




GHG Planning Targets for the CPUC's Integrated Resource Planning (IRP) Process



**SB 350 Integrated Resource Plan Workshop
March 2, 2018**

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BACKGROUND AND CONTEXT

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Purpose of Integrated Resource Planning (IRP)

- California's goal is to reduce statewide greenhouse gas (GHG) emissions 40% below 1990 levels by 2030.
- The electric sector currently represents 19% of total statewide GHG emissions.
 - In 1990, the electric sector represented 25% of the statewide total.
- The purpose of IRP is to ensure that the electric sector is on track to help California achieve its statewide 2030 GHG target at least cost while maintaining the reliability of the grid.
- In the IRP 2017-18 cycle, CPUC staff has used a capacity expansion model called RESOLVE to identify optimal portfolios of resources that will achieve electric sector GHG reductions, reliability needs, and other policy goals at least-cost under a variety of possible future conditions.

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Statutory Basis of IRP at CPUC

The Commission shall...

PU Code Section 454.51

Identify a diverse and balanced portfolio of resources... that provides optimal integration of renewable energy in a cost-effective manner

PU Code Section 454.52

...adopt a process for each load-serving entity...to file an integrated resource plan...to ensure that load-serving entities do the following...


- Meet statewide GHG emission reduction targets
- Comply with state RPS target
- Ensure just and reasonable rates for customers of electrical corporations
- Minimize impacts on ratepayer bills
- Ensure system and local reliability
- Strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities
- Enhance distribution system and demand-side energy management
- Minimize air pollutants with early priority on disadvantaged communities

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Public Engagement to Date (since 2016)

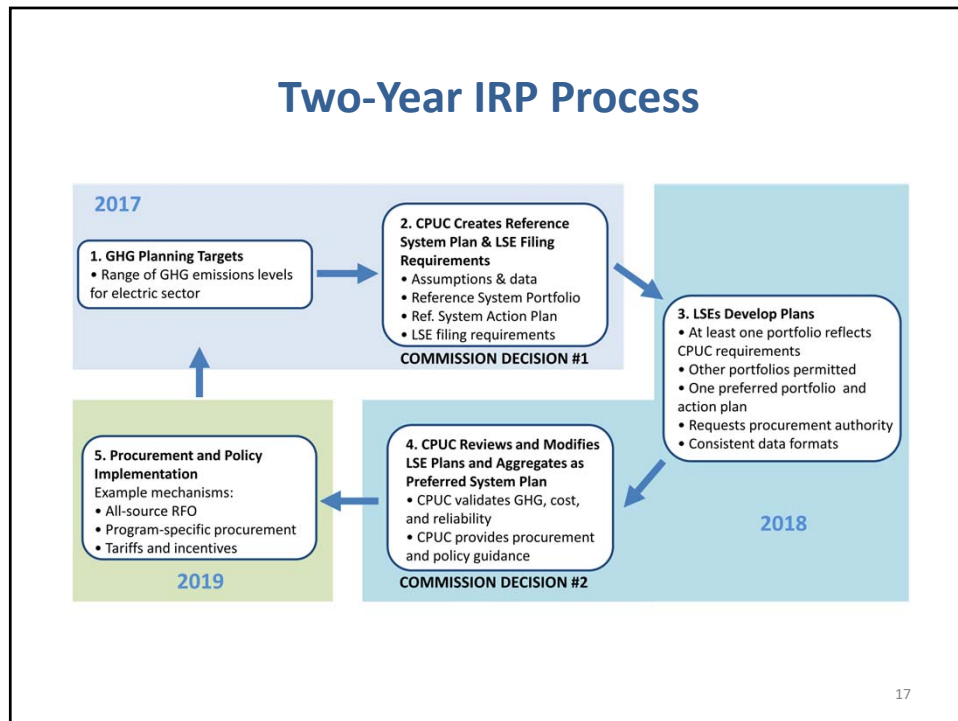
- Eight workshops on IRP implementation, including a Joint Agency Workshop on 2030 GHG Emission Reduction Targets for IRP (2/23/2017)
- 13 webinars on modeling, scenario development, and other technical aspects of IRP
- 11 staff proposals and other work products, including:
 - Staff Paper on Implementing GHG Planning Targets (11/15/2016)
 - Joint CPUC-CEC Paper on Options for Setting GHG Planning Targets for IRP (2/10/2017)
- Review of thousands of pages of public comments from 150 parties
- On Feb. 8, 2018, the Commission voted to adopt the process and requirements for load serving entities to file integrated resource plans. (D.18-02-018)

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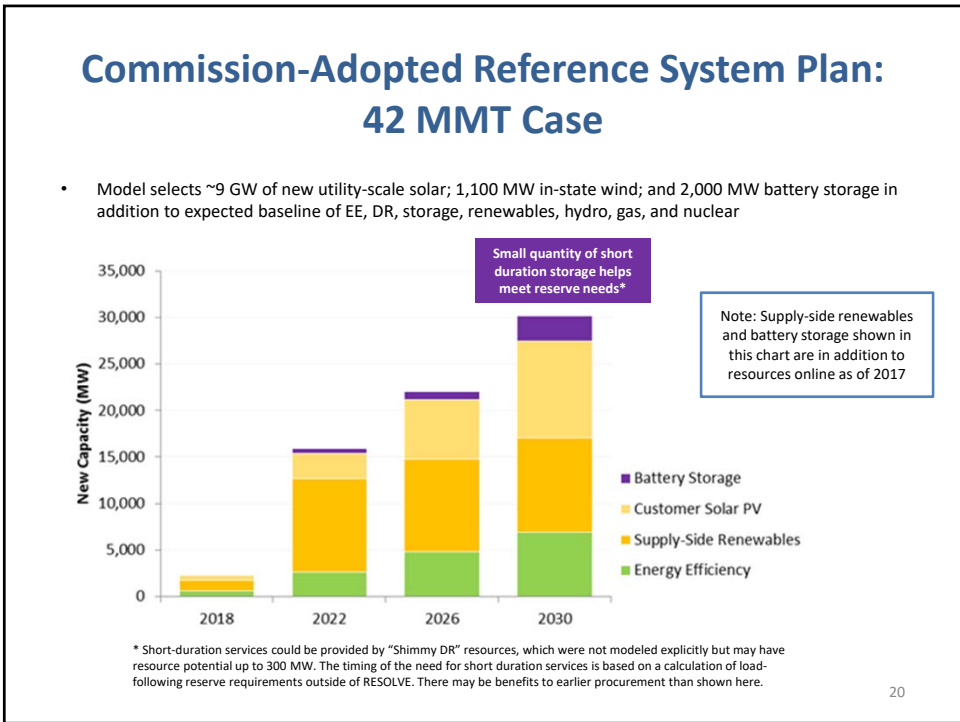
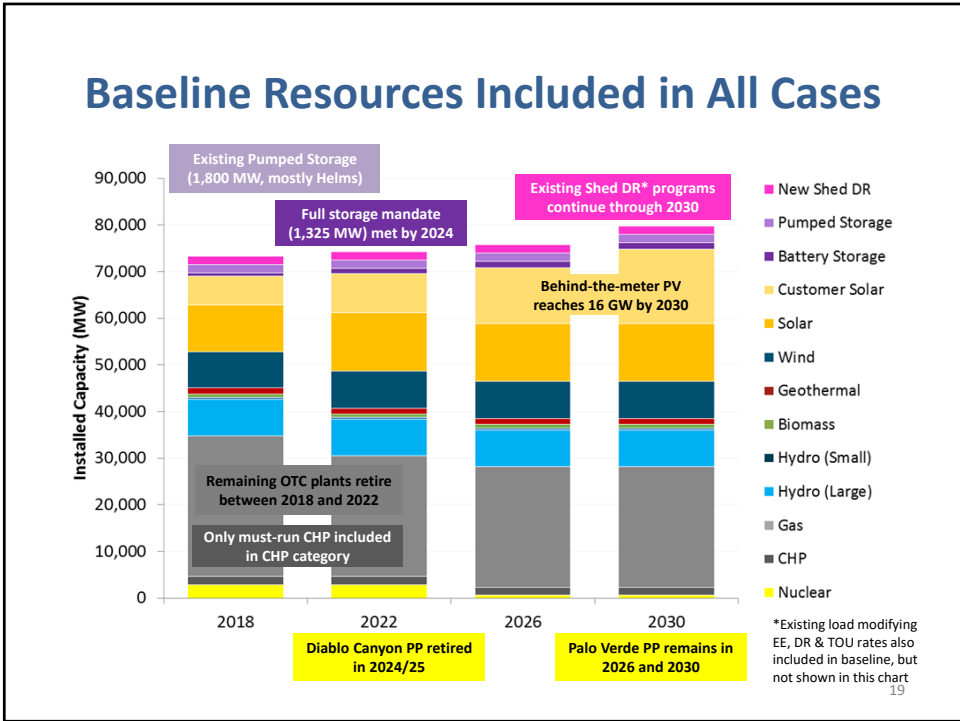
IRP 2017-18 CYCLE

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Core Policy Cases Modeled

- Staff modeled three core policy cases to understand how different electric sector GHG Planning Targets may impact resource build-out requirements, costs, and risk.
- Each of these cases reflects the resources and procurement that is reasonably expected to occur based on existing policies, which is reflected in the Default Case.
- The two additional cases are based on analysis in CARB's 2017 Climate Change Scoping Plan Update (January 2017)
 - **Default Case:** Reflects all existing policies, notably the 50% RPS, and is equivalent to statewide electric sector emissions of ~51 MMT
 - **42 MMT Case:** The low end of the estimated range for electric sector emissions in CARB's Scoping Plan; it reflects a scenario in which the state GHG reduction goal is achieved with 40-85 MMT of reductions from unknown measures
 - **30 MMT Case:** The electric sector emissions in CARB's Scoping Plan scenario in which state GHG reduction goal is achieved with known measures





GHG TARGETS FOR IRP 2017-18

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GHG Planning Target for the Electric Sector

- The Commission recommends 42 MMT by 2030 as the GHG Planning Target for IRP*
 - A 42 MMT statewide target means that emissions from the electric sector will total 42 million metric tons in 2030, a decline of 61% from 1990 levels of 108 MMT for the sector.
 - 42 MMT represents increasing momentum relative to current policies and would achieve between 53-57% renewables by 2030.
 - 42 MMT is roughly consistent with a straight-line trajectory of emissions reductions to meet California’s goal of 80% below 1990 levels by 2050.
 - 42 MMT is not so burdensome to the electric sector to create major disincentives toward electrification.
 - 42 MMT results in lower overall costs and financial risk than a 30 MMT target in 2030.

*This planning target is comparable to 46 MMT based on the GHG accounting methodology used by CARB to develop its Scoping Plan Update, due mainly to differences in accounting for emissions from on-site combined heat and power.

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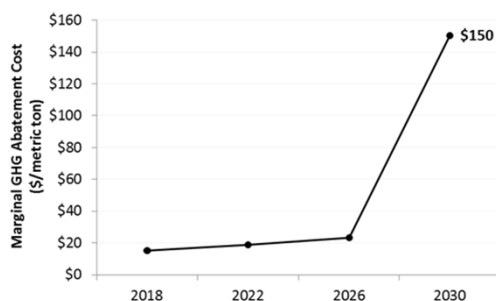
GHG Planning Requirements for LSEs

- The Commission has established two types of GHG planning targets for individual LSEs to use in IRP portfolio development:
 1. GHG Planning Price of \$150 per metric ton of carbon dioxide equivalent in 2030 (price-based target)
 2. LSE-specific 2030 GHG emissions benchmarks (mass-based target)
- LSEs must use either the GHG Planning Price or its LSE-specific GHG Benchmark to demonstrate consistency with the Reference System Portfolio

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GHG Planning Price

- GHG Planning Price = \$150/MT of CO₂e in 2030
 - Represents the CAISO system-wide marginal GHG abatement cost of achieving the 42 MMT planning target for the electric sector
 - The GHG Planning Price is an outcome of RESOLVE modeling, which constrains GHG emissions at the system level on an annual basis



The GHG Planning Price is represented by the output of GHG abatement prices from RESOLVE for the years 2018 to 2026, followed by a straight line from 2026 to the 2030 value of \$150/ton

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LSE-Specific GHG Emissions Benchmarks

- The Commission has assigned a mass-based “2030 GHG Emissions Benchmark” to each LSE required to file a Plan
- The GHG Benchmark is calculated in two steps:
 - Divide the 2030 GHG Planning Target for the electric sector among CPUC-jurisdictional electric distribution utilities (EDUs) based on CARB’s Cap-and-Trade Allocation Electrical Distribution Utility (EDU) Allocation Methodology for 2021-2030
 - Further divide that value proportionally among the host EDU and non-EDUs (CCAs and ESPs) within the host EDU’s territory based on their projected 2030 load share.

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Process for Modifying GHG Planning Targets in Future Cycles

- Electric sector GHG planning target
 - CPUC may reevaluate the sector target each IRP planning cycle.
 - CPUC may make adjustments to the target for its IRP process as more info becomes available and IRP modeling functionality improves.
- GHG Planning Price
 - As the GHG Planning Price represents the cost of achieving the electric sector planning target, it may also need to be adjusted each cycle.
- LSE-Specific GHG Emissions Benchmarks
 - The Commission may make periodic adjustments to account for load changes, for example due to load departures from IOUs.
 - LSEs are permitted to make a motion in the CPUC’s IRP proceeding to request establishment or modification of a GHG Benchmark.

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CPUC IRP webpage: <http://www.cpuc.ca.gov/irp/>