Western Los Angeles Basin Black Start Service Request for Proposal

March 1, 2022

Stakeholder Web Conference

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

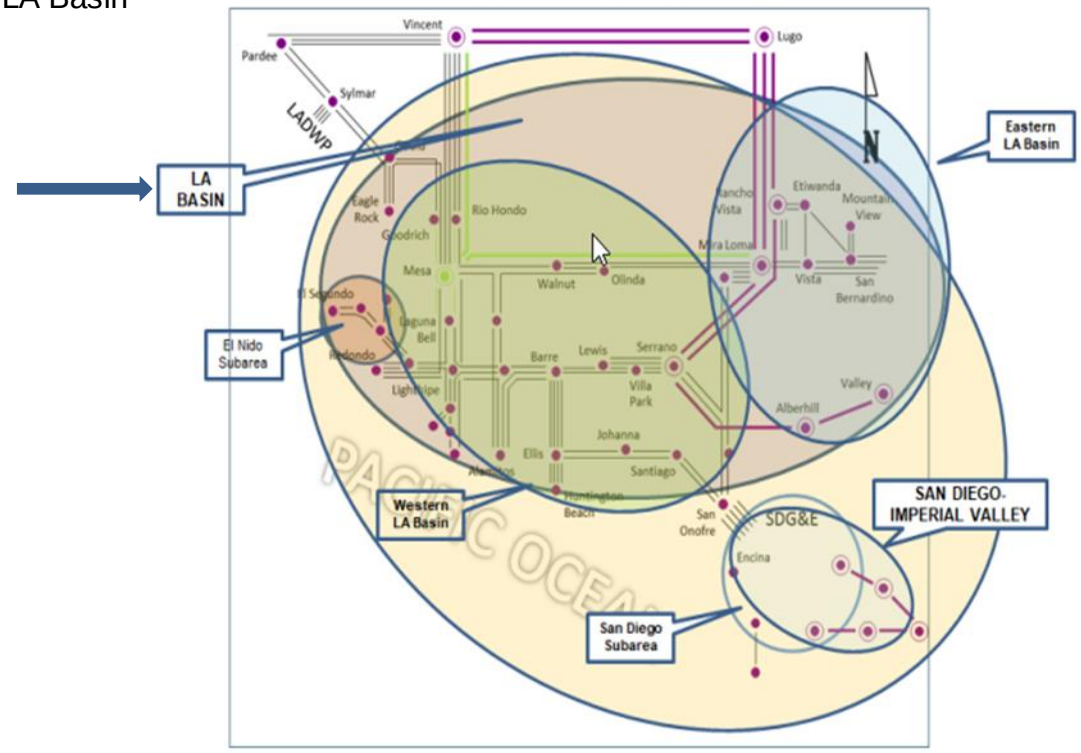
Geographic Area

The Substations that delineate the Western LA Basin Area and El Nido Sub- Area are:

- Serrano is in San Onofre out
- Santiago is in San Onofre is out
- Viejo is in San Onofre is out
- Olinda is in Mira Loma is out
- Walnut is in Mira Loma is out
- Mesa is in Vincent is out
- Rio Hondo is in Vincent is out
- Gould is in Sylmar is out
- Eagle Rock is in Sylmar is out

LA Basin LCR Area Diagram

Figure 3.3-87 LA Basin LCR Area



Geographic Area

- Goal is to create a stable 230kV island in the Western 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 Western LA Basin 220kV system

Selection Factors and Evaluation Criteria

- Calculated time to energize 220kV bus in the Western LA Basin
- Calculated switching steps to first potential remote target unit
- Examples of technical ability to meet restoration requirements including the ability to startup a remote target unit
  - Real and Reactive Power
  - Protective Relaying
  - Ramping
- Restoration Flexibility
- Locational Diversity
- Commencement/ In service date of black start
- Costs and 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
- Must be able to provide real and reactive power requirements to provide start up power to potential remote target unit

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
- CAISO Black Start Resource Testing Requirements, OP-5630

Next Steps – Request for Proposal Schedule

- Issue Black Start Request for Proposal – March 1st
- Proposals Due (60 Business Days) – May 25th
- ISO proposal validation (~10 Business Days)
- Requests for clarification (~10 Business Days)
- ISO evaluation (~75 Business Days)
- Notify applicants and post final report

- Please submit questions to the Black Start Mailbox at: BlackStartCompetitiveSolicitation@caiso.com