



California's Clean Energy Push

Dave Ashuckian, PE

Deputy Director, Efficiency Division

Angela Gould

Renewable Energy Specialist, Renewable Energy Division

**Michael Sokol, Energy Generation Specialist , Energy Research and
Development Division**

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California Energy Commission

- California's primary energy policy and planning agency
- Forecast energy supply and demand
- License thermal power plants 50 MW or larger
- Set building and appliance energy efficiency standards
- Fund electricity, natural gas, and transportation related research and development projects
- Administer Renewables Portfolio Standard
- Emergency planning





California's Clean Energy Goals

By 2030

- Obtain 50% of electricity from renewable sources
- Cut petroleum use by vehicles in half
- Double energy efficiency in buildings

Greenhouse gas emissions:

- Reduce to 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050



Efficiency Division Activities

- Building Standards
- Appliance Standards
- Existing Building Action Plan
- Clean Energy Jobs Act (Prop 39)
- Drought Rebate Program



Building Standards

- All new residential construction in California to be ZNE by 2020.
- All new commercial construction in California to be ZNE by 2030.
- 50% of existing commercial buildings will be retrofit to ZNE by 2030





2016 Building Standards

- **Residential Buildings: Preparing for ZNE**
 - High Performance Attics and Walls
 - More Efficient Water Heating and Lighting
- **Nonresidential Buildings: Aligning with ASHRAE 90.1**
- **CalGREEN “reach codes”**
 - voluntary building efficiency provisions that serve as templates for local ordinances.
- **PV Compliance Credit offered for the first time**



Electricity End-uses

End-Use	kWh/yr		
Not covered by T-24	3,612		
Dryer	187		
Clothes Washer	109		
Dish Washer	73		
First Refrigerator	707		
Additional Refrigerator	313		
Freezer	138	54%	
Range/Oven	105		
Television	645		
Microwave	122		
Home Office Equipment	17		
Personal Computer	602		
Well Pump	28		
Miscellaneous	568		
T-24 + Preempted	1,106		
Conv. Space Heating	37		17%
Heating	13		
Aux Space Heating	0		
Central Air Conditioning	876		
Room Air Conditioning	47		
Water Heating	133		
T-24	1,927		
Furnace Fan	164	29%	
Attic Fan	14		
Evaporative Cooling	43		
Solar Water Heating	0		
Pool Pump	234		
Spa	25		
Outdoor Lighting	284		
Spa Electric Heat	28		
Lighting	1,136		
Total	6,645		

Over half of home electricity consumption not covered by T-24

Natural Gas End-uses

End-Use	Therm/yr	%
Not Covered by T-24	51.4	
Dryer	16.2	14%
Range/Oven	31.7	
Miscellaneous	3.5	
T-24+ preempted	309.0	
Primary Heat	175.8	83%
Conv. Gas Water Heat	133.2	
T-24	10.2	
Pool Heat	5.6	3%
Spa Heat	2.9	
Auxiliary Heat	1.6	
Total	370.5	

Not Covered by T-24
Plug loads installed after building inspection

T-24 + Preempted
T-24 is preempted from requiring higher equipment efficiency but T-24 can impact the loads on equipment (envelope eff, controls etc.)

Covered by T-24
Loads and equipment efficiency can be regulated by T-24



Appliance Efficiency Standards

➤ **Development**

- Minimum efficiency levels for both energy and water consumption

➤ **Other States Often Adopt California's Standards**

- CA Standards often become de-facto National/International Standards

➤ **Regulations Cover Most Major Residential and Commercial Appliances Sold in CA**

➤ **Federal preemption is a key barrier to more stringent standards**



Recent Appliance Efficiency Rulemakings

- **2009 - Televisions.**
 - Estimated to save 6,515 GWh a year, enough energy to power 864,000 single-family homes for an entire year

- **2012 - Battery Charger Systems.**
 - Estimated to save 2,200 GWh a year, enough energy to power 350,000 California households for a year

- **2015 - Water Efficiency Standards.**
 - Emergency standards for toilets, urinals, faucets, and showerheads



Upcoming Appliance Efficiency Rulemakings

- **General service LEDs and small diameter directional lamps**
- **Computers and display monitors**
- **Pool pump motors, portable electric spas, and commercial clothes dryers**
- **Small network equipment and game consoles**



Appliance Certification, Compliance, & Enforcement

➤ **Certification**

- Manufacturers certify to the Commission using the online Appliance Efficiency Database System
- 65 unique appliance types; Over 300,000 active listings

➤ **Compliance**

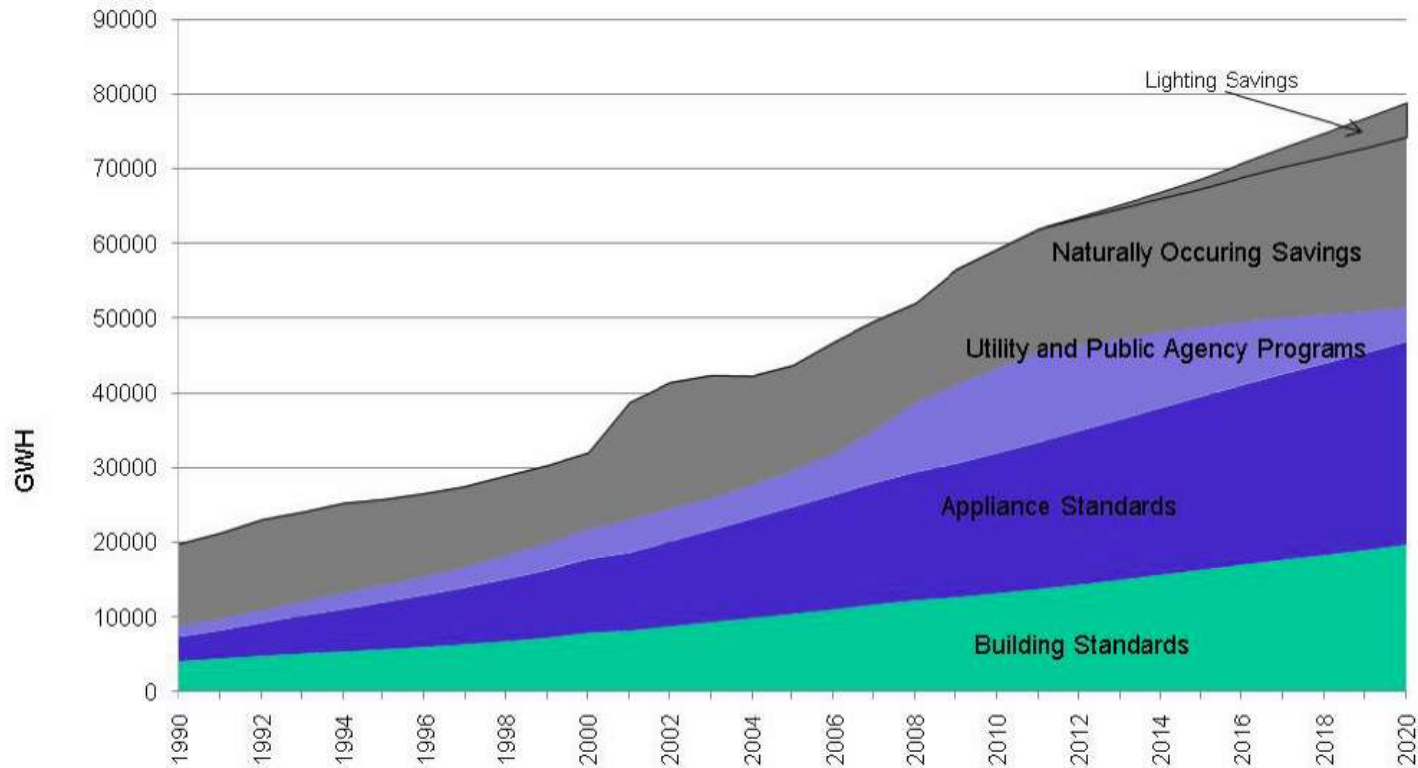
- Energy Commission conducts webinars and outreach to help manufacturers and retailers attain compliance

➤ **Enforcement**

- Identify Violators through Market Surveys, Independent Testing, and Individual Reporting
- Decertify appliances, levy administrative penalty (**up to \$2,500** per unit per day), and/or referral to U.S. DOE

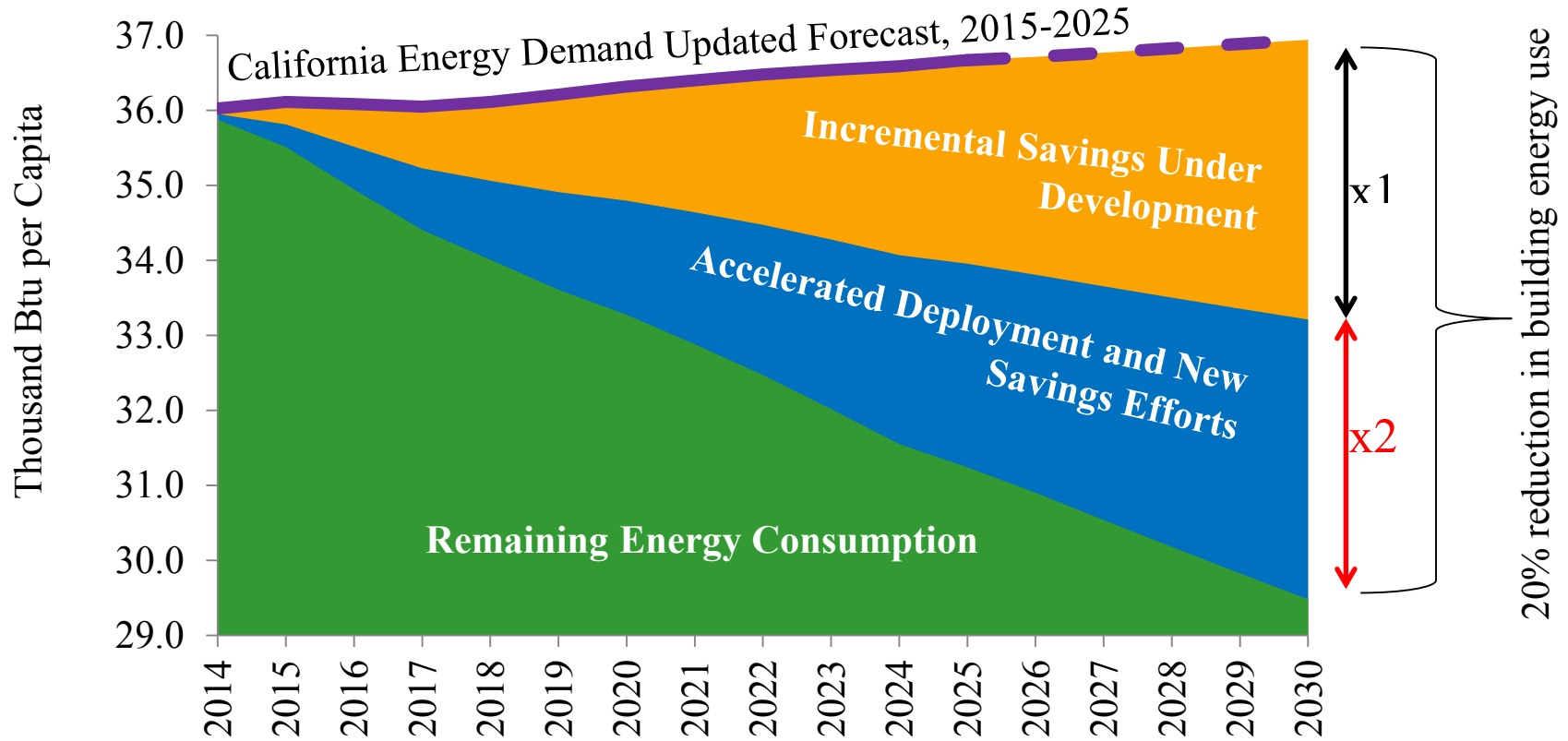


Appliance Standards Have Achieved the Most Energy Savings





Doubling of Efficiency in Existing Buildings by 2030





Existing Buildings Action Plan

1. Increased government leadership in energy efficiency

2. Data-driven decision making

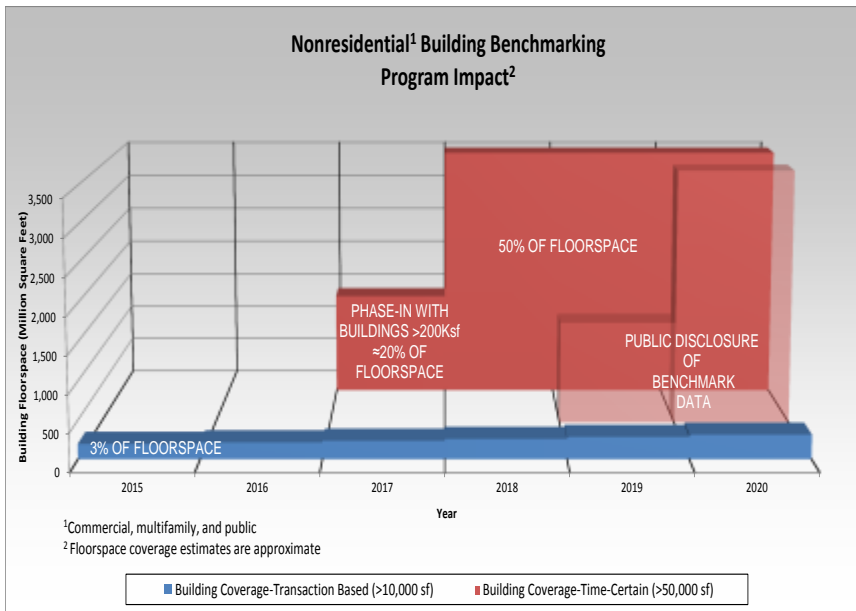
3. Increased building industry innovation and performance

4. Recognized value of energy efficiency upgrades

5. Affordable and accessible energy efficiency solutions



Selected Action Plan Strategies



OPEN STANDARD
OPEN SOURCE
OPEN DATA

- Increase access to accurate, useful data to guide informed energy decisions
- Time-certain nonresidential building benchmarking and disclosure
- Establish standards for building performance assessment tools
- Incorporate energy efficiency in real estate and financing transactions



California Clean Energy Jobs Act (Proposition 39)



- Provides grant funding for energy projects in California's Public and Charter Schools and Community Colleges
- Goal is to create clean energy jobs, improve energy efficiency, and expand clean energy generation



Proposition 39 Appropriations

	FY 2013/14 <i>(in millions)</i>	FY 2014/15 <i>(in millions)</i>	FY 2015/16 <i>(in millions)</i>	TOTALS
K-12 Program (CDE/CEC)	\$381	\$279	\$313.4	\$973.4
Community College Districts	\$47	\$39	\$38.7	\$124.7
ECAA – (0% loans & technical assistance)	\$28	\$28	\$0	\$56
California Conservation Corps	\$5	\$5	\$5.4	\$15.4
California Workforce Development Board	\$3	\$3	\$3	\$9
TOTALS	\$464	\$354	\$360.5	\$1.2 <i>(in billions)</i>



Proposition 39 (K-12) Program Eligible Energy Measures

- Lighting Systems
- Heating, Ventilation and Air-Conditioning (*HVAC*)
- Controls/Thermostats
- Pumps and Motors
- Plug Loads
- Building Envelope
- Clean Energy Generation (solar photovoltaic)





Water Appliance Rebate Program

Proposed \$30 million
Greenhouse Gas Reduction Fund
Pending Legislative Authority

Appliance Rebates

(\$15 million)

- ✓ Clothes washer rebates for \$100
- ✓ Starts with online application
- ✓ Instant rebates (at retailer)
coming soon
- ✓ Partner and leverage existing programs – layering rebates
- ✓ Easy participation

Direct Install

(\$15 million)

- ✓ Target Disadvantaged Communities
- ✓ Partner w Community Services and Development existing programs
- ✓ Showerheads
- ✓ Kitchen faucets
- ✓ Bathroom faucets
- ✓ Dishwashers
- ✓ Clothes washers



California Energy Commission -
energy.ca.gov

dave.ashuckian@energy.ca.gov

(916) 654-4563