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California's Integrated Resource Planning + Study of Aliso Canyon Futures

CEC Gas + Electricity Reliability Workshop

July 9, 2021

California Public
Utilities Commission

Outline

- What is Integrated Resource Planning?
- Modeling tools used in IRP
- IRP modeling treatment of local areas
- What actions has IRP already taken?
- What new electric sector analysis could be performed?

Integrated Resource Planning (IRP) in California Today

- The objective of integrated resource planning is to reduce the cost of achieving GHG reductions and other policy goals by looking across individual LSE boundaries and resource types to identify solutions to reliability, cost, or other concerns that might not otherwise be found.
- Goal of current IRP cycle is to ensure that the electric sector is on track to help California reduce economy-wide GHG emissions 40% from 1990 levels by 2030, and to explore how achievement of SB 100 2045 goals could inform IRP resource planning in the 2020 to 2030 timeframe.
- Related recent legislation:
  - **(2015) SB 350** –50 % RPS by 2030, double energy-efficiency targets, regionalized electric grid, transportation electrification, and integrated resource planning for GHG emissions from electric sector
  - **(2016) SB 32** – Achieve a 40% reduction of 1990 GHG emissions by 2030
  - **(2018) SB 100** – Increases RPS mandate to 60 percent by 2030 and set a 2045 target for renewable and zero-carbon resources to supply 100 percent of retail sales and electricity procured for all state agencies
  - **(2018) Executive Order B55-18** – Established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter"

Two Models Used in IRP Analysis

Objective of IRP modeling: To develop an optimal portfolio of new resources to add to the existing fleet in the CAISO area to plan for:

- Achievement of long-term GHG reduction targets and other policy goals
- Maintaining reliability
- Keeping costs reasonable
- Accounting for uncertainty and expected energy market conditions (i.e., "real world" conditions)

- The role of the capacity expansion model (**RESOLVE**) in IRP is to select portfolios of new resources that are expected to meet our policy goals at least cost while ensuring reliability
- The role of the production cost model (**SERVM**) in IRP is to validate the reliability, operability, and emissions of resource portfolios generated by RESOLVE

IRP modeling: Local areas

- IRP modeling generally focuses on system-level analysis
  - RESOLVE sees gas generators at class-level, not individual unit-level
  - SERVM sees individual generators, but does not produce new portfolios of resources to fill gaps
- A characterization of local area dynamics is required in IRP capacity expansion modeling (RESOLVE Inputs & Assumptions doc section 7.3)
- CAISO Local Capacity Study determines minimum generation capacity needed to meet local needs, in the case that one or more generation or transmission resources is not available
- This information is used as an input to RESOLVE modeling as a minimum amount of gas generation needed to fulfill local requirements
  - This gas capacity is not subject to the gas retention functionality used by RESOLVE

IRP Planning Processes to support Procurement Requirements for Load Serving Entities

- IRP has issued multiple orders for procurement of new capacity for reliability needs through its Procurement Track:
  - D.19-11-016: 3,300 MW of net qualifying capacity (NQC) for 2021-23
  - D.21-06-035: 11,500 MW of NQC for 2023-26
    - The most recent order assumed 800 MW of this need pertains to unidentified retirements as part of need determination
    - Explicitly solicited party comment on relation to potential Aliso Canyon retirement
    - These two most recent procurement orders do not specify geographic requirements for the new resources; however, earlier orders in LTPP proceeding did
- IRP has produced outputs used in other analyses, such as FTI's Aliso Canyon study (discussed earlier)

Potential future analysis

- What new electric sector studies could be done to further inform decisionmaking regarding Aliso Canyon?
- Scoping of any new study would have to make decisions regarding:
  - Quantitative vs. qualitative scope
  - What is the relationship between system vs. local components?
  - Roles and responsibilities for analysis
- Energy Division staff already working to determine how FTI analysis's can be leveraged with further analysis, potentially focusing on electric system analysis during summer peak conditions to understand the reliability, cost, and emissions (both GHG and local) impacts of different assumptions regarding future availability of Aliso Canyon