

Independent Energy Producers Association's 38th Annual Meeting

IOU Planning and Procurement Challenges in a De-Centralized
Market Structure

Colin Cushnie
Vice President, Energy Procurement & Management
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Overview

- California has set ambitious environmental goals in order to address the growing issues of climate change, year-round wildfire threats, and poor air quality for its residents
- The Integrated Resource Plan (IRP) proceeding was established to ensure that the electric sector is on track to help California achieve its statewide Green House Gas (GHG) targets at least cost, while maintaining the reliability of the grid
- SCE has developed an integrated blueprint, the *Clean Power and Electrification Pathway*, that would more aggressively achieve these statewide goals relative to the IRP Reference System Plan, while still ensuring a reliable and affordable electric grid
- *However*, increased Load Serving Entity (LSE) fragmentation is giving rise to key challenges to the Resource Planning and Procurement activities needed to achieve these goals

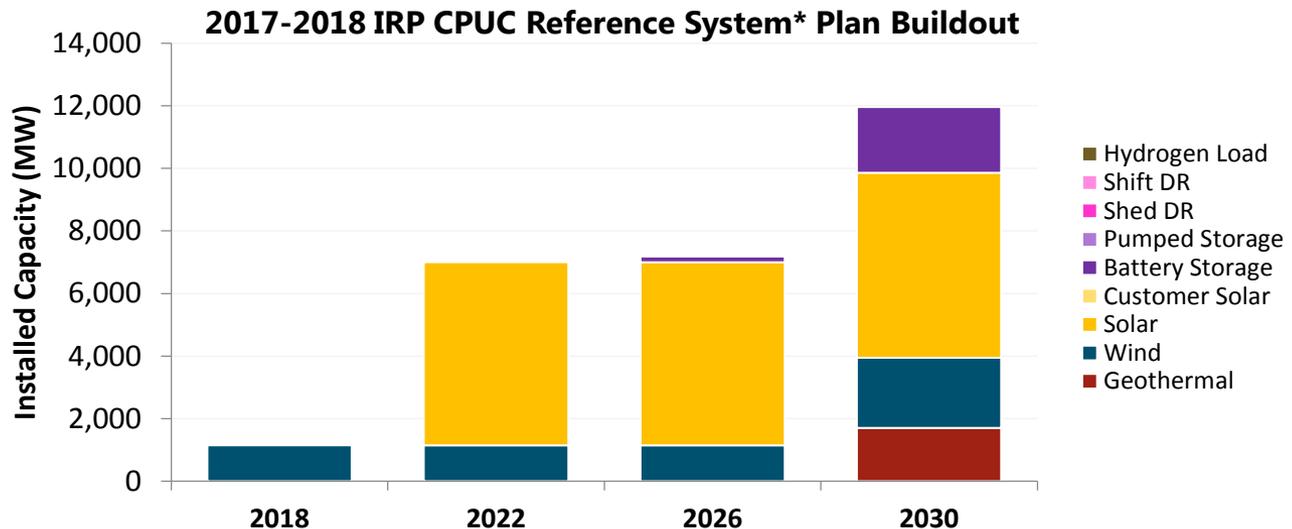
California's Ambitious State Goals

- SB100 clean energy targets:
 - 44% RPS by 2024
 - 50% RPS by 2026
 - 52% RPS by 2027
 - 60% RPS by 2030
 - 100% RPS/zero-carbon by 2045
- AB32/SB32 GHG reduction goals:
 - 40% reduction below 1990 levels by 2030
 - 80% reduction below 1990 levels by 2050
- AB2514 Energy Storage Target¹
 - 1325 MW contracted by 2020, installed by 2024
- SB350 Clean Energy and Pollution Reduction Act
 - Requires each LSE to file an IRP every two years with the Commission (see next slide for details)
- IRP Proposed Decision requiring 2,500 MW of incremental RA capacity between 2021-2023

¹ Additionally, AB 2868 was passed as an opportunity to contract for 500 MW of distributed energy storage systems, above and beyond the existing AB 2514 target to achieve ratepayer benefits, reduce dependence on petroleum, meet air quality standards, and reduce emissions of GHGs.

Integrated Resource Plan Proceeding

- An “umbrella” proceeding established to consider all of the Commission’s electric procurement policies, and in particular, to ensure that the electric sector is on track for California to achieve its statewide GHG targets
- Requires all LSEs to file an individual IRP that prioritizes emissions reductions alongside other, more standard requirements, such as resource diversity, reliability, and cost effectiveness.
- Requires the Commission to begin producing its own long-term load forecasts and in-house modeling capabilities
- IRP reference case buildout to achieve statewide 42 MMT GHG emissions target illustrated below:



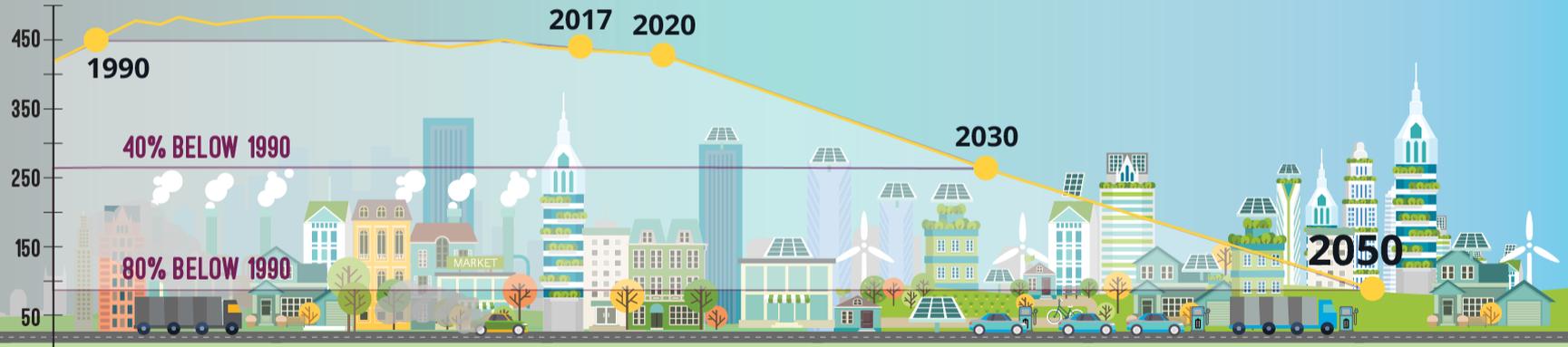
Incremental Buildout (MW)	Unit	2018	2022	2026	2030	Total
Geothermal	MW	-	-	-	1,700	1,700
Wind	MW	1,145	-	-	1,101	2,246
Solar	MW	-	5,852	-	64	5,916
Battery Storage	MW	-	-	187	1,917	2,104

* Used 2017 IEPR inputs, RESOLVE capacity expansion optimization model

SCE's Integrated Clean Power and Electrification Pathway (CPEP)

- SCE has developed an integrated, multi-sector optimized blueprint to proactively help California meet its future clean energy and GHG reduction goals in a cost-effective manner while maintaining system reliability
- By 2030 it calls for:
 - 80% carbon-free energy
 - 7 million electric vehicles
 - 1/3 space and water heating efficiently electrified

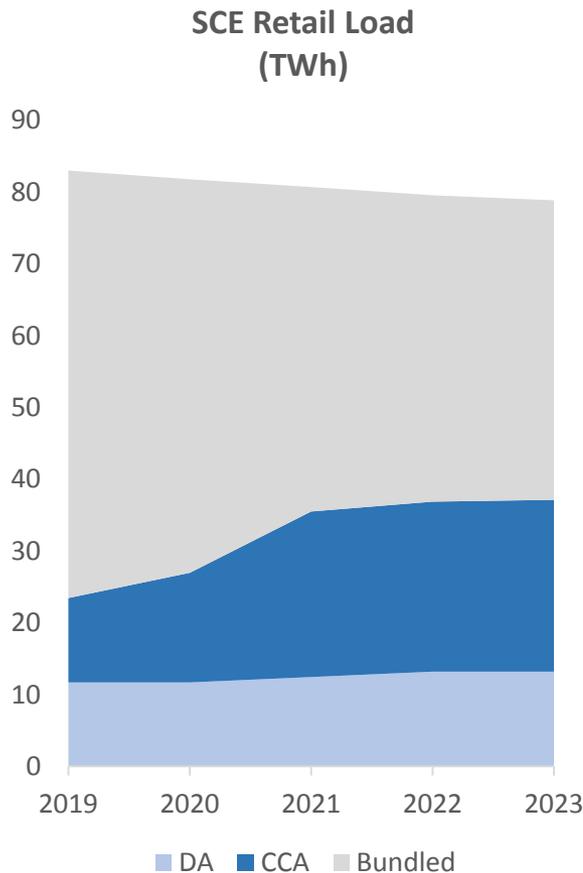
Million Metric
Tons of CO₂



The electric system will need to be strengthened and modernized to enable increasing electrical demand, flexibility, and resiliency

SCE's full white paper can be accessed here: <https://www.sce.com/about-us/reliability/meeting-demand/pathwayto2030?from=/pathwayto2030>

LSE Fragmentation Creates Challenges as California Strives for a Zero-Carbon Future



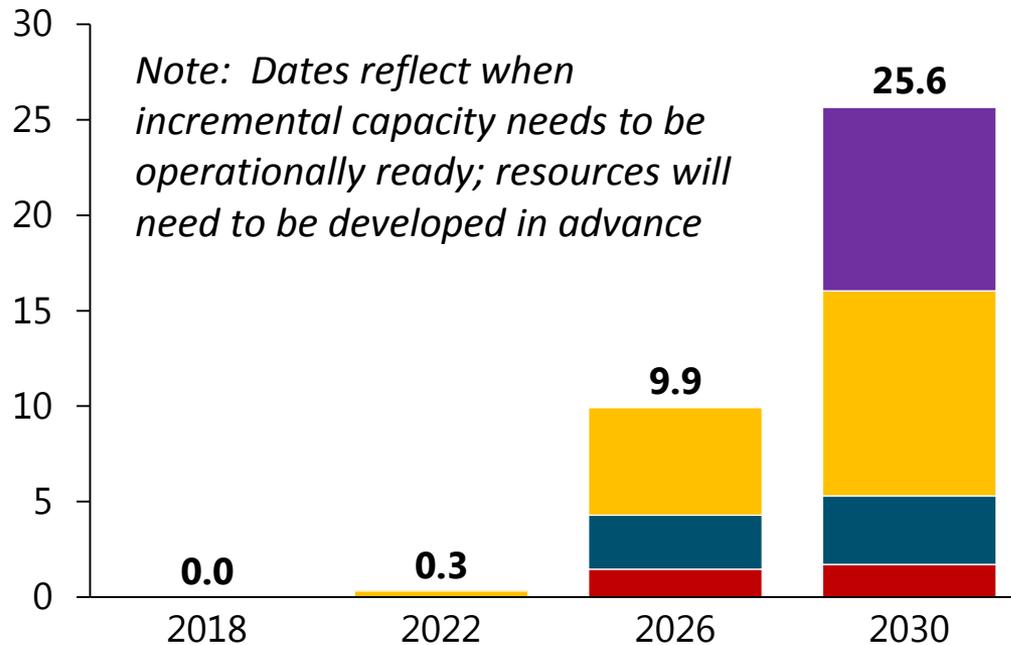
- Regulatory oversight across all LSEs has not been consistent
 - ESPs/CCAs resist CPUC oversight on new resource development, increasing the likelihood of socially sub-optimal outcomes
- Historical reliance on IOU centralized procurement (e.g., CAM) is being opposed by some new LSEs
- CCA operations expected to focus on local interests, which may not align with broader state interests
 - e.g., geographic or technology procurement needs that are inconsistent with CCA policy objectives, or dispatching resources for societal outcomes versus LSE-specific benefits
- Greater uncertainty around the planning process may lead to reliability issues
 - Tighter capacity margins are exacerbating the transition from gas
- Load migration risk creates challenges for all LSEs in meeting long-term resource requirements/needs
- Evolution of California's wholesale and retail market structure to support clean, reliable and affordable electricity for all customers is challenged by multiple stakeholder positions

- Non-IOUs projected to serve more than half of California IOUs' load by 2022
- SB237 (Herzberg) increased DA cap by 4,000 GWh, and requires CPUC to provide a report on further DA re-opening

SCE Designed a CAISO-Wide System Plan that Realizes its Electric-Led Decarbonization Vision

SCE Pathway System Plan Capacity Additions

GW, cumulative



Actions to achieve 28 MMT statewide

- Increased electrification load outpaced by reductions from:
 - Energy efficiency
 - BTM PV
- More renewable build
- More energy storage

SCE IRP Vision: Develop a Well-Integrated Process that Achieves CPEP Objectives

Reliability

- Ensure the CPUC IRP process focuses on **reliability through 2030**
- Develop and implement key performance indicators (KPIs) to show **how a portfolio will support all system reliability attributes**

Decarbonization

- **Further SCE's low carbon strategy** by developing a Preferred Portfolio with cross-sector considerations and a <30 MMT GHG target
- **Reflect economy-wide decarbonization** by including sufficient levels of electrification and customer decarbonization measures

Resource Planning

- Coordinate 'Procurement Tracks' with IRP determinations to mitigate concerns with the ability to **materialize a heavily back-loaded resource stack**
- Target **new resources that support all system** attributes in the future

Regulatory Framework

- **Eliminate redundancy, conflicts and gaps** within Commission proceedings
- **Reduce timing conflicts** between model inputs and analysis requirements

Resource Integration

- Integrate **DERs as selectable resources** into IRP modeling tools
- Further develop the "**Common Resource Valuation Method**" to define valuation categories applicable to procurement

“Central Buyer” Needed for Long-Term Needs

- Increasing fragmentation of the energy procurement function, due primarily to CCA formation, has given rise to multiple “Central Buyer” proposals at the Legislature and CPUC
- Central Buyer proposals are motivated by various factors:
 - Ensuring local area and system reliability
 - Ability to centrally plan and coordinate new procurement
 - Accelerating renewables procurement
 - Facilitating mandates
 - Mitigating the risk of long-term procurement from load migration uncertainty
 - SDG&E effort to fully exit energy procurement and focus exclusively on core “wires” business
 - Potential backstop/replacement to PG&E because of BK uncertainty
- Contentious debate over “who” should be the Central Buyer, “how” central procurement should be conducted, and “what” should be centrally procured

SCE's Bundled Service Portfolio Management Framework is Becoming Increasingly Complicated

- Load migration uncertainty creates challenges for long-term planning
- PCIA Phase 2, Working Group 3 proceeding will establish portfolio optimization rules/framework for IOUs by the end of 2020; in the meantime, SCE has to manage
 - Making long Local RA positions available to SCE-area LSEs
 - Meeting system RA requirements
 - Optimizing long RPS positions
 - Accounting for PCIA regulatory impacts on physical and financial portfolio positions
 - Above market cost allocation
 - Contract amendments potentially re-vintaging existing PPAs
- SCE's AB57 Bundled Procurement Plan was not designed to accommodate SCE's participation in multiple LSE solicitations
- Accelerated pace of evolving market dynamics makes obtaining CPUC pre-approval less practical if SCE's BPP does not explicitly address desired contracting

Upcoming SCE Solicitation Schedule

Anticipated Launch Dates*	RFO Title	Product Solicitation
9/19/19	2019 IRP System Reliability	System RA products in SCE TAC area
9/20/19	2020-2024 RA e-Solicitation	Longer-term multi-year RA products – System, Flex, and Local RA
10/20/19	Demand Response Auction Mechanism Pilot	Aggregated CAISO demand response resources
11/1/19	REC Sales RFO #3	RPS eligible RECs
11/7/19	2019 Disadvantaged Community Green Tariff/Community Solar	In-front-of-the-meter solar projects in DACs
12/1/19	Tolling Solicitation 2020-2024	Longer-term multi-year RA products with tolling rights
12/4/19	2020 Distribution Deferral	Any resource that meets Distribution Deferral need
1/31/20	Q2 2020 Quarterly RA Solicitation	Shorter-term RA products primarily for month ahead obligations

* Subject to change