Analysis of dynamic requirements; MW and MVAR capabilities, fault current availability, frequency regulation, ability to energize cranking paths, voltage regulation, operational deadbands.
 - Consideration of restoration flexibility
 - Consideration of locational diversity

Analysis Methodology

- Commercial/ Economic
 - Cost of service requirements
 - Capital Costs
 - Operating costs
 - Schedule for implementation
 - Commencement date
 - Likelihood of completing contract

Compliance Criteria

- EOP-005-3
- CIP-003 through 009
- CAISO Black Start Resource Testing Requirements, OP-5630

Next Steps – Request for Proposal Schedule

- Issue Black Start Request for Proposal – May 17
 - Proposals Due (60 Business Days) – Aug 11
 - ISO proposal validation (~10 Business Days)
 - Requests for clarification (~10 Business Days)
 - ISO evaluation (~75 Business Days)
 - Notify applicants and post final report
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- Please submit questions to the Black Start Mailbox at:
BlackStartCompetitiveSolicitation@caiso.com