California Energy Efficiency Strategic Plan

Paula Gruendling
Regulatory Analyst

California Public Utilities Commission

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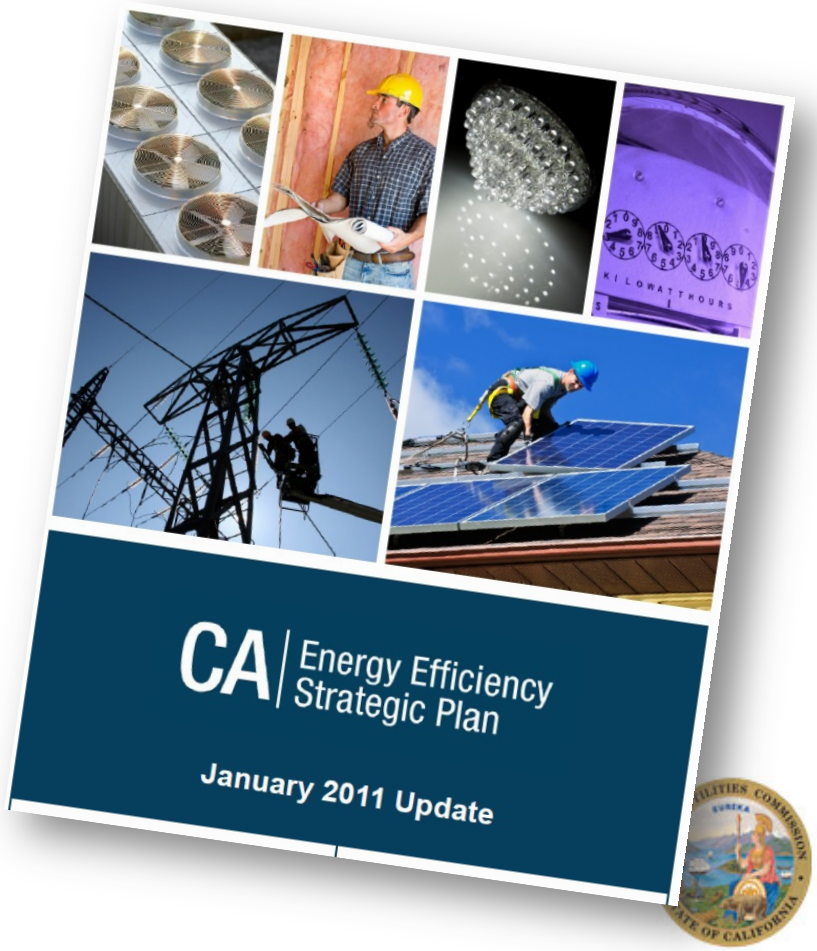
Presentation Overview

- California Energy Efficiency Strategic Plan
- Strategic Plan Implementation
- Strategic Plan Successes
- Challenges to Implementation
- Residential ZNE Action Plan
- Challenges to Residential ZNE
- Planning Strategy

California Energy Efficiency Strategic Plan

California Long Term Energy Efficiency Strategic Plan (CEESP)

- In September of 2008, the CPUC adopted California's first Long Term Energy Efficiency Strategic Plan presenting
  - A single roadmap to achieve maximum energy savings across all major groups and sectors in California.
  - Comprehensive Plan for 2009 to 2020 and beyond is the state's first integrated framework of goals and strategies, covering government, utility, and private sector actions, and holds energy efficiency to its role as the highest priority resource in meeting California's energy needs.



Big Bold Goals




- All new residential construction in California will be zero net energy by 2020
- All new commercial construction in California will be zero net energy by 2030
- Heating, Ventilation and Air Conditioning (HVAC) will be transformed to ensure that its energy performance is optimal for California's climate
- All eligible low-income customers will be given the opportunity to participate in the low income energy efficiency program by 2020.

The Strategic Plan

GOALS

- Achieve all cost-effective energy efficiency in the state
- Establish vision and framework for market transformation (e.g., ZNE)
- Coordinate statewide policy though programs
- Inspire the next generation of EE programs and technologies
- Galvanize the broader market
- Measure success and track progress

USES

- Provides ongoing guidance to Program Administrators while pushing program innovation
- Delivers consistent regulatory signal to support market development
- Facilitates legal obligation to ID all potentially achievable CE savings
- Provides overall vision, inspiration and direction to ED staff
- Galvanizes market actors via action plans and champions networks

Areas/Chapters

- Residential (+ Low Income)
- Commercial
- Industrial
- Agricultural
- HVAC
- Codes and Standards
- Demand Side Coordination (EE, DG, DR)
- Workforce, Education & Training
- Marketing, Education & Outreach
- Research and Technology
- Local Government
- Lighting

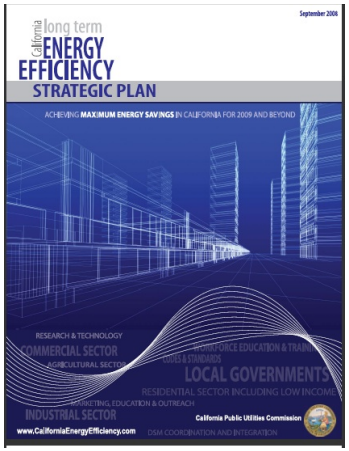
Stakeholder Investment

To remove public intervention, stakeholders must be invested enough to carry the changes in market themselves

Stakeholders must be involved in creation of market goals to become invested

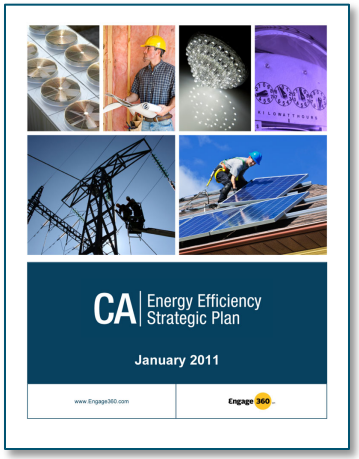
Planned Update

2008



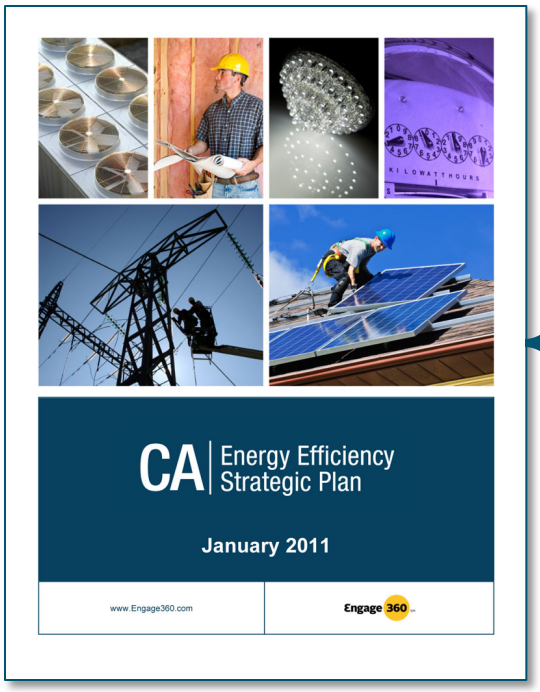
- 13 chapters (with repetition)
- Short-, mid-, long- term grids
- One-time reference to PGT
- Limited engagement from other State Agencies

2014-15



- Organized by building type
- Universal actions plans, PGT integration, measurable goals
- Screened for redundancy, relevancy, up-to-date content
- Dedicated x-agency involvement

Strategic Plan Implementation



IOU Portfolios

State Agencies

Action Plans

Champions Network

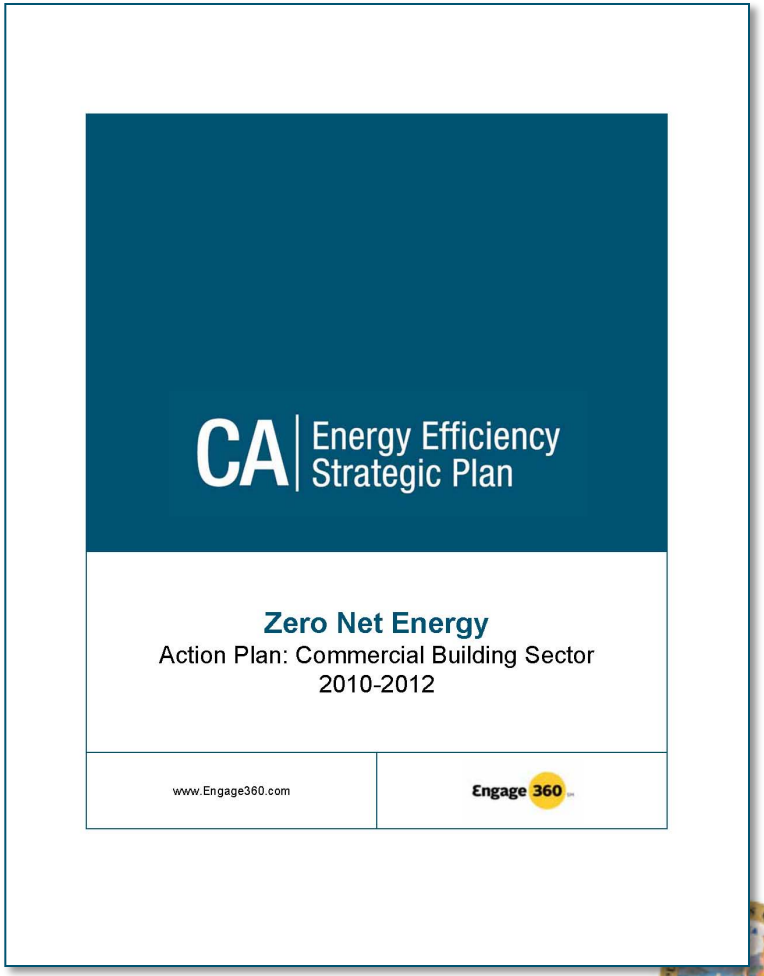
Foundation Grants

Big Bold Energy Efficiency Strategies

Action Plans

Completed:
- Commercial ZNE
- HVAC
- Lighting
- Codes and Standards
- Emerging Technologies

In progress or in draft form:
- Local Government
- Residential ZNE
- Commercial ZNE (update)
- Industrial



Strategic Plan Successes

Successes

ZNE Center, San Leandro

- Executive Order: New CA buildings 2025+ to be ZNE
- Title 24 requires new building commissioning plans
- Western HVAC Performance Alliance
- Federal standards for quality installation & maintenance
- 2013-14 EE portfolio supports lighting MT
- IDSM and workforce training playing greater role in IOU EE portfolios.

Strategic Plan Implementation Challenges

Challenges

- Limited authority
- Tension w/C+S, incremental savings
- Limited staff resources at CPUC (time, expertise)
- Role of POUs
- Disputes over savings metrics and definitions of MT
- Unclear if ZNE goals are achievable

Residential ZNE Action Plan

ZNE Definition

"A ZNE Code Building is one where the ***net of the amount of energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building****, at the level of a single "project" seeking development entitlements and building code permits, measured using the California Energy Commission's Time Dependent Valuation (TDV) metric.* ***A ZNE Code Building meets an Energy Use Intensity value*** *designated in the Building Energy Efficiency Standards by building type and climate zone that reflects best practices for highly efficient buildings."* (IEPR 2013).

In other words… A **ZNE (Code) Building**

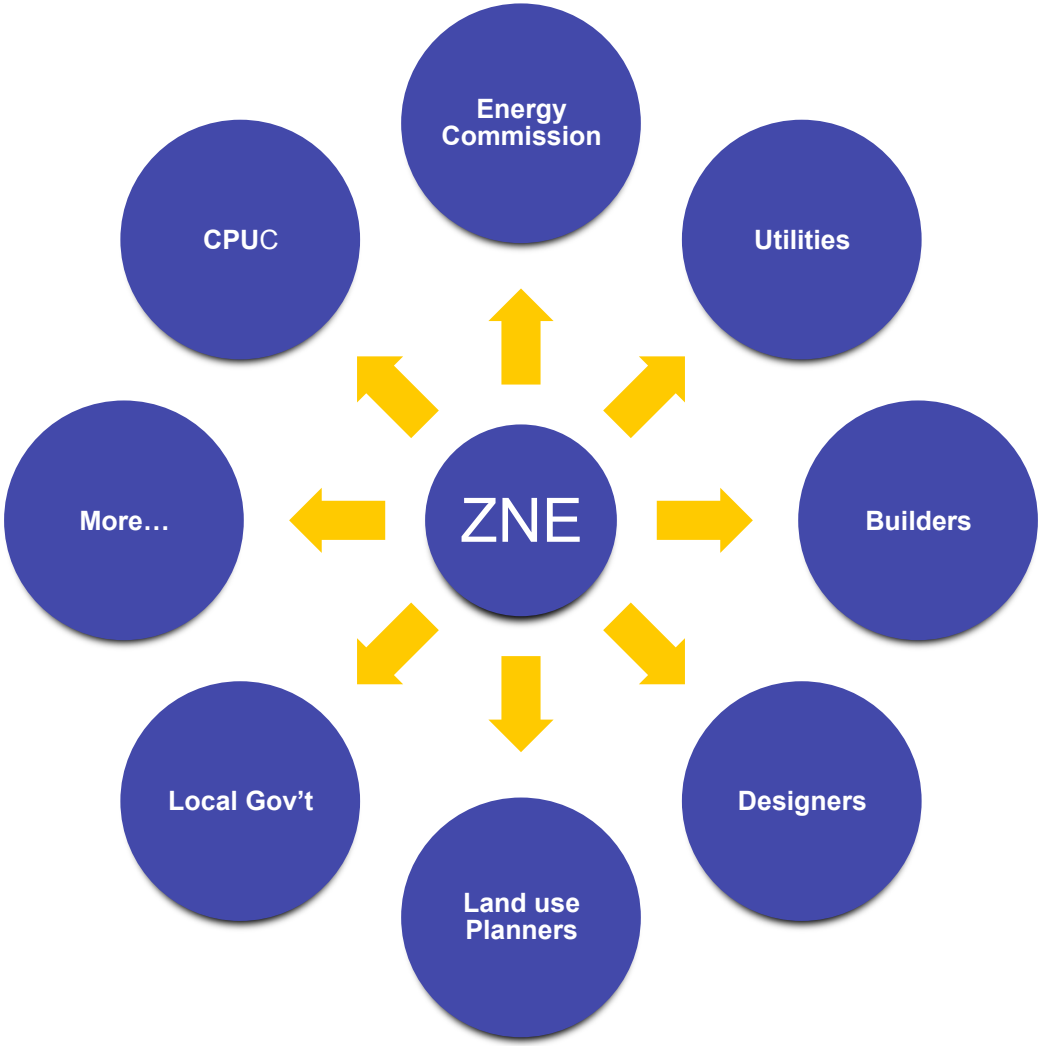
Accomplishes deep Energy Efficiency (and DR) first

Then produces as much onsite renewable energy in the course of a year as it consumes (measured using TDV).

Does not imply zero utility costs

Source: IEPR 2013 (CEC-100-2013-001-CMF available at www.energy.ca.gov)

Who is involved in reaching this goal?



Developing Residential ZNE Action Plan

- Developing a foundation and a guide to ensure we can meet the State's goals
- Extensive stakeholder engagement
- Interagency work sessions
- Multidisciplinary subcommittees
- Planning website
- www.CaliforniaZNEhomes.com

Residential ZNE Action Plan

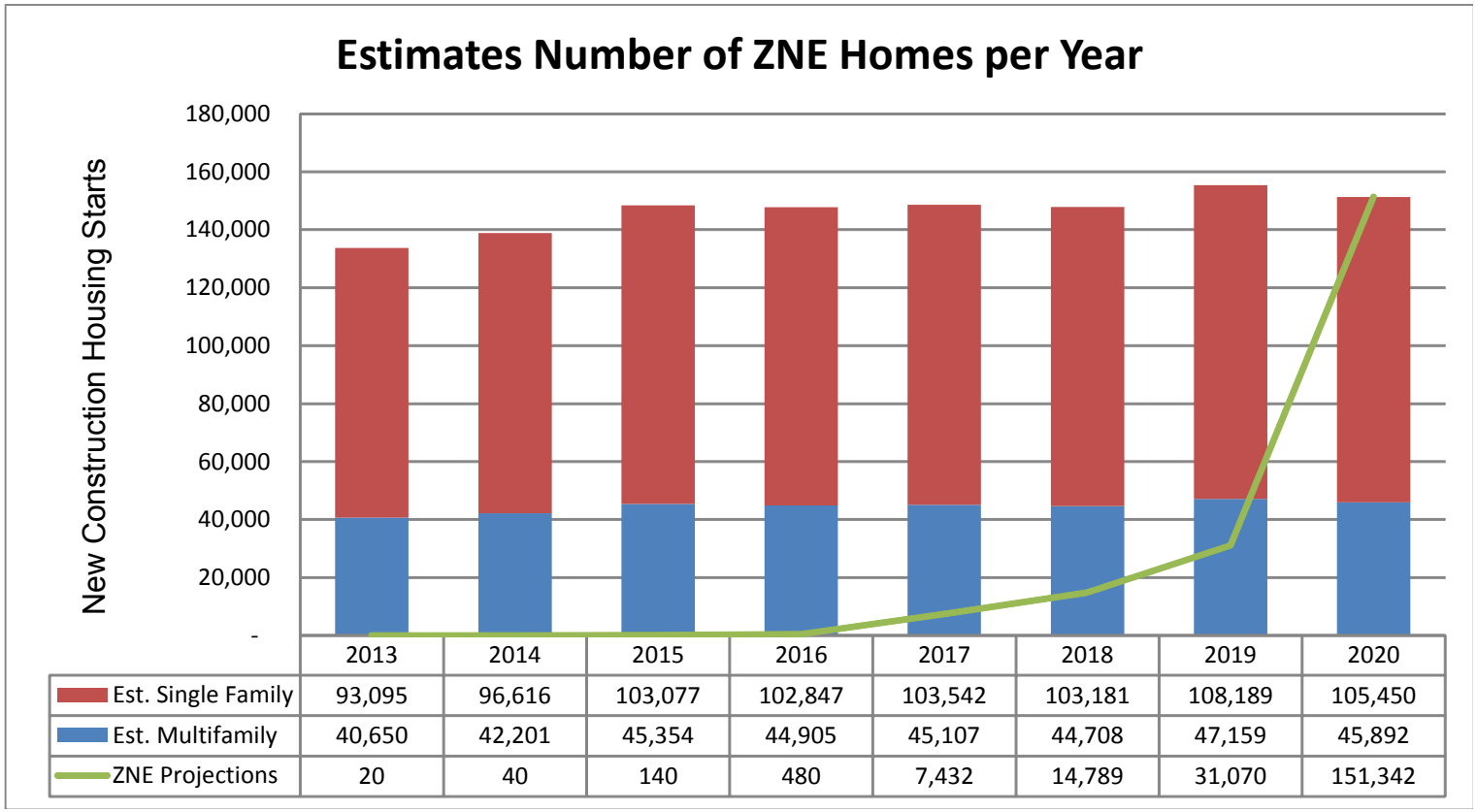
Vision

100% of all New Homes in California will be ZNE starting in 2020

Guiding Principles

- Market Driven
- Flexible
- Leverage
- Consistency
- Measurable
- Multiple Paths

Overarching Benchmarks



	2013	2014	2015	2016	2017	2018	2019	2020
Est. Single Family	93,095	96,616	103,077	102,847	103,542	103,181	108,189	105,450
Est. Multifamily	40,650	42,201	45,354	44,905	45,107	44,708	47,159	45,892
ZNE Projections	20	40	140	480	7,432	14,789	31,070	151,342

Source: NC housing starts based on the 2013 Integrated energy Policy report for single-family and multifamily household.

ZNE Goal Challenges

Challenges to ZNE Implementation

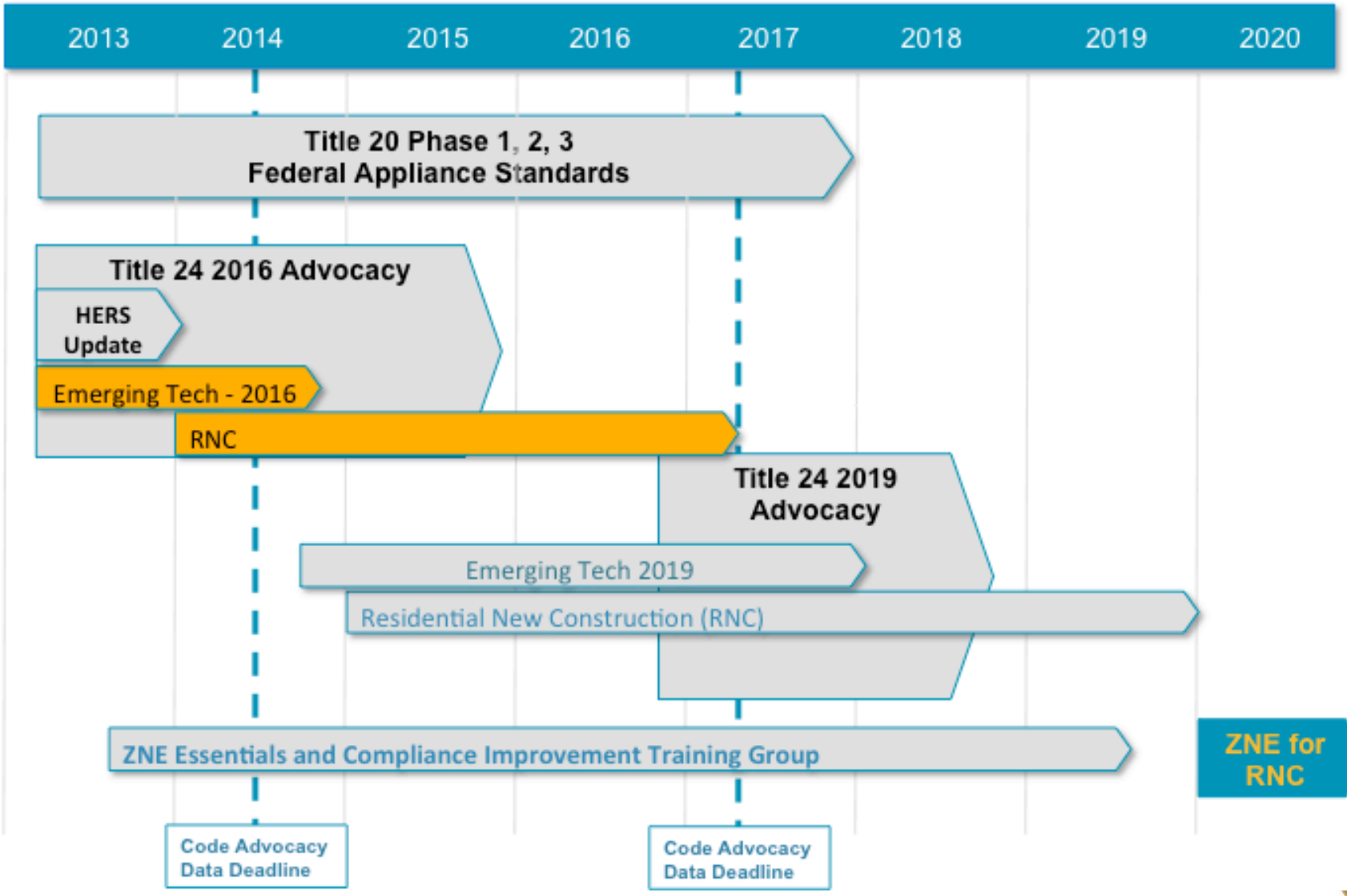
Near Term Challenges

- T-24 code measures must pass cost-effectiveness screen
- Some Building types and Climate Zones less suited to ZNE
- Net Energy Metering (NEM)/Surplus Compensation Rules discourage over-sizing PV systems (if offsetting of electric and gas use)
- How to implement a market transformation strategy to allow for less cost-effective/non-resource support activities (training, education, research, early-adopters incentives)

Long Term Challenges

- Grid Integration / Physical System Challenges
- Some Building types and Climate Zones less suited to ZNE
- Distribution costs of NEM to other ratepayers

Planning Strategy


2013
2014
2015
2016
2017
2018
2019
2020
Title 20 Phase 1, 2, 3
Federal Appliance Standards
Title 24 2016 Advocacy
HERS Update
Emerging Tech - 2016
RNC
Title 24 2019 Advocacy
Emerging Tech 2019
Residential New Construction (RNC)
ZNE Essentials and Compliance Improvement Training Group
ZNE for RNC
Code Advocacy Data Deadline
Code Advocacy Data Deadline

Thank You

For additional information:
www.cpuc.ca.gov/ee

Paula Gruendling
Energy Efficiency Commercial Programs & Evaluation
Codes & Standards
Emerging Technologies
paula.gruendling@cpuc.ca.gov

DPR Construction San Diego Corporate Office , Chip Fox, DG&E

One Sky Homes Cottle House in San Jose, Allen Gilliand

Public Utilities Commission Activities

- Preparing ZNE New Residential Action Plan
- Updating California Strategic Plan in 2014
- Funding Regional Energy Pilots and Local Government Programs, including 'Reach Codes' technical support
- Adopted performance incentive for new homes (2010)
  - Implementing Title 24 Code preparation $1000 Kicker (2013)
  - Moving Energy Use Intensity (EUI) – based incentives in 2014
- Greater coordination with IOUs and CEC on Title 24
  - Support for Codes and Standards Enhancement (CASE) studies
- Code implementation support (via C&S programs)
- Contractor education courses
- Various ZNE homes pilots and technology trials via ZNE, Sustainable Communities and emerging technologies programs

Residential ZNE Action Plan Overarching Benchmarks

- By 2020, all new homes are ZNE Code or ZNE Ready homes (single family and low rise MF)
- BY early 2016, utility new construction activities include fully subscribed ZNE Builder Early Adopter Programs that address incentives, training, market adoption, demonstration projects, etc.
- An Updated California Residential Building rating and/or Labeling system (updated HERS or equivalent) is in place by 2016.
- Between 2013 and 2017 California sees a 5 to 10% decrease in the cost of implementing ZNE on production homes.
- By 2017, a nationally recognized appraisal standard, accepted by underwriters and funders for ZNE homes is in place and utilized in California.
- An adequate pool of trained and educated professionals in design, engineering and construction to support ZNE demand in California is in place by 2018.