An aerial photograph of a boat's wake in turquoise water, with a dark blue curved overlay on the right side containing text.

# The Urgent Need to Plan for Natural Gas Retirements, Offshore Wind and Other SB 100 Goals

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# A Fork-in-the-Road in the IRP Proceeding

**ALJ Fitch at PHC: Central dilemma in terms of how we organize and tackle this proceeding -- two distinct paths:**

(1) Analyze individual LSE resource plans to develop Preferred System Plan

(2) Conduct better long-term locational planning analysis, followed by giving planning and procurement direction to LSEs in the IRP proceeding - “clearly supported by a broad coalition of parties with many diverse interests”

Plan for specific gas-plant retirements in DACs (LA and Greater Fresno) / Long-duration storage procurement / Replacement power for Diablo Canyon retirement / Out-of-state and/or offshore wind planning

**“Finite CPUC human resources, cannot do both simultaneously”**

# Taking the Second Path is Critically Important to Achieving SB 100 Goals

- IRP is for Planning – CPUC must take a system view. “Bottom up” assemblage of LSE plans unlikely to constitute effective planning.
- CEJA/SC/NRDC/UCS: no Commission proceeding is planning for the orderly retirement of natural gas power plants or how to most effectively reduce reliance on natural gas in local areas.
- Agree with CAISO’s suggestion: Preferred System Plan can be eliminated by updating the Reference System Plan (in the next two-year cycle) with individual LSEs’ actual procurements (rather than goals and intentions).
- Gas plant retirements should be addressed in the upcoming planning track, while Diablo replacement is addressed in the procurement track.

# Long-term Planning for Gas-plant Retirements Is Integrally Connected To Numerous Long-term IRP Goals

1. **SB 350 requires the Commission to minimize local air pollution emissions with an early priority on disadvantaged communities.**
  - Electrification, as well as Diablo's closure, will place greater demands on local gas plants, increasing emissions in LCRAs and reliance on the OTC units.
  - Transmission upgrades will allow for gas-plant retirements while also providing clean charging capacity for local batteries.
  - CAISO has made clear that the Commission must make a policy decision to reduce gas-plant capacity before it will plan for gas-plant retirements

# Long-term Planning for Gas-plant Retirements Is Integrally Connected To Numerous Long-term IRP Goals ...

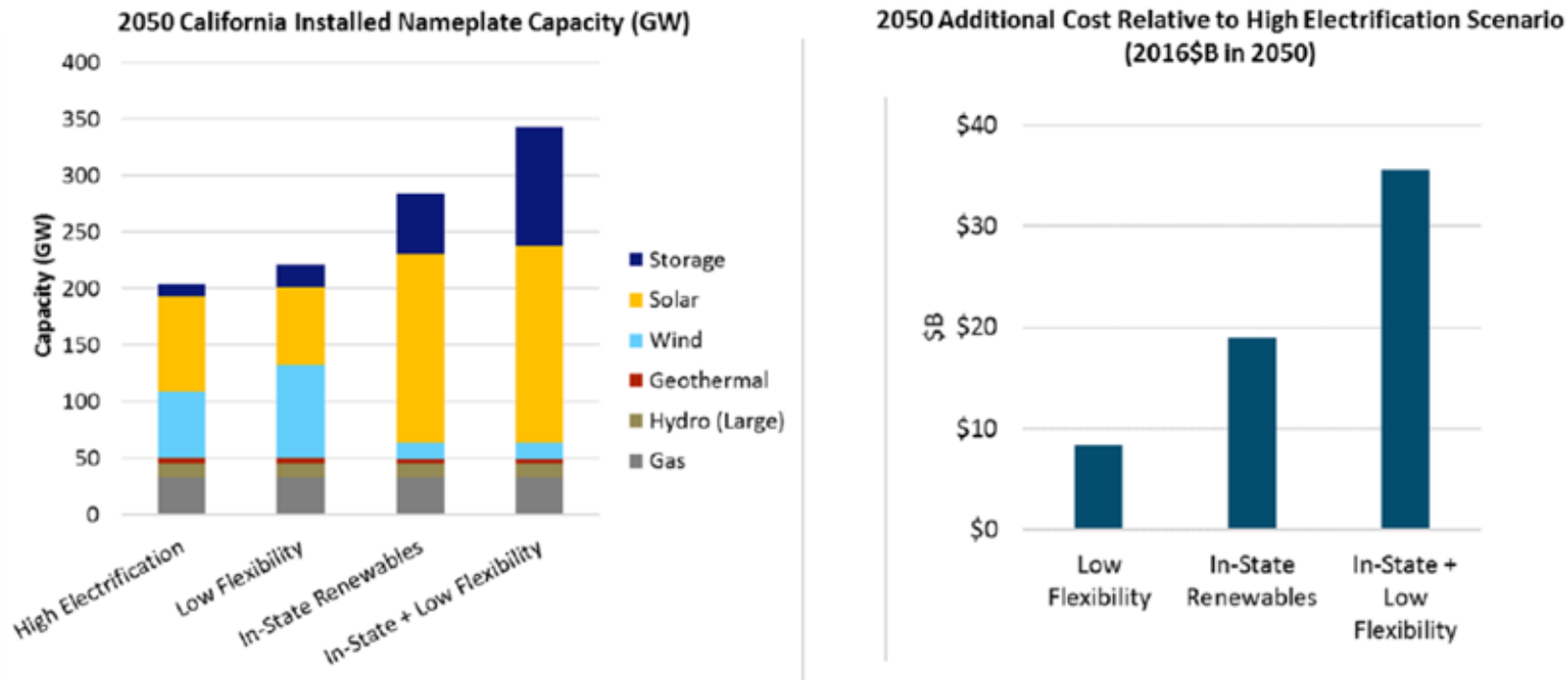
## 2. Planning for gas-plant retirements can greatly reduce long-term costs by using transmission to access lower-cost resources

- Planning for both simultaneously is most efficient.
  - For example: subsea Tx cable linking the Los Angeles LCRA and Diablo Canyon would enable 2 GW of LA gas-plant capacity to retire, and provide access to lower-cost Central Valley storage and solar resources as well as offshore wind.
  - This solution is far more cost-effective (and likely more reliable) than a battery-only solution, as CalWEA showed in recent comments.
- State/E3 studies find that “Wind is an extremely valuable resource that can reduce costs and reduce the required quantity of other installed capacity needed for reliability.



# CEC/E3 Deep Decarbonization Study: Wind-Solar Portfolio Balance Saves \$19B/yr

**Figure 16: 2050 Capacity Additions and Cost Impacts of Electricity Sector Sensitivity Analysis**



Results are based on RESOLVE modeling using electricity demands from the California PATHWAYS High Electrification Scenario

Note: "in-state" essentially means very little wind-energy resources, given limited in-state, land-based wind potential

# Transmission will be required even to retire less than half of gas-plant capacity

Table 11. High Out-of-State Wind Sensitivity Metrics

Metric		Units	Base Case	High Out-of-State Wind Case	Change
Installed Capacity	Gas	MW	25,025	22,205	(2,820)
	Geothermal	MW	4,516	4,516	-
	Hydro	MW	13,204	13,204	-
	Solar	MW	147,399	133,056	(14,343)
	Wind	MW	21,438	31,438	10,000
	Storage	MW	77,938	64,144	(13,794)
Renewable Curtailment		%	12.20%	11.50%	-0.7%
Revenue Requirement		\$BB/yr	\$109	\$107	-\$2
Carbon Emissions		MMTCO <sub>2</sub> e	9.8	9.8	—
Loss of Load Expectation		hrs/yr	0.9	0.6	-0.3

E3's Calpine-funded 6/2019 Long-Run RA Report found:

“Wind is an extremely valuable resource that can reduce costs and reduce the required quantity of other installed capacity needed for reliability.”

Over 20 GW of wind is needed in the base case (necessary to retire 15 GW of gas cost-effectively) – for which transmission will be required. An additional 10 GW of wind further reduces the need for gas, solar and storage capacity.

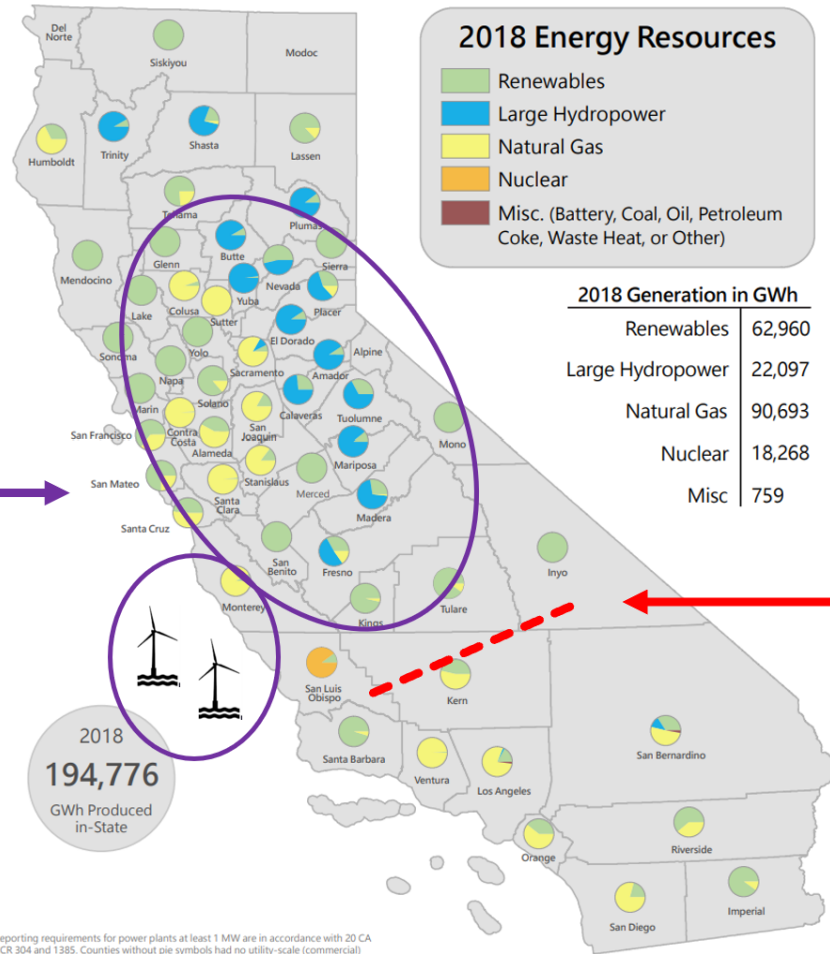
# Transmission Planning Must Start Now to Obtain Economic Benefits

- Tx has long-lead time – must start in next ('21-'22) TPP cycle
- Tx upgrades will be needed, either internal or external to state
- Internal upgrades will spread economic benefits across the state, and allow California to rely on its own resources
- Path 26 is congested, blocking access to Central Valley RA resources and to Central Coast offshore wind resources. Similarly, Northern California will not have access to So Cal geothermal resources.
- Covid economic slowdown creates added urgency to climate crisis



## Utility-Scale Renewable and Non-Renewable Electrical Generation by County

- Plentiful, affordable renewables are available in northern California including solar, wind, biomass, geothermal, hydro and future offshore wind
- Geographic and resource diversity allow ratepayers to save by reducing storage requirements



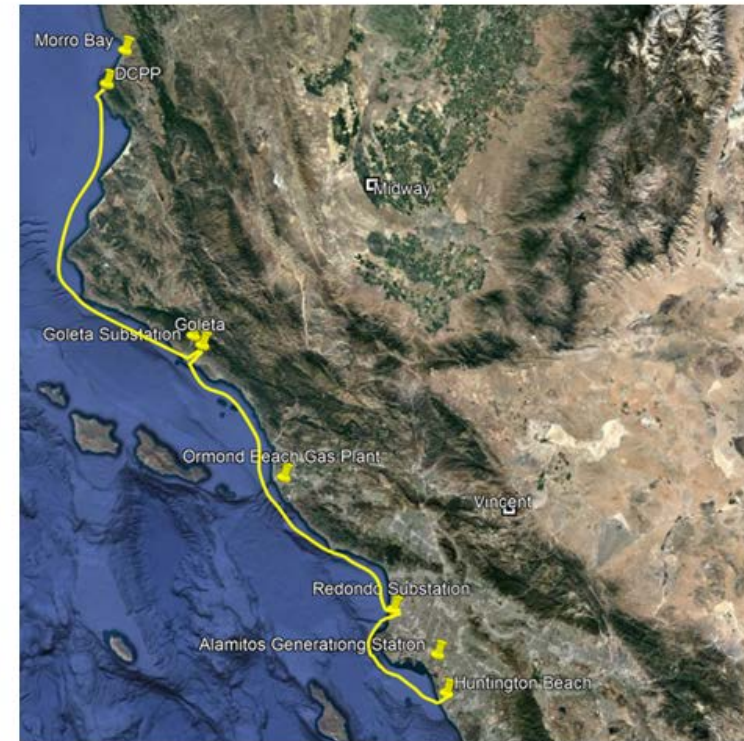
- LA Basin relies heavily on gas
- Path 26 transmission congestion impedes LA's access to new, utility-scale renewables in northern California

Reporting requirements for power plants at least 1 MW are in accordance with 20 CA CCR 304 and 1385. Counties without pie symbols had no utility-scale (commercial) electric generation installed. Distributed renewable generation (e.g. rooftop solar) is not included. Map and data from the California Energy Commission. Energy production data is from the Quarter Fuel and Energy Report (QFER) and the Wind Performance Reporting System (WPRS) databases. Data is from 2018, and is current as of June 2019. Contact Dylan Kojimoto at (916) 651-0477 or John Hingtgen at (916) 657-4046 for questions.

Source: California Energy Commission (Augmented by TRED & CalWEA)

# Subsea Cable Proposal Offers Additional Benefits

- Reliability threat reduction from wildfires taking out Tx, reducing wildfire insurance requirements
- Grid operational benefits – provides the same flexible capability as gas plants
- Plugs into existing grid infrastructure along coast



- 500 kV HVDC system
- One 2000 MW converter at DCP
- Most-southern connection at Huntington
- Single two HVDC 2000 MW conductor cables

# Vision: Economic Development & Jobs

- Construction jobs: transmission and Offshore Wind + Central Valley
- Offshore wind supply chain jobs
- Operations
- Port expansions
- CA competing with OR/WA to host offshore wind



**Thank you!**