

**WaBA/LCPI Webinar**

***100% Clean Power: What it Means for Business***

March 27, 2019





# Agenda

**Introductions**

Dominic Canterbury

**Clean Energy Transformation Act**

**Bill Review**

Isaac Kastama

**Performance & Cost**

Kevin Tempest

**Beyond Clean Energy – Cap & Trade**

David Giuliani

# Bill Review – 100% Clean

- Voters passed I-937 in 2006
- Companies, colleges, cities, pledge 100% Clean
- California adopts 100% clean by 2045
- 2018 legislature considers 100% clean
- SB 6203 and I-1631 fail
- Utilities engage proactively in 2019
- SB 5116 has passed Senate, now in House Finance Committee

# Bill Review – 100% Clean

- Clean defined as “nonemitting” and “renewable”
- Milestones:
  - Coal removed by 2026
  - Greenhouse gas neutral by 2030, minimum 80% clean
  - 100% clean by 2045
- Applies to retail sales and retail customers of ALL electric utilities
- Does not apply to natural gas distributors or market customers
- Integrates with RPS, reliability protections, and cost caps
- Penalties for non-compliance



# 100% Clean Power: Methodology in brief

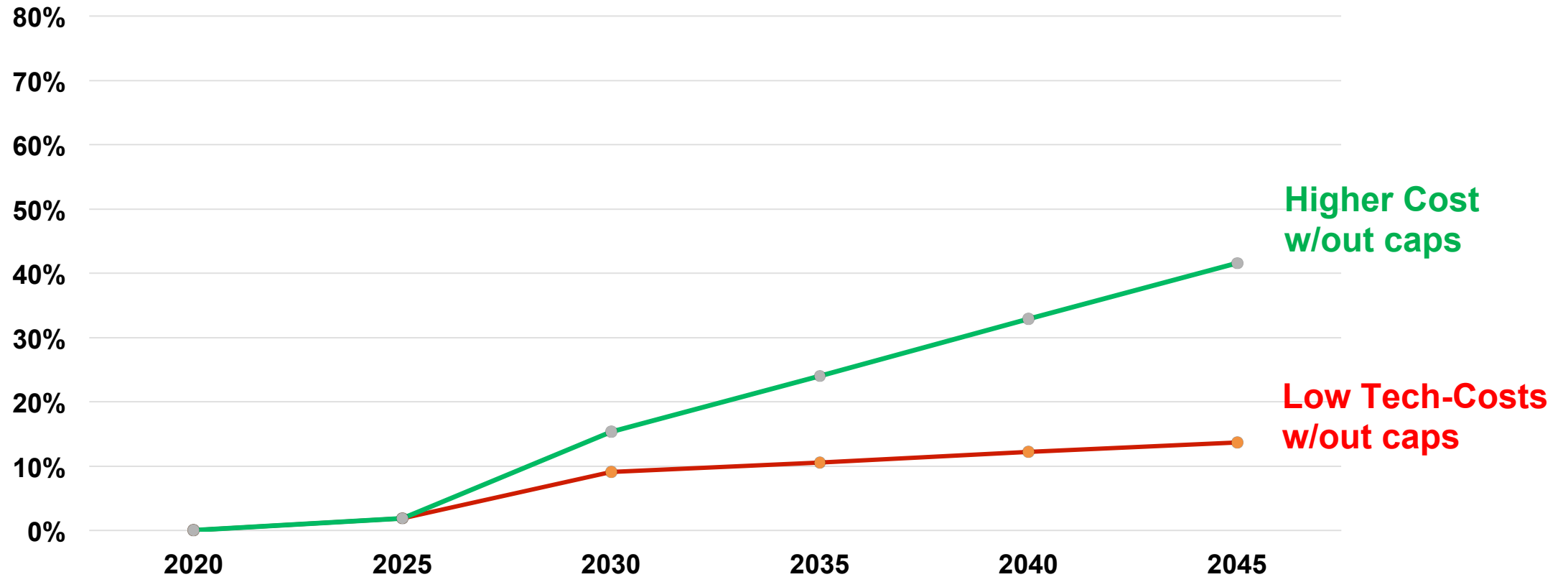
- Start from Utility-level data from most recent fuel mix (2017), publicly available from Commerce
- 4 steps +1 [no coal → \*80% GHG-free **plus** \*carbon neutral for remaining GHGs → \*99%+ GHG-free by 2045 → \*100% GHG-free (Cost impacts highly uncertain)]
- No load growth through 2030 (unlike E3);
- System reliability *likely* requires backup gas peakers by 2030 with 90% GHG-free system (E3 modelling).

\*Subject to cost-cap provision

# 100% Clean Power: Key Outputs

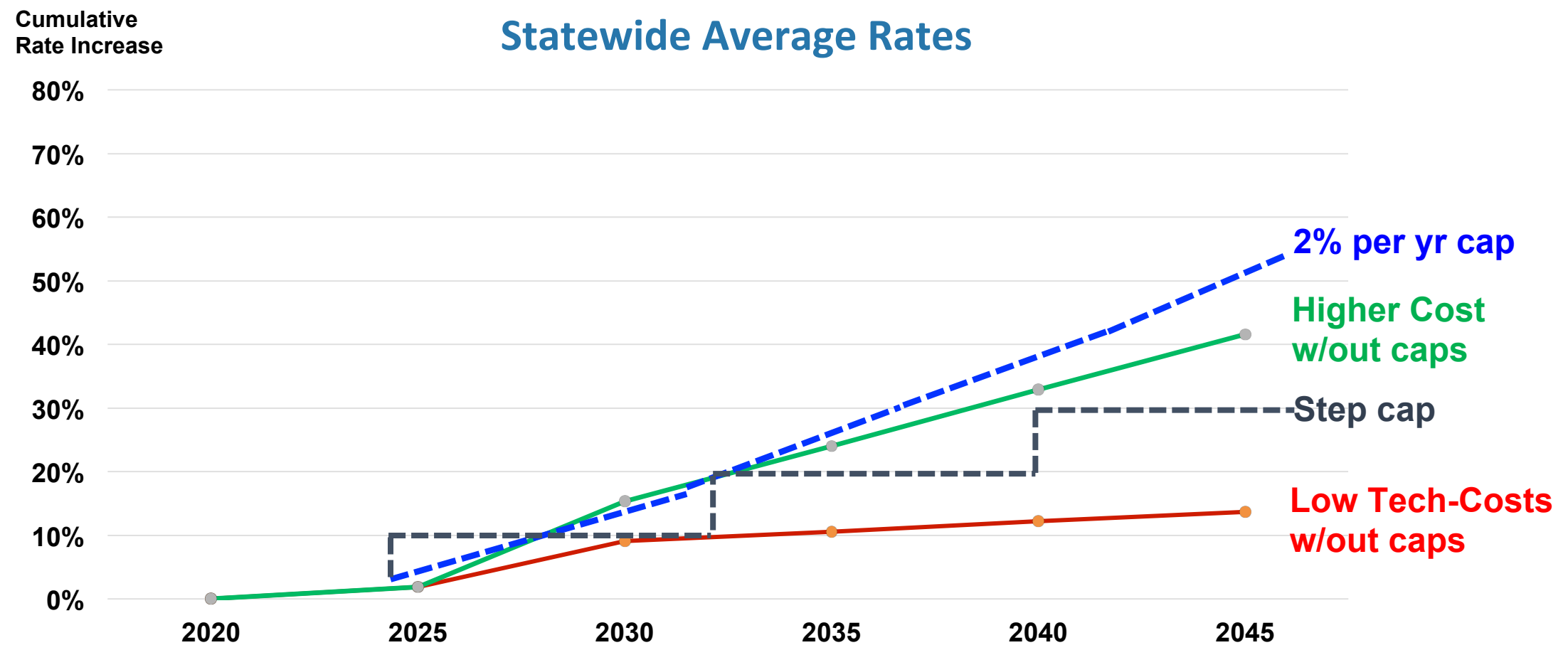
Cumulative  
Rate Increase

## Statewide Average Rates

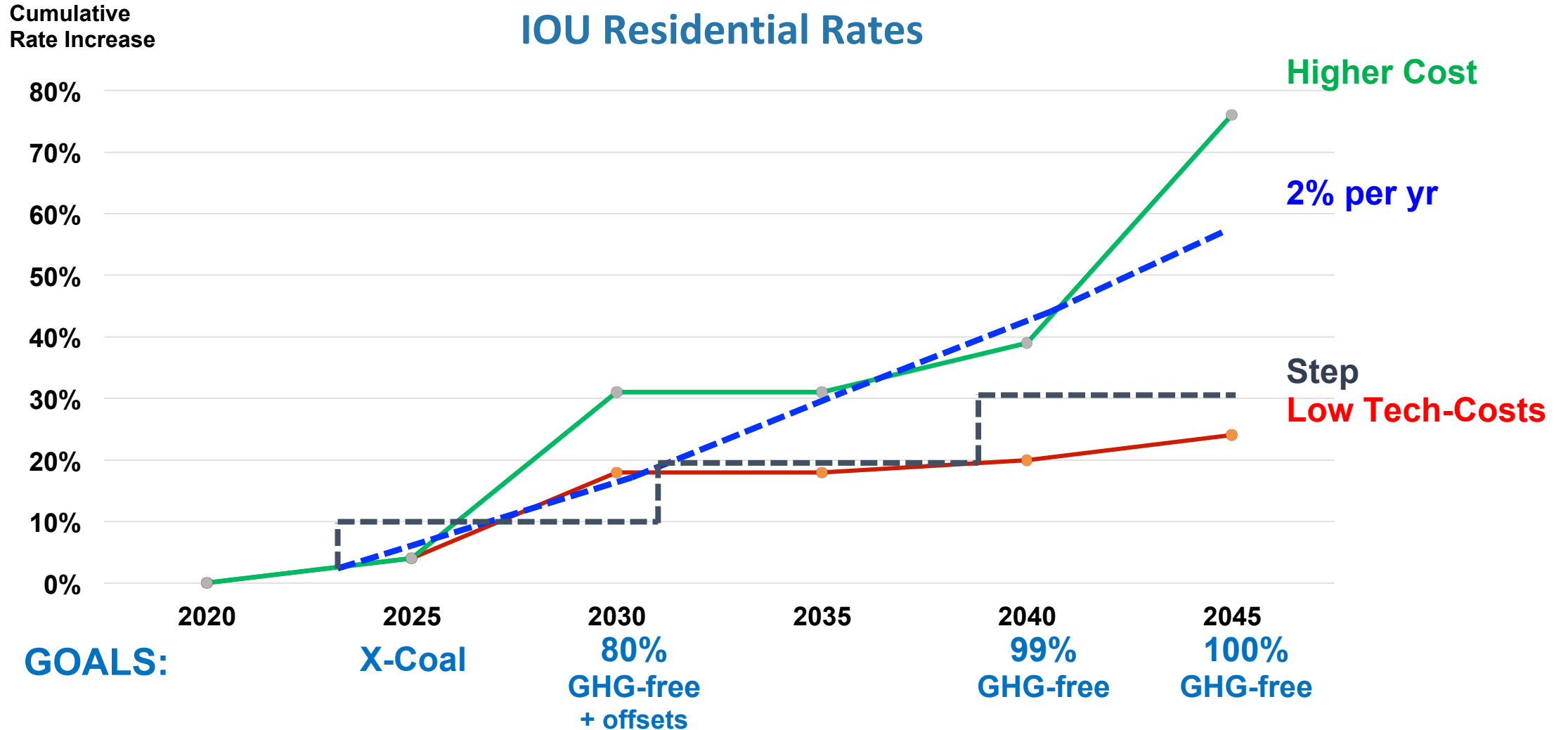




# 100% Clean Power: Key Outputs

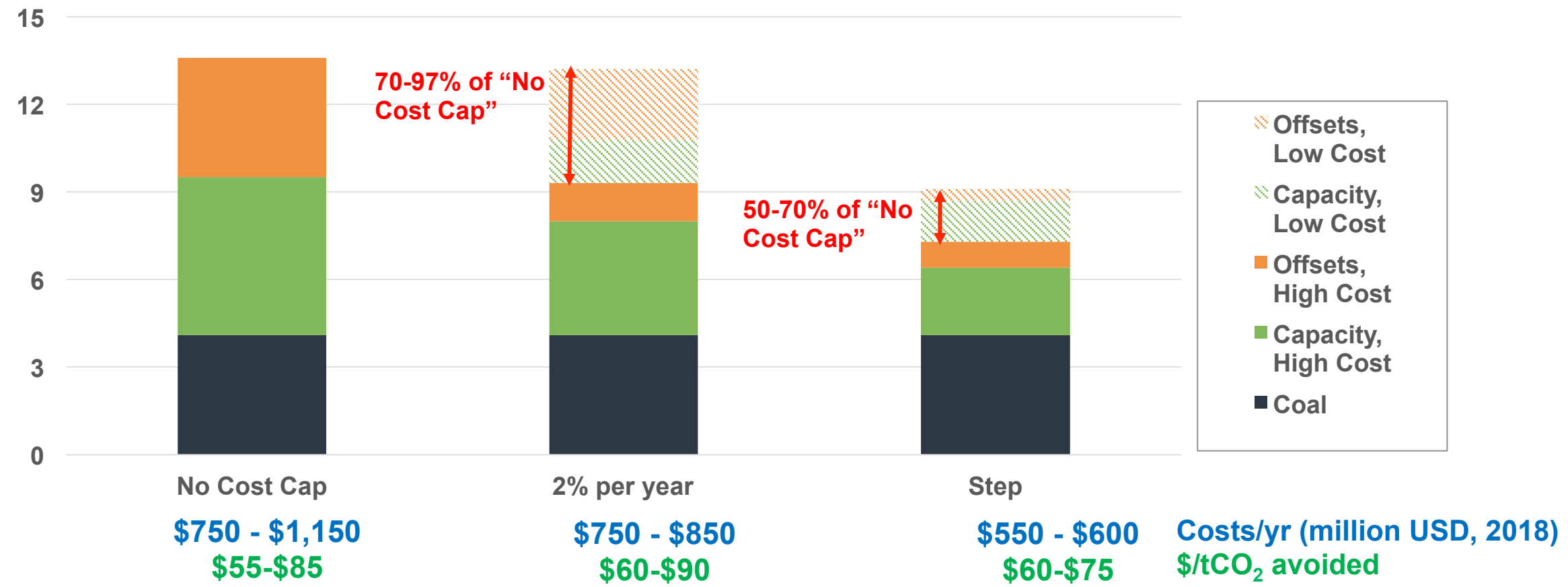


# Cost to Achieve 100% Clean Goals



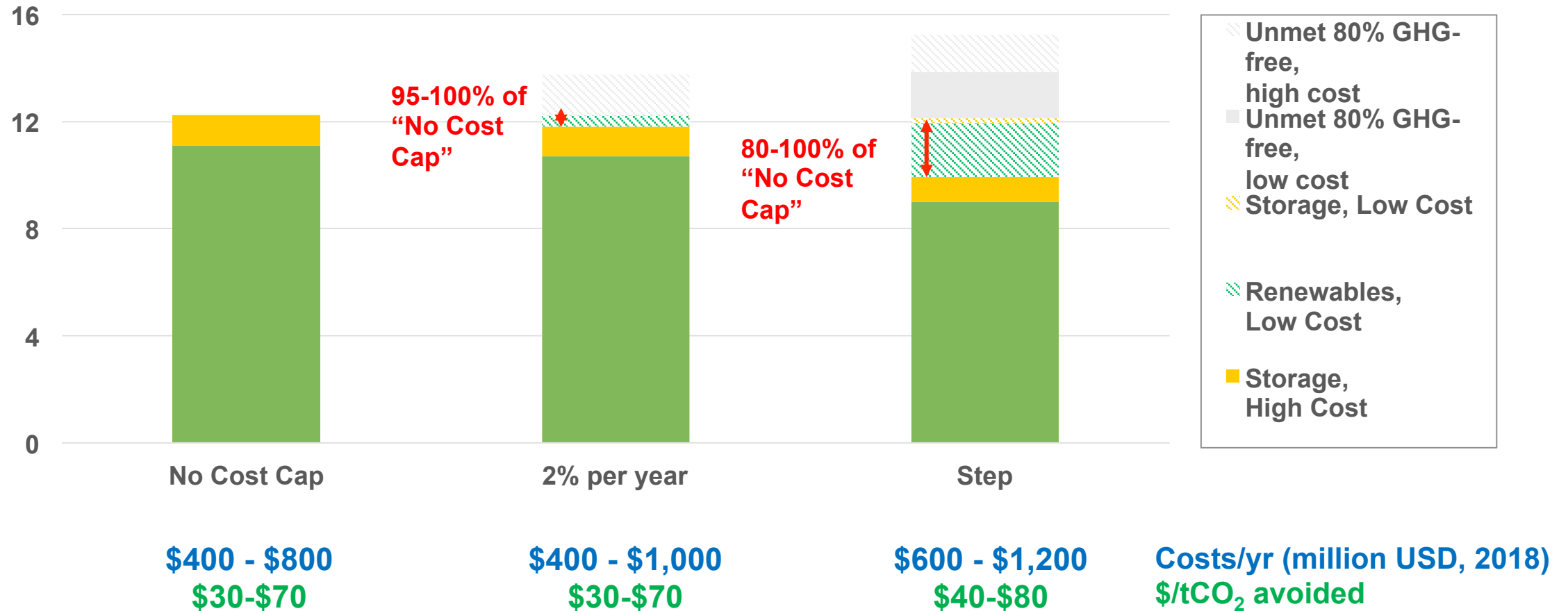
# Projected Impact of Cost Caps, Year 2030

MtCO<sub>2</sub> avoided / year



# Projected Impact of Cost Caps, Year 2045 (99% GHG-free)

MtCO<sub>2</sub> avoided / year



# Net Cost Cap Impact, from: no coal → 99%+ GHG-Free by 2045

No cost-cap: **17.6 MtCO<sub>2</sub>/yr** at **\$50-\$80/tCO<sub>2</sub>**

2%/year cost-cap: **17.2 – 17.6 MtCO<sub>2</sub>/yr** (98% to 100% of No cost-cap)  
at **\$50-\$95/tCO<sub>2</sub>**

Step increase cost-cap: **15.3 – 17.6 MtCO<sub>2</sub>/yr** (87% to 100% of No  
cost-cap)



# Low Carbon Prosperity: Strategy going forward



# Goals

- Integrates with Clean Energy Transformation Act
- Operates across the entire economy
- Fully inclusive, reasonable & fair treatment to EITEs
- Preempts other measures that would pancake
- Can link to CA & OR = West Coast Cooperative



# Los Angeles Times

COLUMN

MICHAEL HILTZIK

BUSINESS

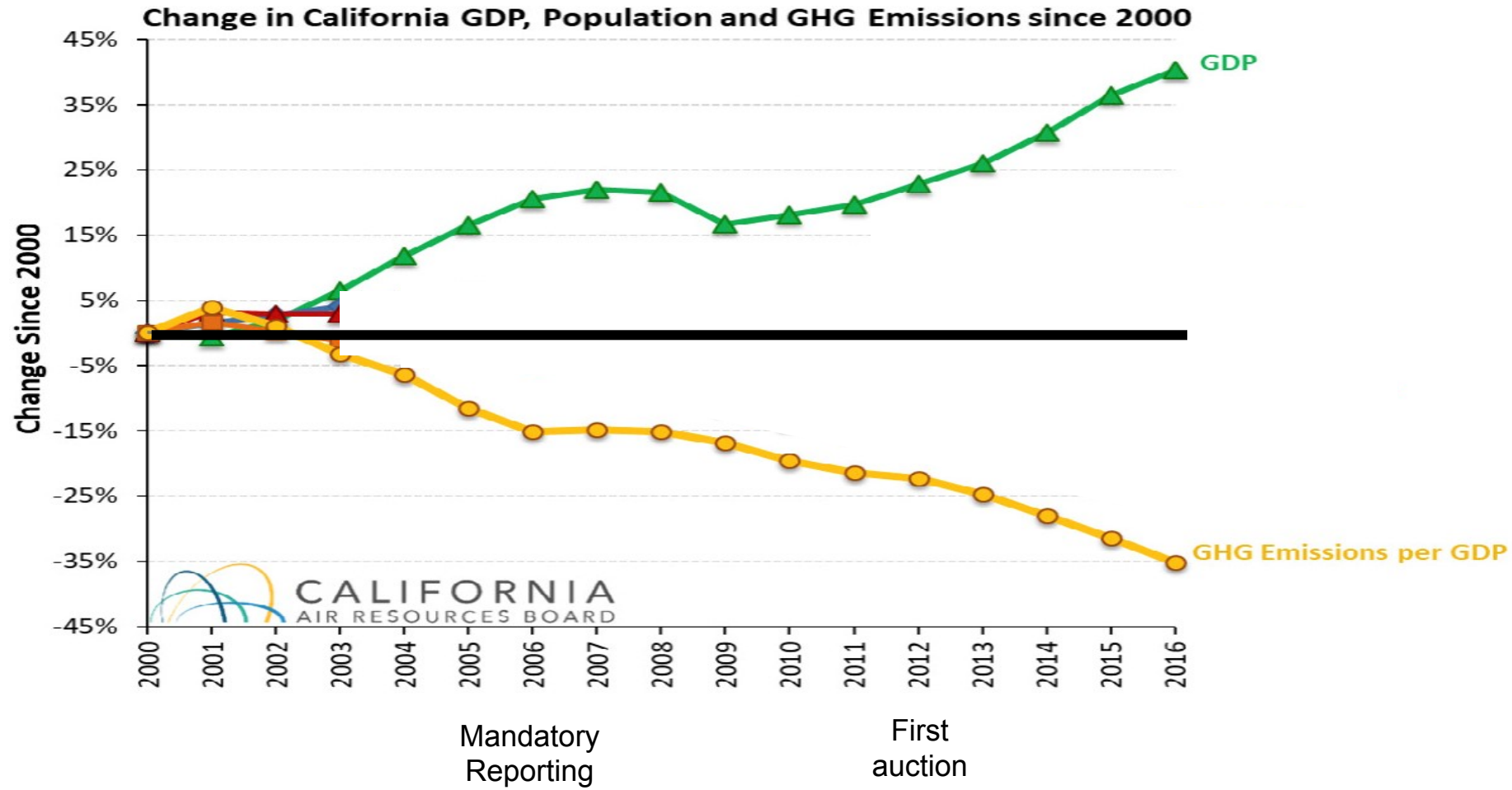
## No longer termed a 'failure,' California's cap-and-trade program faces a new critique: Is it too successful?

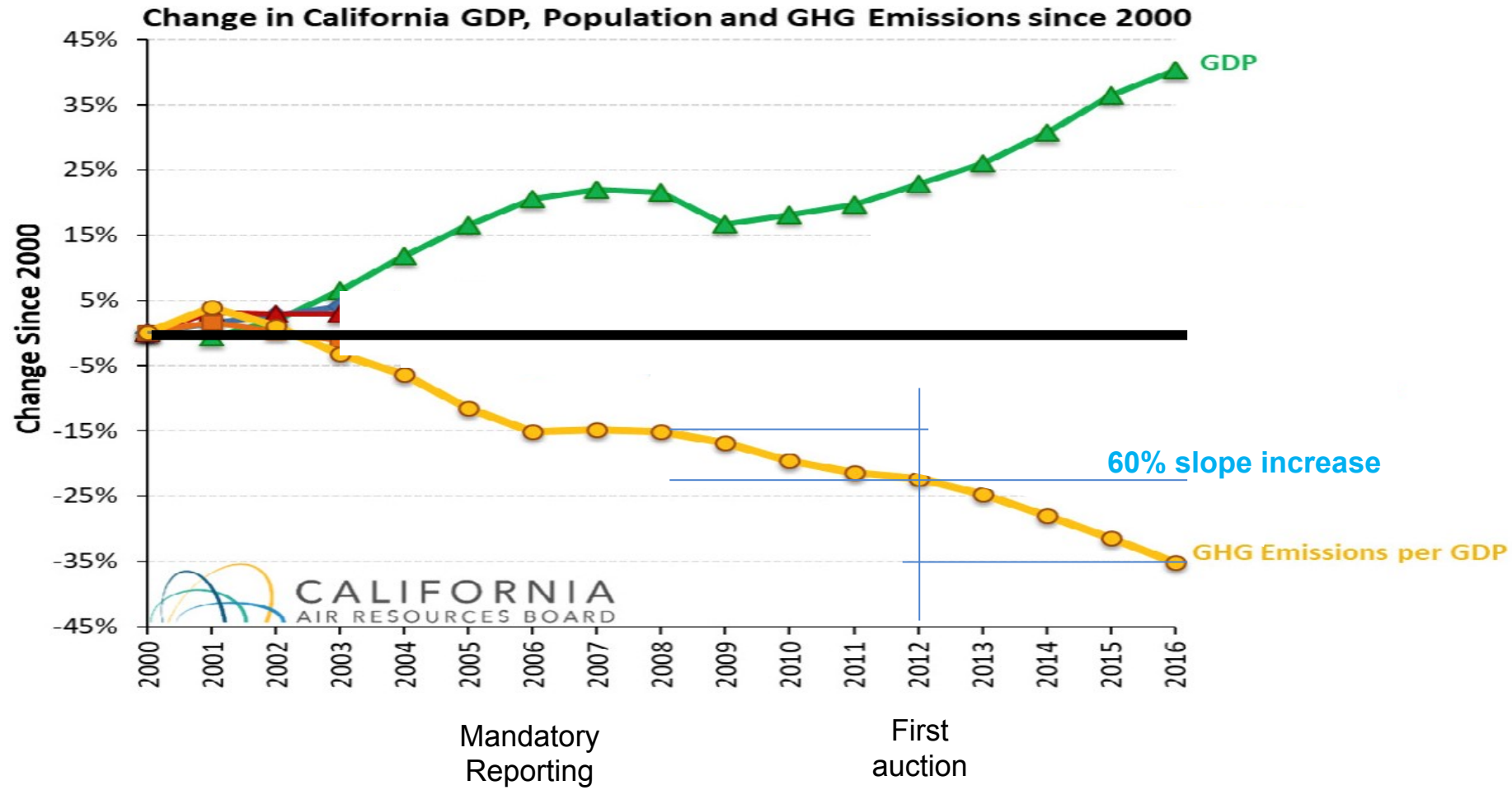
### California Achieves First Emissions Goal Early

📅 JULY 13, 2018 / 📌 AGRI-BUSINESS, 📌 REGULATION

This is the best-designed program in the world.

— DALLAS BURTRAW, RESOURCES FOR THE FUTURE





## Designing, implementing and operating an ETS in 10 steps



**Step 1:** Decide the scope **Mandatory Reporting**



**Step 2:** Set the cap



**Step 3:** Distribute allowances



**Step 4:** Consider the use of offsets



**Step 5:** Decide on temporal flexibility



**Step 6:** Address price predictability and cost containment



**Step 7:** Ensure compliance and oversight



**Step 8:** Engage stakeholders, communicate and build capacities



**Step 9:** Consider linking



**Step 10:** Implement, evaluate and improve

# Bill Review – Cap and Trade

- Past efforts
  - Multiple legislative proposals from Gov. Inslee
  - Supreme Court heard arguments on Clean Air Rule last week
- SB 5981 (Carlyle)
  - Renews economy-wide interest
  - Based on updated California model
  - Ecology projects ~75% coverage, \$800m in year one
  - Public hearing March 21st
- Link to transportation

# WaBA Spring Mixer 2019:

## The Future of Transport is the Future of Cities

### When

Wednesday, April 10, 6:00pm-9:00pm

### Where

Port of Seattle, East Atrium, 2711 Alaskan Way, Seattle

### RSVP

[LowCarbonProsperity.org/mixer](http://LowCarbonProsperity.org/mixer)

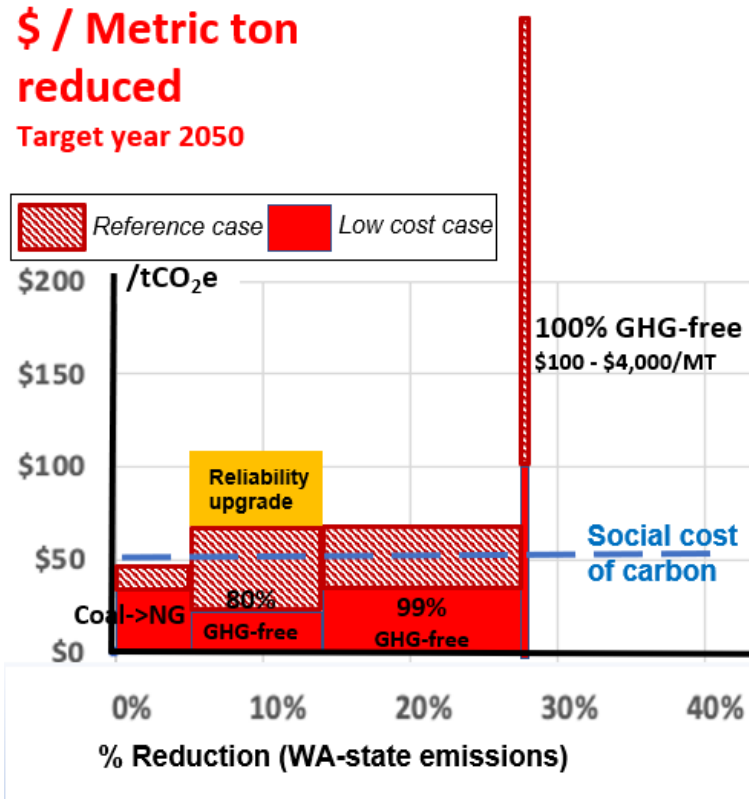


# Appendix



# Cost to Achieve 100% Clean Goals

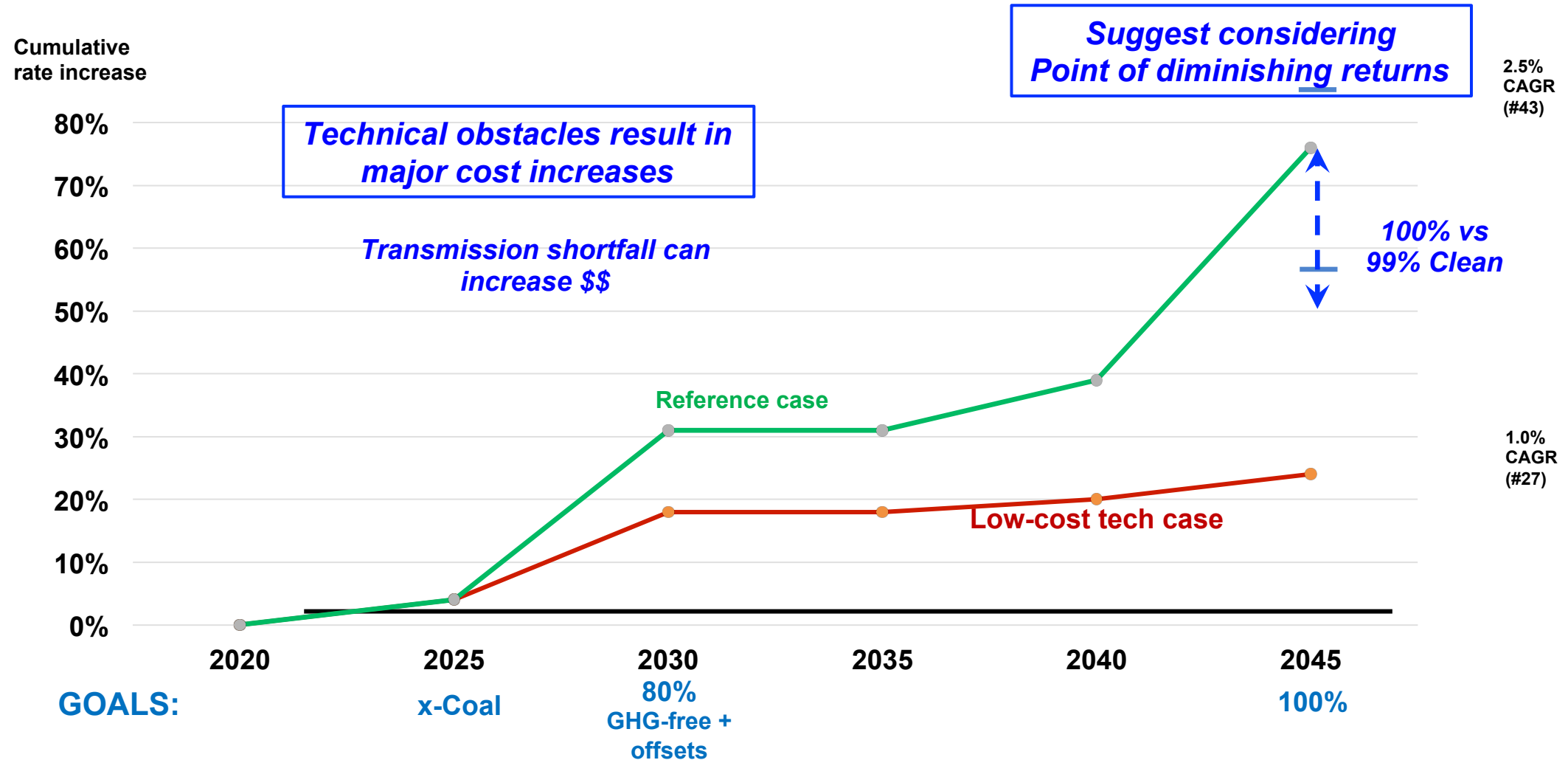
## Incremental Carbon Reduction Costs



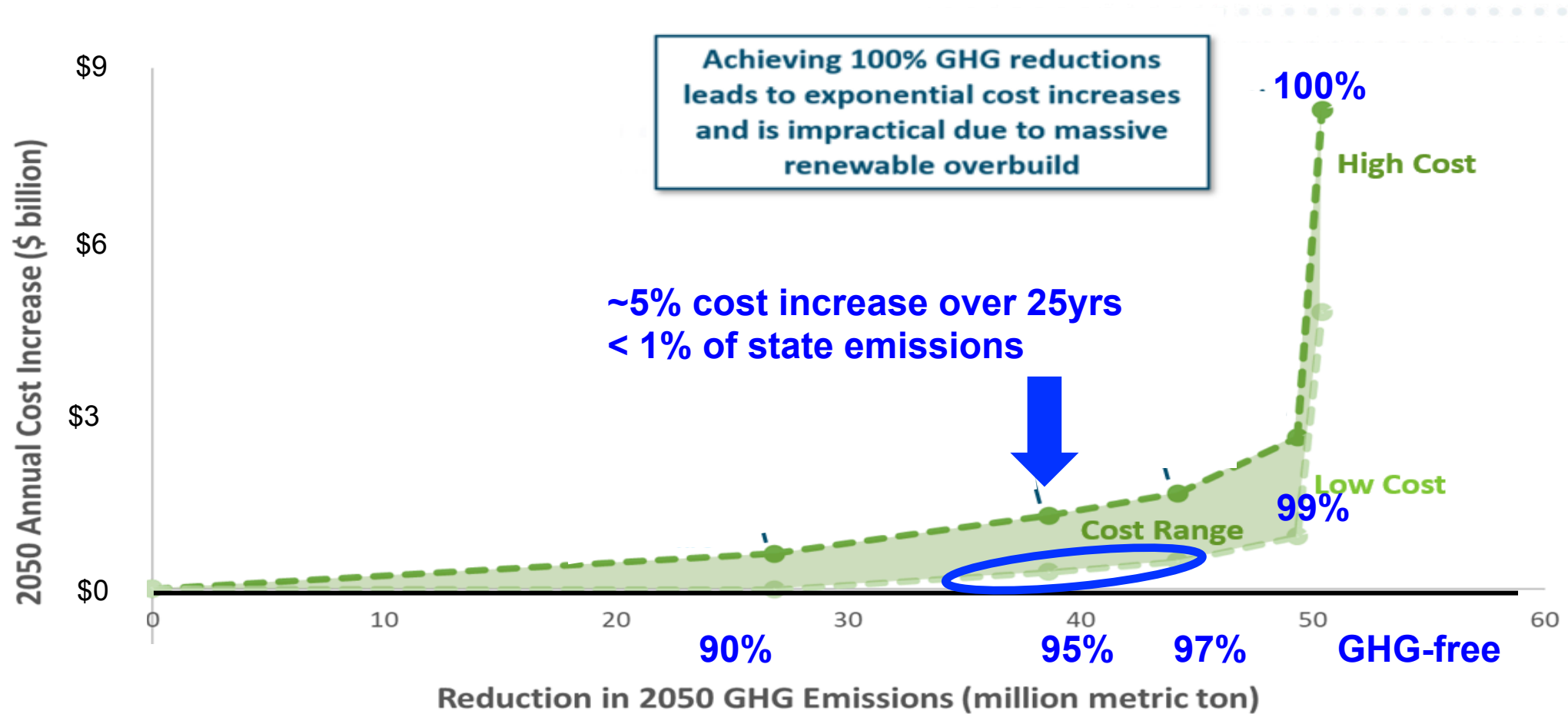
		% Reduction	Reference	Low Cost
		WA-state GHGs	\$/tCO <sub>2</sub>	\$/tCO <sub>2</sub>
1	coal → NG = BASE	4%	\$40	\$30
2	80% GHG-free w/ no coal (by utility), plus reliability upgrade (\$40/tCO <sub>2</sub> ) and offsets	10%	\$110	\$60
3	80% → 99% GHG-free w/ no coal, includes load growth to 2045	13%	\$70	\$30
4	99% → 100% GHG-free	0.5%	\$4,000	\$100

# Cost to Achieve 100% Clean Goals

## IOU avg residential rates before cap



# Point of Diminishing Returns



# 2% Annual Rate Increase Cap Implications

- Results for PSE's Portfolio with 2% annual rate increases
- 2030: ~60% non-emitting
- 2035: ~80% non-emitting
  
- Transmission Challenges
- Resources: Over 5,000 MW of new renewables
- Transmission: Have ~2,000 MW that might be usable
- Not even a half of what may be needed...
  
- Reliability!
- Will need fossil fuel plants for reliability
- Transmission construction needs to match resource development