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CPUC's Integrated Resource Planning (IRP) Process and Transmission Planning in California

May 4, 2023



California's Electricity Planning Ecosystem

SB 350: CARB sets electric

sector GHG target range

CPUC

Integrated

Resource

Plan (IRP)

CARB

Scoping Plan

- Economy-wide plan to reach GHG targets
- Updated every 5 years

Demand CEC forecast for infrastructure **Energy** planning Updated annually

Integrated Policy Report (IEPR)

> Establishes GHG target within CARB's range for CPUC-jurisdictional LSEs

- Orders procurement + oversees compliance
 - Annually transmits portfolios for CAISO transmission planning

Zero carbon electricity by 2045

Joint agency report, every 4 years

Transmission Planning Process (TPP)

SB 100

Assess transmission needs

Conceptually approves new projects

Updated annually

LSEs Planning + **Procurement** Plans filed per SB 350 + CPUC guidance Procurement in compliance w/ **CPUC** directives

IOUs ~75% CA Load **POUs** ~25% CA Load

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CAISO

IRP Role in the CAISO's Transmission Planning Process

Base

Portfolio

Portfolio(s)

 The CAISO's TPP is an annual comprehensive evaluation of the CAISO's transmission grid to:

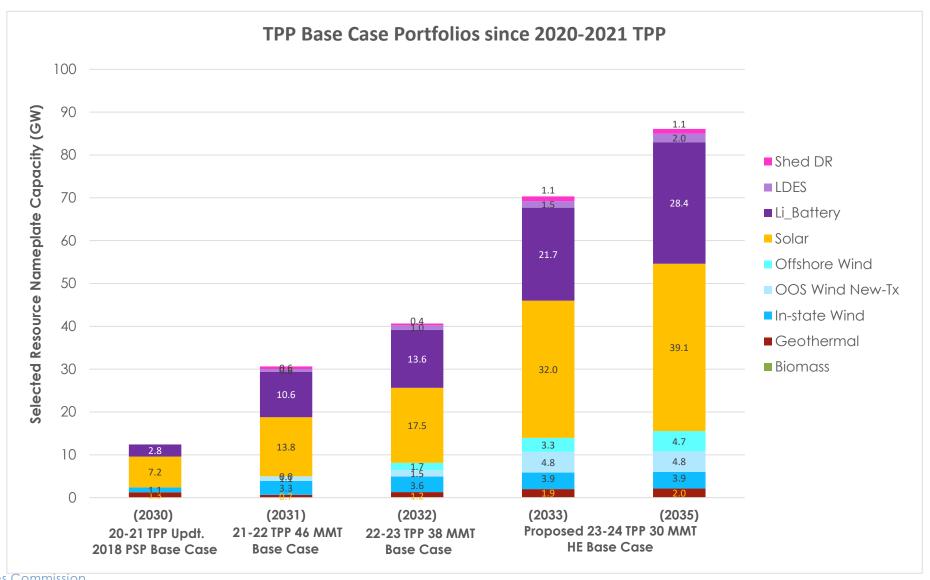
- Address grid reliability requirements,
- 2. Identify upgrades needed to successfully meet California's policy goals, and
- 3. Explore projects that can bring economic benefits to consumers.
- Historically has focused on grid needs up to 10-years into the future, but will now focus on 15-year horizon.
- In accordance with a December <u>2022 MOU</u>
 between the CAISO, the CPUC, and the
 CEC, the CPUC develops resource portfolios
 used by the CAISO in the TPP.
- The CPUC typically transmits multiple distinct portfolios developed in the IRP process:
 - Reliability and Policy-Driven Base Case portfolio
 - Policy-Driven Sensitivity portfolio(s)

Policy-Driven Need Economic Assessment Reliability Assessment Assessment Peak Deliverability Assessment Identifies resource adequacy transmission needs **Economic Planning** ISO Planning Only FCDS Study Standard Reliability resources are Production Cost Assessment studied Simulation (steady state, -> congestion Off-Peak stability) information Deliverability Assessment All resources (EO. All resources (EO, Identifies OPDS, FCDS) are OPDS, FCDS) are bottlenecks that cause excessive renewable curtailment All resources (EO, OPDS, FCDS) are studied

Base Portfolio informs Reliability, Policy and Economic driven transmission solutions for CAISO Board of Governors approval

Sensitivity
Portfolios
typically inform
Category 2
transmission
solutions

Base Case Portfolios since the 2020-2021 TPP



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Role of Busbar Mapping in IRP and TPP

- Resource to Busbar Mapping ("busbar mapping"): The process of refining the geographically coarse portfolios developed through IRP to specific interconnection locations (i.e. substations) for analysis in the CAISO's annual Transmission Planning Process (TPP).
 - First conducted as "proof of concept" for the 2018-2019 TPP portfolio
 - Formalized into a joint effort by a working group comprised of CPUC, CEC, and CAISO staff.
 - Mapping is conducted based on stakeholder vetted methodology.
- Busbar Mapping Scope: Mapping focuses on utility-scale generation and storage resources that are not already in baseline.
- **Busbar Mapping Methodology:** Methodology document states guiding principles, establishes mapping criteria, and outlines the iterative interagency mapping process.
 - Current Methodology makes minor refinements to previous version used for the 22-23 TPP mapping efforts, but further proposed updates for 24-25 TPP are forthcoming.

