

# California's Energy Policy Trajectory

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California Energy Commission

NASEO Annual Meeting  
September 14, 2015



# California's 2030 Goals

- The Big Three:
  - 50% of CA's electricity from renewable sources
  - Cut petroleum use by vehicles in half
  - Double EE savings in existing buildings; cleaner heating fuels
- Context: Trajectory for emissions reduction goals
  - 1990 levels by 2020
  - 40% below 1990 levels by 2030
  - 80% below 1990 levels by 2050



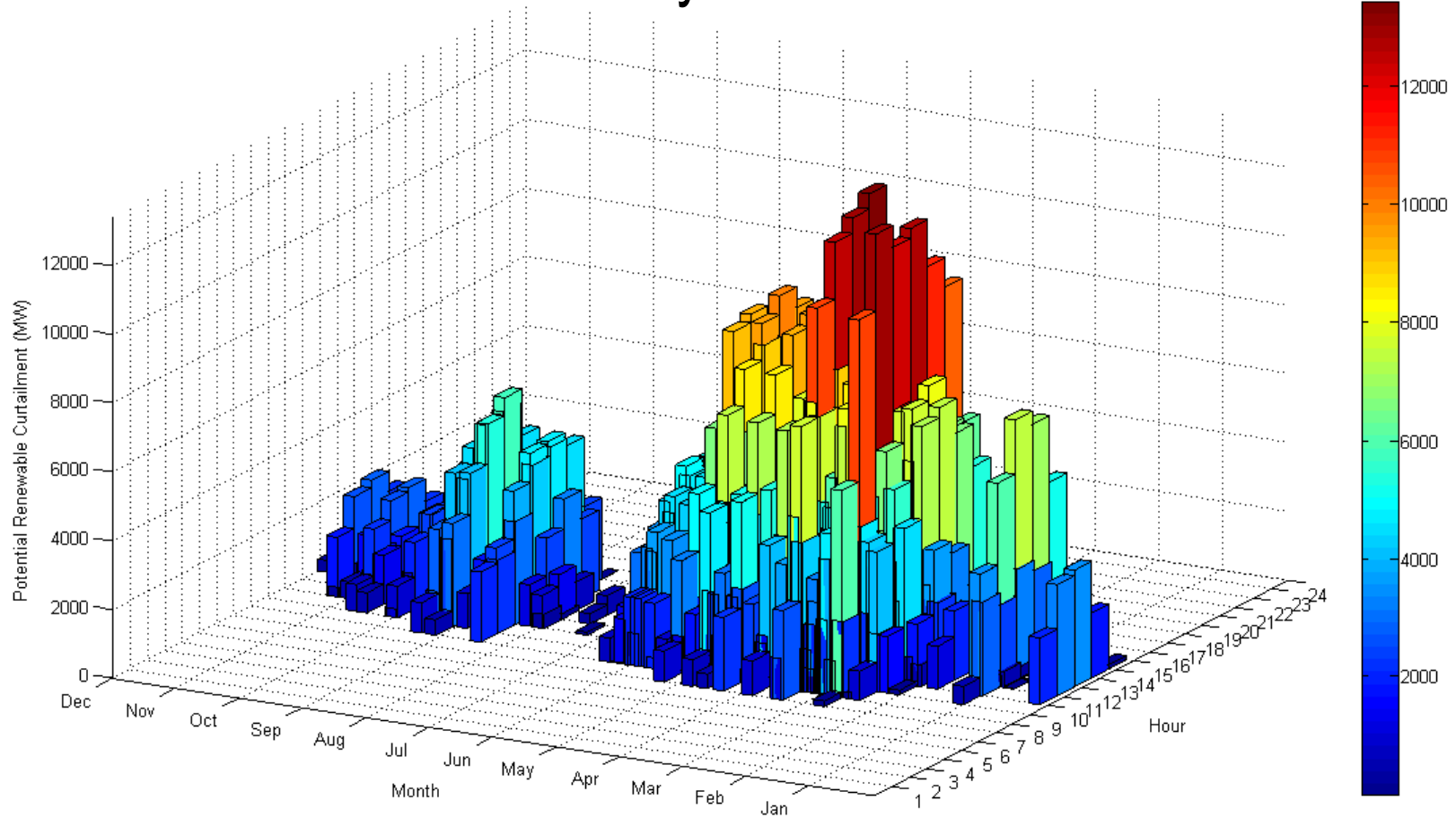
# 1. 50% Renewable Electricity by 2030

- Well on track for 33% by 2020
- Renewable capacity has doubled in the last 4 years
  - 21,000 MW online
  - Additional 11,000 MW mostly permitted
- Significant and ongoing cost reductions
- Strong growth in both large and small renewables
- Innovation for management of “excess” renewables
  - => Technology and market solutions



# CAISO: 40% RPS (around 2024)

## BAU Potential Hourly Curtailment Need



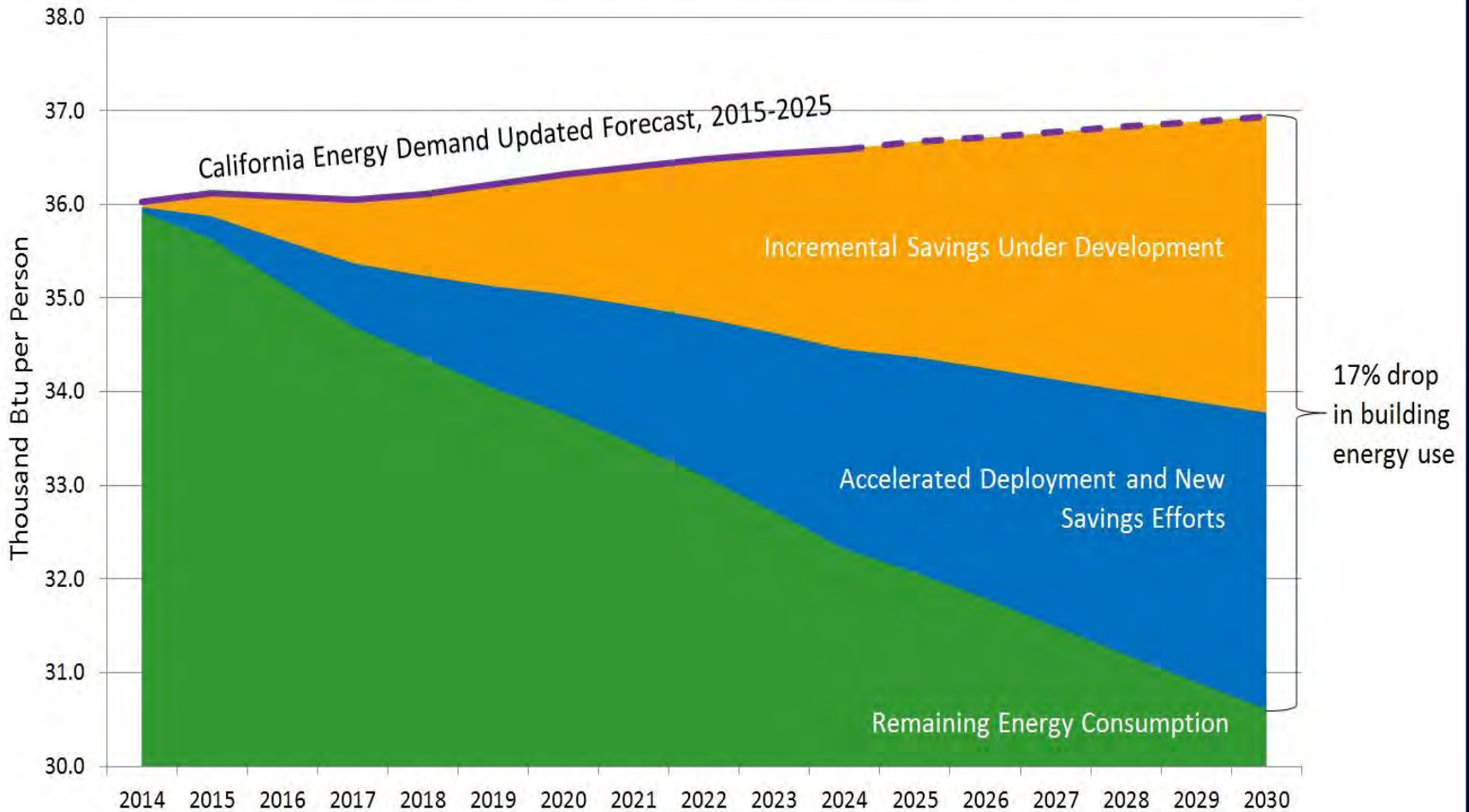
## 2. 50% Cut in Petroleum for Vehicles

- Governor's ZEV Action Plan
  - Goal: 1.5M ZEVs by 2025; fueling and charging infrastructure
- Advanced Clean Cars
  - Air Regulation: 1.4M ZEVs/ near-ZEVs by 2024
- State Implementation Plan (O<sub>3</sub>, Feds/Air Districts)
- Low-Carbon Fuel Standard
  - 10% C-content reduction by 2020
- Cap & Trade (Now includes liquid fuels)
- \$100M+ annually for infrastructure and R&D



# 3. Doubling Efficiency Savings

Reduction in Building Energy Consumption per Capita



# Energy Efficiency Tools in CA

- Codes and Standards
  - Building Standards (Title 24, Part 6)
  - Appliance Standards (Title 20)
  - Local Building Code Ordinances
    - 6 currently exceeding the 2013 standards
- Utility Programs
  - \$1.4 billion annually in rate-payer funding for electricity, natural gas, and low-income



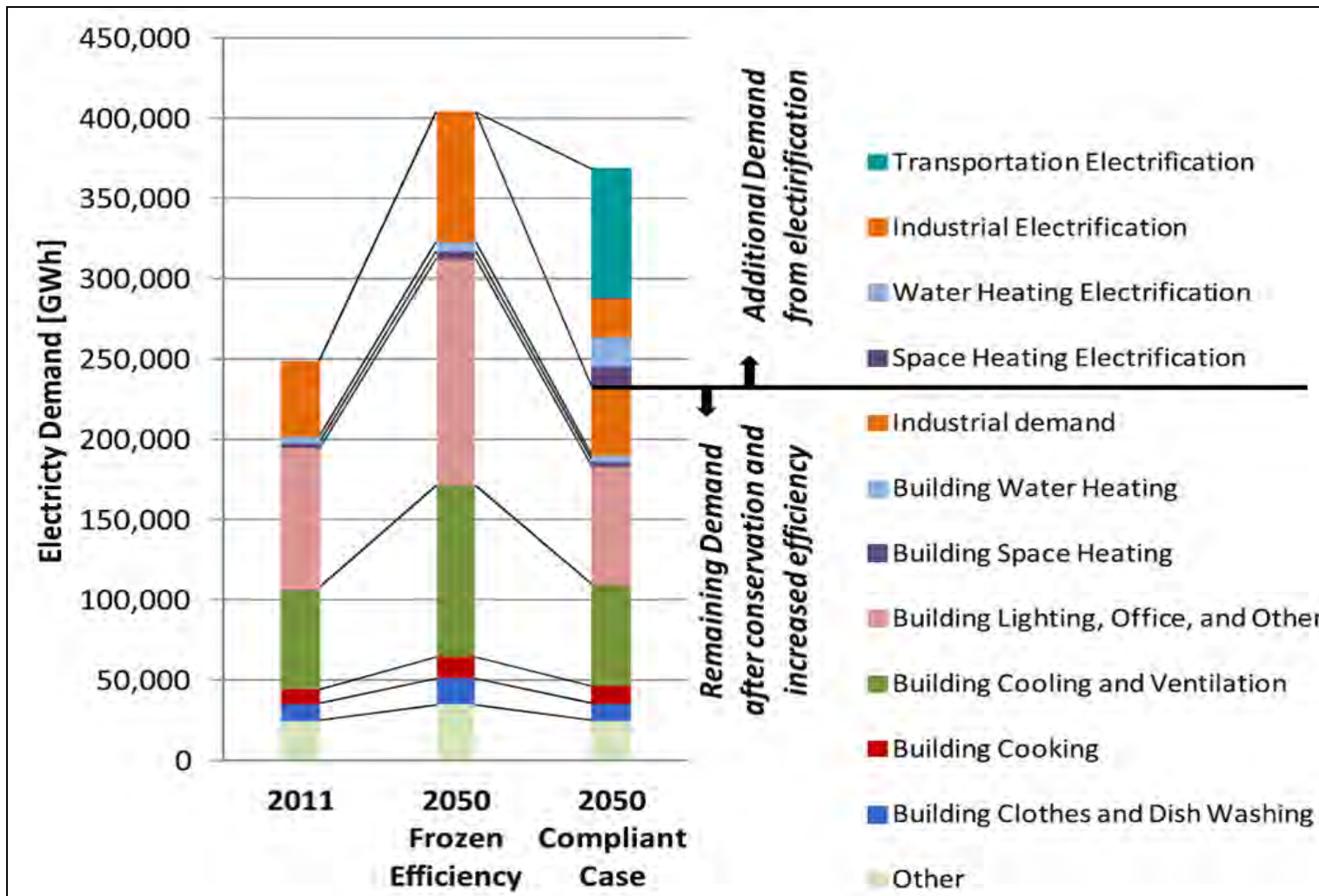
# Existing Buildings EE Action Plan

- Final Plan adopted 9/9/15
- Foundational efforts to enable appropriate market conditions for implementation of EE at scale
- A few top-level strategies:
  - Commercial & Multifamily Benchmarking & disclosure
  - Improved data access and analytics
    - Tools for policy makers, regulators, forecasting
    - Market activation decision support
  - Enable and partner with Local Government
- [www.energy.ca.gov/ab758](http://www.energy.ca.gov/ab758)





# Rapid transformation of our energy system is required



Source: Wei et al., 2013



# Keys to a Clean, Reliable Electric System

- Integration: large amounts of renewables
- Regionalization: power markets
  - With “enabling” investments in transmission
- Localization: active management of distribution grids, small-scale resources
  - EE, DR, storage and diverse generation
  - Specific attributes (availability, flexibility, ramp, duration, inertia etc.) must be monetizable



**Thank You!**

