

Equipment Efficiency Standards in the U.S. and California and Their Links to MT

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Products Currently Subject to Federal Standards

Products Included in the National Appliance Energy Conservation Act	
Refrigerator-freezers	Clothes washers
Freezers	Clothes dryers
Room air conditioners	Dishwashers
Central air conditioners & heat pumps	Ranges & ovens
Furnaces & boilers	Pool heaters
Water heaters	Fluorescent lamp ballasts
Direct-fired space heaters	Televisions*
Products Added in the Energy Policy Act of 1992	
Fluorescent lamps	Showerheads
Incandescent reflector lamps	Faucets & aerators
Electric motors (1-200 hp)	Toilets
Commercial packaged air conditioners & heat pumps	Distribution transformers*
Commercial furnaces & boilers	Small electric motors (<1 hp)*
Commercial water heaters	High-intensity discharge lamps*

* DOE to determine if standards justified and appropriate level



Revisions to Existing Standards

Product \ Year	1988	89	90	91	92	93	94	~	2000	01	02	03	04	05	06	07	08	09	10
Refrigerators & freezers			X			X				X									
Clothes washers	X						X						X			X			
Clothes dryers	X						X												
Dishwashers	X						X												
Room air conditioners			X						X										
Residential central a/c					X										X				
Residential water heaters			X										X						
Fluorescent ballasts			X											X					X

Energy, Economic and Emissions Savings from U.S. Standards

Enact Year	Standards	Electricity Savings (TWh/yr)			Primary Energy Savings (quads/yr)			Peak Load Reductions (GW)			Carbon Reductions (MMT)			Net Benefit (\$billion) Thru 2030
		2000	2010	2020	2000	2010	2020	2000	2010	2020	2000	2010	2020	
1987	NAECA	8.0	40.9	45.2	0.21	0.55	0.61	1.4	14.9	16.5	3.7	10.0	10.1	46.3
1988	Ballasts	18.0	22.8	25.2	0.21	0.27	0.29	5.7	7.1	7.9	4.4	5.0	5.0	8.9
1989&91	NAECA updates	20.0	37.1	41.0	0.23	0.43	0.47	3.6	6.9	7.7	4.8	8.1	8.1	15.2
1992	EPA Act (lamps, motors, etc.)	42.0	110.3	121.9	0.59	1.51	1.67	10.1	26.2	28.9	11.8	27.5	27.9	84.2
1997	Refrigerator/freezer update	0.0	13.3	28.0	0.00	0.13	0.28	0.0	1.7	3.6	0.0	2.9	5.5	5.9
1997	Room A/C update	0.0	1.3	2.1	0.00	0.01	0.02	0.0	1.0	1.6	0.0	0.3	0.4	0.6
2000	Ballasts update	0.0	6.2	13.7	0.00	0.06	0.13	0.0	1.8	3.0	0.0	1.3	2.7	2.6
2001	Clothes washer update	0.0	8.0	22.6	0.00	0.11	0.28	0.0	1.3	6.1	0.0	2.2	5.4	15.3
2001	Water heater update	0.0	2.5	4.9	0.00	0.08	0.13	0.0	1.5	3.6	0.0	1.4	2.2	2.0
2001	Central A/C&HP update	0.0	10.7	36.4	0.00	0.11	0.35	0.0	3.5	41.5	0.0	2.3	7.2	5.0
TOTAL		88	253	341	1.2	3.3	4.2	21	66	120	25	61	75	186
% of projected U.S. use		2.5%	6.5%	7.8%	1.3%	2.9%	3.5%	2.8%	7.6%	12.6%	1.7%	3.4%	3.8%	

Current DOE Rulemakings

- Highest priority (3):
 - Residential furnaces/boilers
 - Commercial packaged AC 5-20 tons
 - Distribution transformers
- “High priority” (12)
 - Commercial oil & gas packaged boilers
 - 3-phase AC <5 tons
 - PTACs/PTHPs; SPVU
 - Tankless gas instantaneous water heaters
 - HID and motor determinations
 - Coverage for commercial R/F, beverage merchandisers, vending machines, incandescent reflector lamps and torchieres
- “Medium priority” (1)
 - Residential dishwashers

Standards to be Set in Pending Energy Policy Act of 2005

- Dry-type transformers*
- Exit signs*
- Traffic signals*
- Torchiere lights*
- CFLs
- Comm'l unit heaters*
- Comm'l packaged a/c*
- Comm'l refrigerators*
- Ceiling fan lights
- Dehumidifiers
- Pre-rinse spray valves*

Under Discussion

- Mercury lamps
- DTAs*
- Ice-makers*

* Standard in California



DOE Rulemakings Called for in Energy Policy Act of 2005

- Refrigerated beverage vending machines*
- External power supplies*
- Battery chargers

* Standard in California



Current & Pending State Standards

Product	California	Connecticut	Maryland	Other
Boilers & central furnaces not covered by federal standards	X			
Ceiling fans and ceiling fan lights			X	
Commercial clothes washers	X	X	X	
Commercial hot food holding cabinets	X			
Commercial ice-makers	X			
Commercial reach-in refrigerators and freezers	X	X	X	
Commercial unit heaters	X	X	X	
Computer room air conditioners	X			
Consumer audio and video equipment	X			
Digital television adaptors	X			
Duct furnaces	X			
Exit signs	X	X	X	
External power supplies	X			
Freezers (residential, 30-39 cubic feet)	X			
General service incandescent lamps	XO			
Incandescent reflector lamps not federally regulated	O			
Large commercial packaged AC*	X	X	X	
Low-voltage dry-type distribution transformers	X	X	X	MA, MN, NY, OR
Metal halide lamp fixtures	XO			
Pool heaters not covered by federal standards	X			
Pool pumps	X			
Pre-rinse spray valves	X			
Refrigerated beverage vending machines	X			
Small water heaters not covered by federal standards	X			
Torchieres	X	X	X	
Traffic signal modules	X	X	X	
Under-cabinet light fixture ballasts	X			
Walk-in refrigerators & freezers	X			
Water dispensers	X			
Water & ground water-source heat pumps	X			
Wine chillers	X			

Key: X = standard adopted, O = standard pending, XO = standard adopted and revised standard pending



Products in CEC 2004 Regulation

- Pre-rinse spray valves*+
- Comm'l refrigeration & freezer*+
- Walk-in refrigeration & freezers
- Comm'l ice-makers+
- Lg. packaged AC*+
- Unit heaters+
- Reflector lamps+
- Metal halide light fixtures*+
- External power supplies+
- Pool pumps*+(south)
- Portable electric spas
- Gas cooking appliances*
- Wine chillers
- Under-cabinet luminaires
- Comm'l hot food holding cabinets*
- Digital TV converter boxes+
- Compact audio products
- Televisions and DVDs
- Incandescent lamps

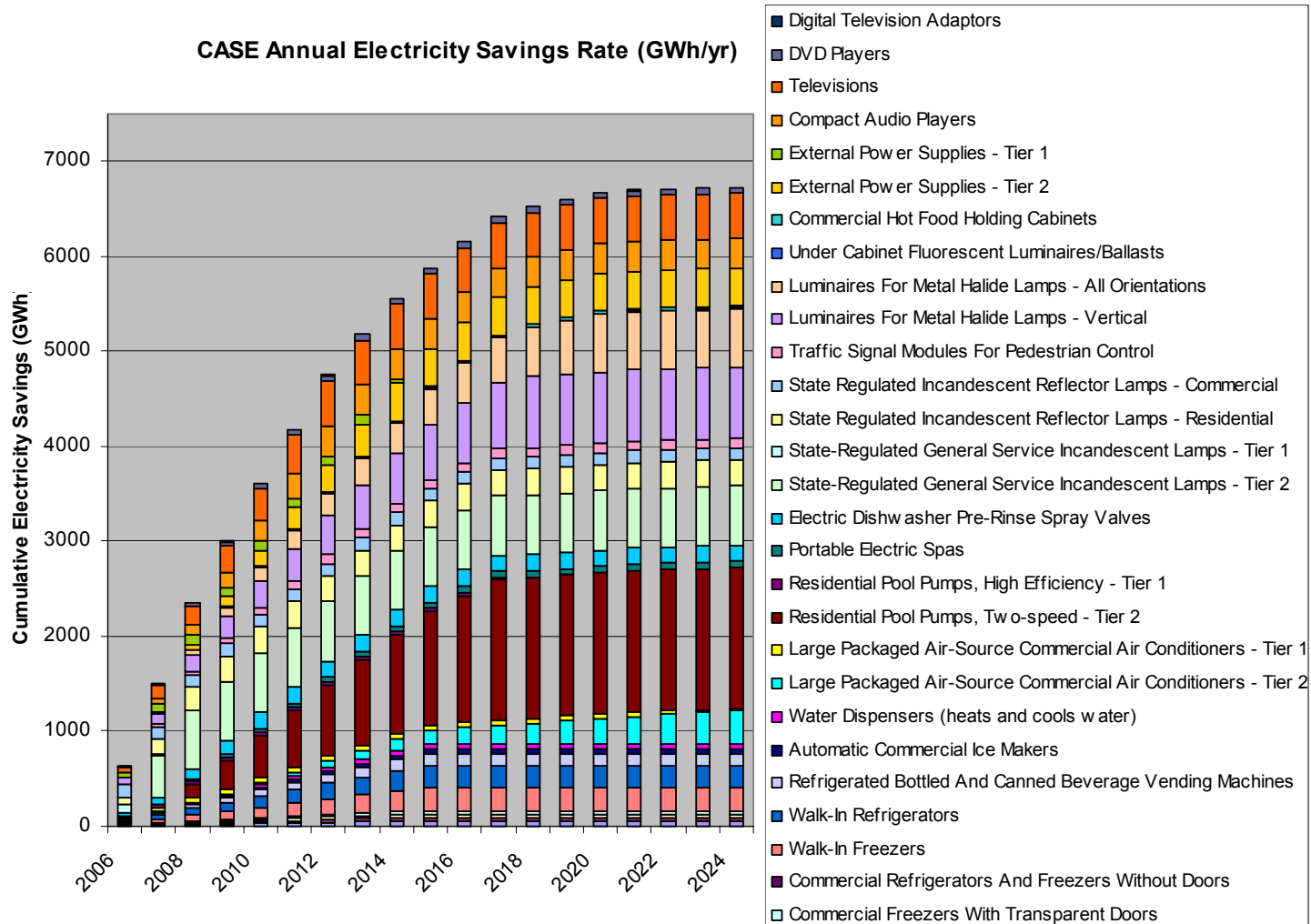
* Products previously promoted thru utility EE programs

+ Standards being pursued in other states



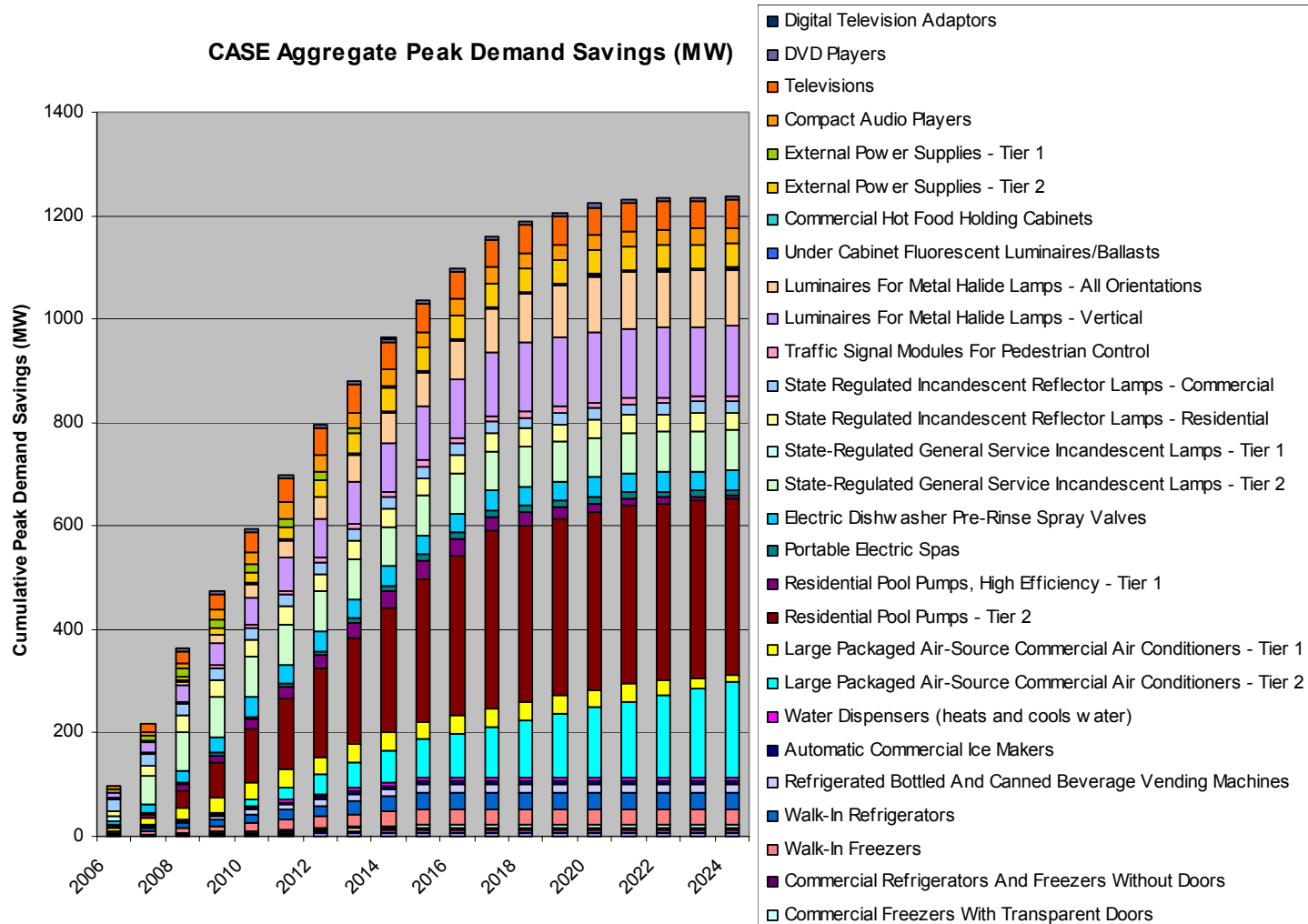
Energy Savings from New Standards

(includes lighting standards which are not yet finalized)



Peak Savings from New Standards

(includes lighting standards which are not yet finalized)



PG&E Role in Standards Process

- Hires consultants to assist
- Identifies possible targets, working with CEC (e.g. ~80 targets for 2006 & 2008 stds)
- Many of these come from PG&E's EE programs
- Identifies most promising targets and prepares CASE Study reports (25 in 2003-4)
- Sometimes commissions special research to address issues raised in rulemaking
- Participates in all phases of rulemaking process

Why PG&E Involvement?

- Large energy and peak savings available at very low cost (e.g. 2006 standard will save >1000 MW and cost PG&E ~\$1 million; <\$1/kW)
- CEC and CPUC encourages their involvement (started when MT become a key goal)
- However, PG&E does not get credit towards its CPUC goals for standards – interested in changing this
- Standards reduce opportunities for savings from resource acquisition programs, making RA-only goals harder to reach

Codes Involvement

- PG&E and other California utilities also heavily involved in upgrades to California's building code (every 3 years)

Next Steps

- Assisting in wrap-up of 2004 rulemaking
- Screening products for next rulemaking
- Will start CASE research later this year
- Education around some of the new standards
- Exploring ways to better integrate work on emerging technologies, commercialization, production programs and codes/standards.
- Adjust eligibility for EE programs where needed
- Discussing how to get some credit for standards and code savings (discussing at CALMAC)