

# CHF Forum

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California Energy Commission

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# California Energy Commission

The California Energy Commission is the state's primary energy policy and planning agency. Created by the Legislature in 1974 and has eight basic responsibilities as it sets state energy policy:

**IEPR**: Publishes the Integrated Energy Policy Report – the State's energy policy document

**Forecasting**: Forecasts future energy needs and maintains historical energy data

**R&D**: Administers research and development programs, advancing science and technology in energy related fields

**Energy Efficiency**: Promotes energy efficiency by setting the state's appliance and building standards (Title 20 & 24)

**Permitting**: Permits thermal power plants 50 MW or larger

**Renewable Energy**: Supports the development of renewables through certification of facilities and verification of generation

**Transportation**: Supports deployment of alternative and renewable fuel sources

**Contingency Planning**: Plans for and directs the State's response to energy emergencies



# CA Energy Efficiency Policy

- Building Standards began in 1977
- Appliance Standards began in 1976
- Energy Action Plan in 2003
- CA Global Warming Solution Act (AB 32) in 2006
- Integrated Energy Policy Report in 2007
- CA Long Term EE Strategic Plan in 2008
- Governor Brown Executive Order B-18-12
- Existing Buildings EE Action Plan in 2015
- Executive orders to further reduce emissions
  - 40% below 1990 levels by 2030
  - 80% below 1990 levels by 2050

# California's 2030 Energy Goals

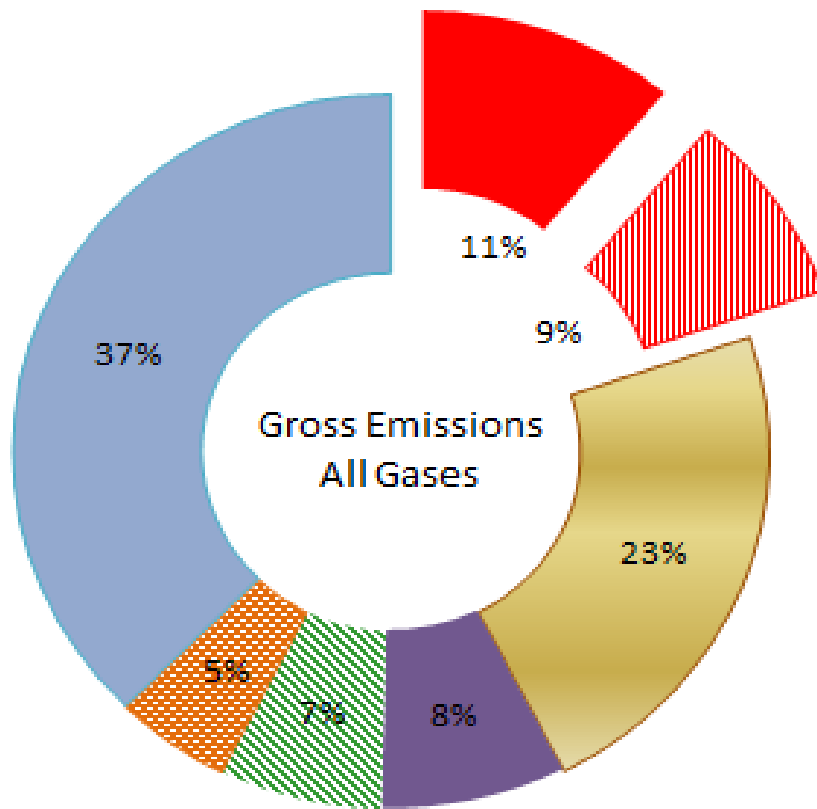
- SB 350 (2015, De León)
  - 50% of electricity from renewable sources
  - Strategies to significantly reduce petroleum use
  - Double expected energy & demand savings from EE
  - Transition to cleaner heating fuels
- Ensure CA trajectory for its long term climate goals
- Necessitates continuing focus on buildings, especially existing buildings
  - Buildings > 20% CA GHG emissions
  - Buildings ~68% CA electricity & ~55% CA natural gas
  - Existing homes still ~87% of CA housing in 2030
  - Existing commercial still ~80% of Sq Ft in 2030



# Emissions Contribution by Sector

## 2013 GHG Emissions by Sector

Million Metric Tonnes of CO<sub>2</sub> Equivalent (MMTCO<sub>2</sub>e)



2020 Target = 431 MMTCO<sub>2</sub>e

Total = 459 MMTCO<sub>2</sub>e

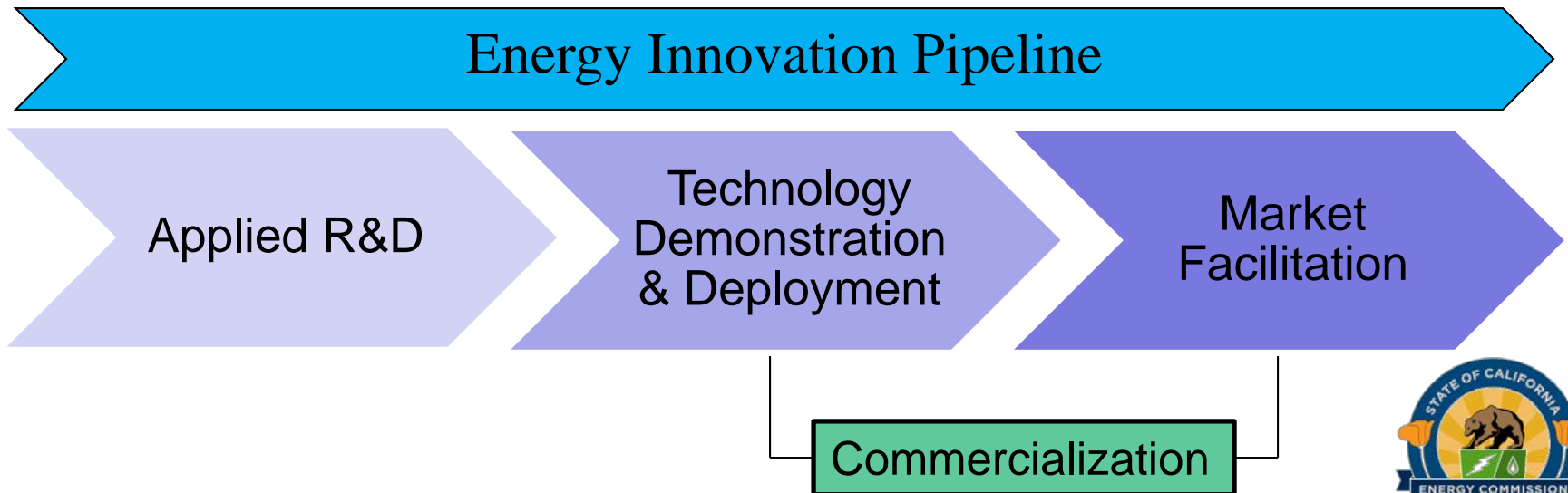
- Electricity Generation - In State
- ▨ Electricity Generation - Imports
- Industrial
- Agricultural
- ▨ Residential
- ▨ Commercial
- Transportation

Source: CA Air Resources Board, 2015 Greenhouse Gas Emission Inventory



# CA Research and Clean Energy Funding

- Over \$1 billion annually in rate-payer funded electricity, natural gas, and low income efficiency programs
- Over \$300 million annually in clean energy and transportation research



# CA Building EE Standards

- 2016 Standards
  - Focus on performance standards (assembly U-factors) rather than prescriptive (specific assemblies)
  - Give flexibility and support innovate solutions
  - Big changes to envelope – attics & walls
  - PV credit
    - Begin to integrate renewables
    - Transition period for changes in building practice
  - Collaboration with CPUC/IOUs to establish financial support for builders who use HPA & HPW
  - CHF received award in competitive R&D solicitation on workforce training related to ZNE



# CA Building EE Standards

- 2019 Standards
  - Move out of transition period related to changes in building practice for envelope improvements
  - High performance envelopes are a critical element of low-energy homes and should be established as the norm
  - Continued focus on performance approaches
  - ZNE will be evaluated for potential inclusion as a measure for low-rise residential
    - Technically feasible
    - Must be found cost-effective





# CPUC/IOU ZNE Studies



The Technical Feasibility of  
Zero Net Energy Buildings in California

December 2012



For Pacific Gas and Electric Company

On behalf of:

Southern California Edison

San Diego Gas and Electric Company

Southern California Gas Company

ARUP

The Technical Feasibility  
of Zero Net Energy  
Buildings in California  
(ARUP)

Road to ZNE: Mapping  
Pathways to ZNE  
Buildings in California  
(HMG/TRC)

Both available at [www.calmac.org](http://www.calmac.org)

# CA Building EE Standards – ZNE

- Does not imply a building with zero utility costs
- Code is based on estimated energy use determined for the building design
- Actual energy use depends on operation of the building
- All buildings require a compliance pathway
  - Necessary to establish reasonable exceptions to account for building and building site limitations
  - Possible example would be community based renewables



# CA Building EE Standards

- Continuing work with RESNET and industry to bring CA HERS and National HERS closer together
- Pursuing aggressive appliance standards to address rapidly growing plug loads
- Improved implementation and compliance support
- Reduce complexity and volume of compliance documentation
- Continuous improvement in CBECC compliance software
  - Attempt to minimize the impact of a software update that impacts compliance



**Thank You**