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Draft California Building Decarbonization Assessment

Presentation by Michael Kenney

May 21, 2021

Assembly Bill 3232

Friedman, Chapter 373, Statutes of 2018

CEC to assess potential to reduce emissions

- In residential and commercial buildings
- By 40 percent below 1990 levels
- By January 1, 2030

Source: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB3232

Assembly Bill 3232

Assessment to include:

- CO_2e cost per metric ton
- Space and water heating cost-effectiveness
- GHG emission reduction from low-income and multifamily housing, high-rise buildings
- Load management strategies
- Ratepayer, construction costs, and grid reliability strategies

Source: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB3232

Building GHG Emission

- Systemwide emissions are 25% of total
- Direct emissions are 10% of total
- GHG reductions assessed relative to both baselines

Category	1990 Baseline ($MMTCO_2e$)	2018 Progress ($MMTCO_2e$)	2030 Target ($MMTCO_2e$)	Emissions Reduction Needed in 2030 ($MMTCO_2e$)
Baseline 1: Systemwide Emissions	124.1	79.9	74.4	5.5
Baseline 2: Direct Emissions	54.4	54.7	32.6	22.1

Seven Broad Strategies of Building Decarbonization

1. Building end-use electrification
2. Decarbonizing electricity generation system
3. Energy efficiency
4. Refrigerant conversion and leakage reduction
5. Distributed energy resources
6. Decarbonizing gas system
7. Demand flexibility

Variables Impacting Decarbonization

Customer/Consumer Impacts:

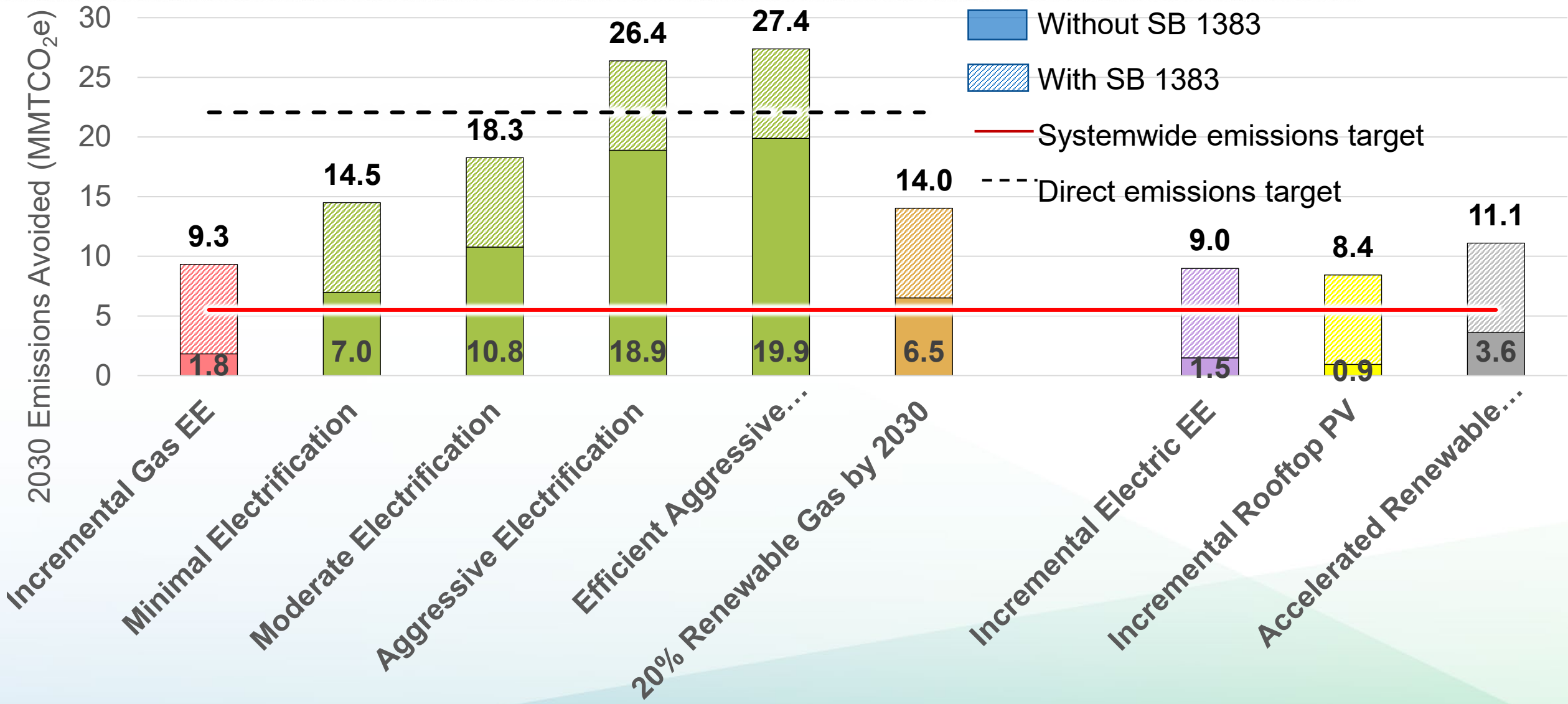
- Project financing
- Program design
- Scheduling retrofits
- Retrofit costs
- Cooking practices
- Utility bill changes
- Existing programmatic and regulatory restrictions
- Workforce training
- Split incentive

Variables Impacting Decarbonization Cont.

Building/Technology Impacts:

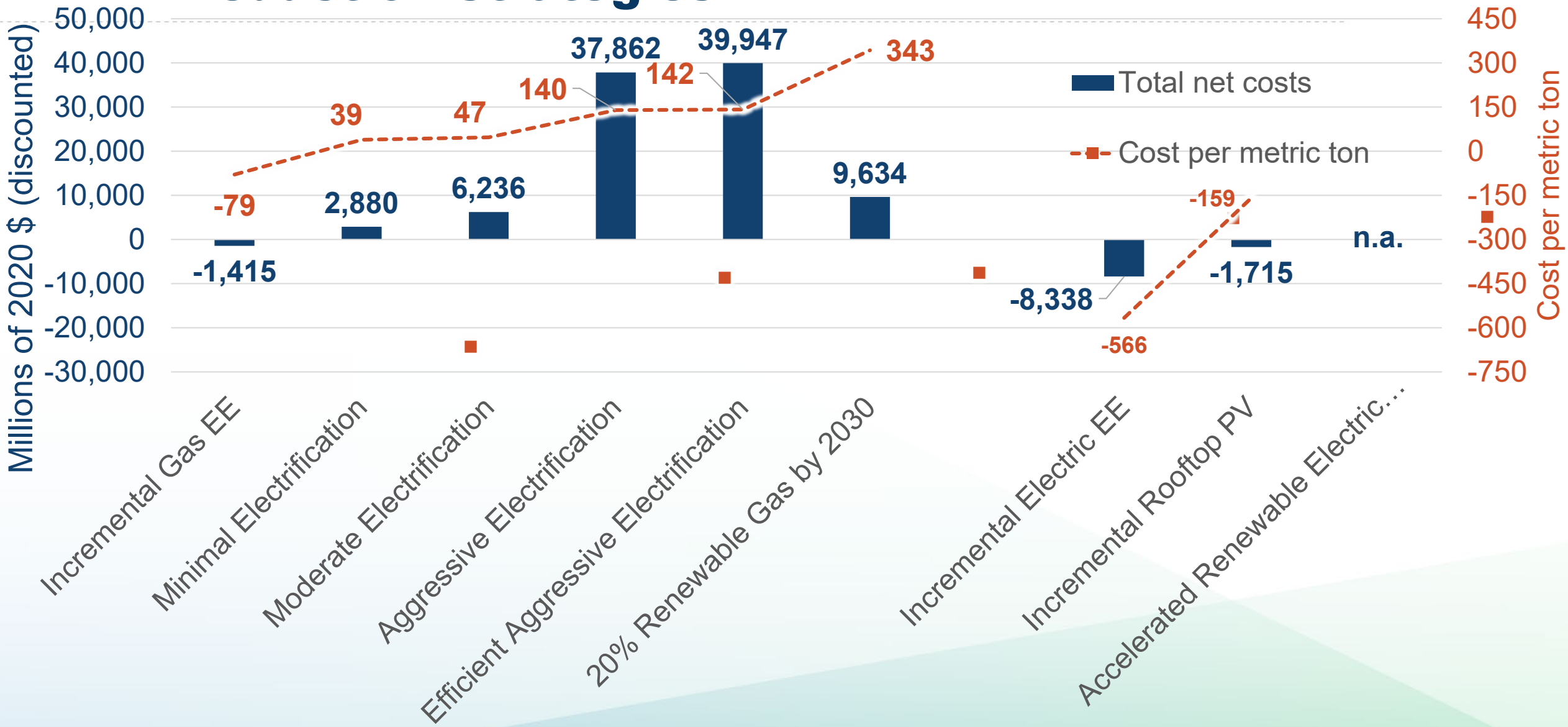
- Building age
- New construction practices and costs
- Renewable gas supply and cost
- Available low-GWP refrigerants and heat pumps
- Electric panel upgrades
- Internet access

Annual 2030 GHG reduction compared to 1990 baseline



Source: California Energy Commission

Cost Summary of the Assessed GHG Emission Reduction Strategies



Source: California Energy Commission

Assessment Conclusions

- On track for near-40% reduction by 2030
- Higher 2030 GHG target puts buildings on path for 2045 climate goals
- Newly constructed buildings have low decarbonization costs
- CA Energy Code will advance decarbonization
- Large investments in existing buildings needed

Assessment Conclusions Cont.

- Evaluate decarbonization actions through equity lens
- Government and stakeholder collaboration needed
- Emissions reduction through cost-effective energy efficiency
- Deep emissions reductions through efficient electrification
- Outreach and education needed
- Reliability impacts of increased electrification needed

Assessment Conclusions Cont.

- Refrigerant leakage reduction is critical
- Gas system role needs further assessment
- Incentives' role in adding new gas infrastructure for buildings needs review
- Clean energy workforce needs expansion and training
- Work in harmony with response to the housing crisis

Next Steps

Detail	Date
Stakeholder Comments Due	June 4
Adopt at business meeting and publish	Summer 2021
Update and expand assessment	2021 IEPR

Questions?

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