Supplemental Slides to Legislative Hearing Presentation

Legislative Hearing
October 21, 2009

Chairman Karen Douglas

California Energy Commission

Appliance Efficiency Program Background

- California has long been a leader in promoting energy efficiency.
- California's appliance efficiency regulations were first adopted in 1976 and continue to be updated creating a 33 year track record.
- These appliance efficiency standards are a key component to keeping the electricity consumption per capita in California flat while the rest of the nation has risen by 40%.
- Energy Commission standards have reduced Californians' electric bill by $56 billion.

Current Appliance Standards

The Standards set energy efficiency requirements for a wide range of types of appliances and equipment, including:

- furnaces
- water heaters
- boilers
- air conditioners
- heat pumps
- plumbing fittings
- lighting lamps and ballasts, exit signs
- refrigerators, freezers
- dishwashers, clothes washers, clothes dryers, pool pumps
- electric motors
- traffic signals, distribution system transformers
- external power supplies, consumer audio/video devices, and televisions (in standby mode)

Appliance Efficiency Regulations

Public Resources Code

Requires that the standards:

- are for appliances that have a significant statewide energy use;
- are feasible and attainable;
- and that they are cost effective, in that they "shall not result in any added total cost to the consumer over the designed life of the appliance"

And gives authority to**:**

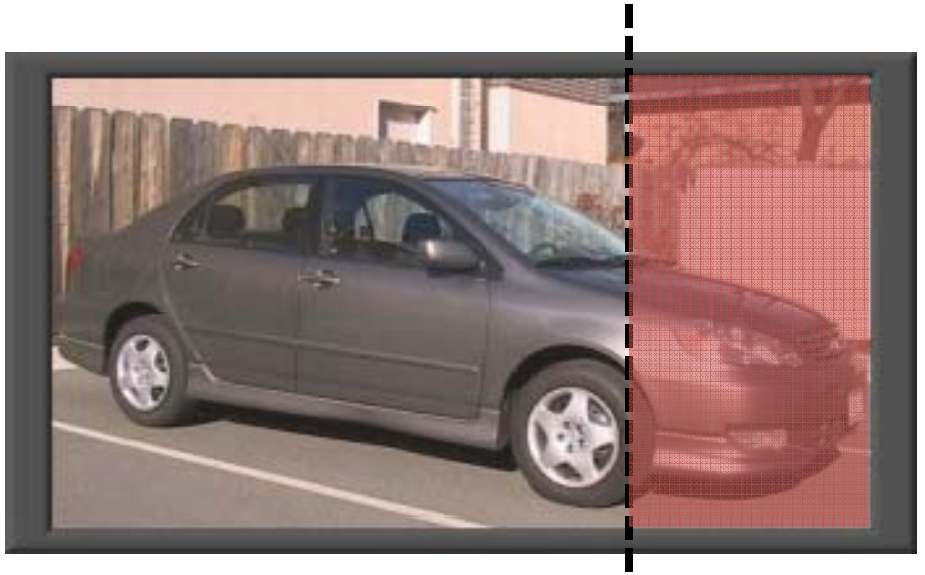
- set specific minimum energy efficiency or maximum energy usage levels;
- specify testing, marking, and labeling requirements;
- specify data collection

Televisions Represent Growing Energy Use

1. Growth in average screen size. Average 25 inch television is being replaced with 36-40 inch television because of aspect ratios.
2. Increase in daily television viewing hours
3. Continuous growth in sale of digital flat panel TVs
   These flat panels typically use more energy than CRT's
4. Growth in number of TV units per household

4:3 aspect ratio

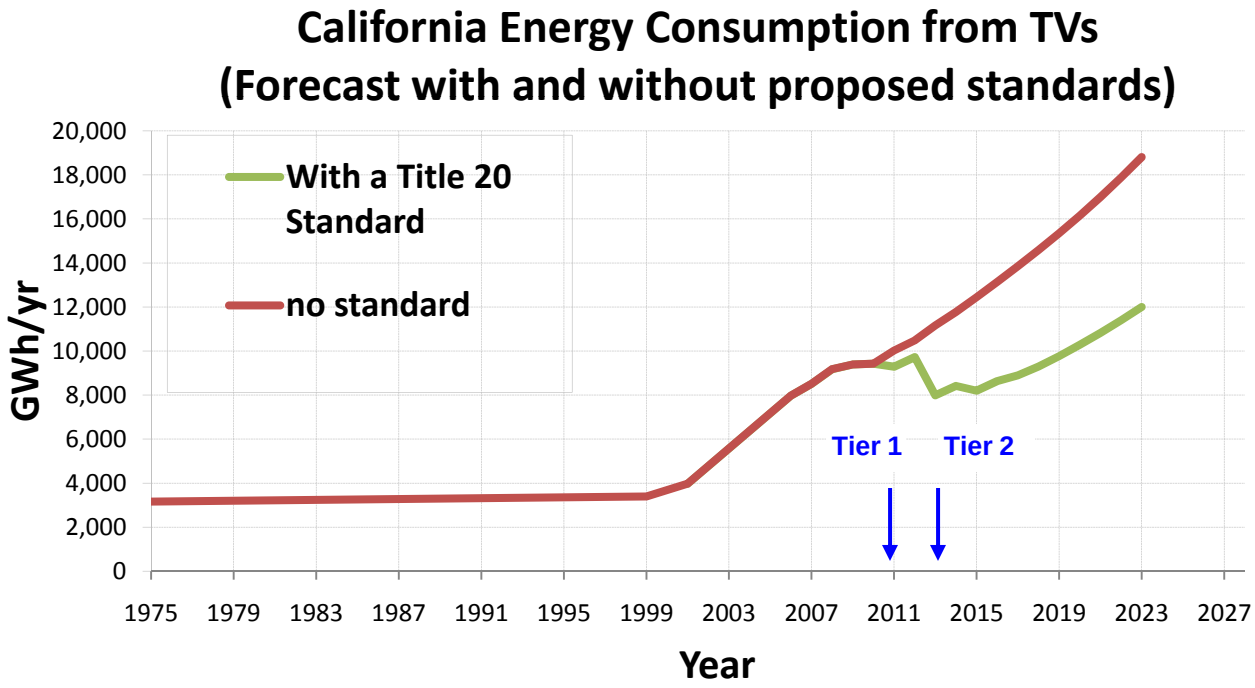
Wide screen 16:9 aspect ratio



Replacement Television is 33 percent bigger

Televisions Represent Significant Energy Use

The residential energy consumption due to televisions rapidly increased from 3-4% in 1990s to 8-10% in 2008. Television energy will grow up to 18% by 2023 without regulations. The projected growth does not include the residential energy use by cable boxes, DVD players, internet boxes, Blue Ray, game consoles etc.



Televisions Represent Significant Energy Use

Large and growing market

Of the 35 million televisions in California, over 22 million are older cathode ray tube (CRT) technology. CRT televisions will be completely replaced in the next 6 to 10 years with more consumptive flat screen televisions. The estimated annual sales of flat screen televisions are 4 million a year. This transition period is a critical opportunity to save energy. California represents about 12% of the U.S. market.

Television Type	Existing Stock (Million Units)
Cathode Ray Tube	22.3
Liquid Crystal Display	10.6
Plasma	1.8
Rear Projection/Digital Light Projection	0.7

Significant Savings

- Proposed standards will result in **savings of approximately $ 1 billion/year to consumers**. The total value of **savings from the proposed regulations is $ 8.1 billion**.
- Additional money available to the consumers will ultimately be spent and stimulate the California economy and will increase revenues to State General Fund.
- The proposed standards, after the existing television stock replacement, **will save approximately 6,515 GWh**. Additionally the proposed standards **will avoid construction of a new 615 MW power plant costing over $ 600 million.**
- The proposed standards shall not effect the retail price of the energy efficient televisions, instead the energy efficient television will reduce the consumers spending on electric bill and save money. The **proposed standards are helpful to consumers**.

Efficiency Technology Innovations: no added cost to consumers

Standards can be met with technology that is on the shelf today.

In fact more than a thousand televisions meet Tier 1 and more than 300 meet Tier 2 today

There is no correlation between the cost of a TV and its energy efficiency.

Examples:

Liquid Crystal Display (LCD)

- More efficient backlight reflective films means fewer backlights, smaller power supplies, less material, and simpler manufacturing processes

Plasma

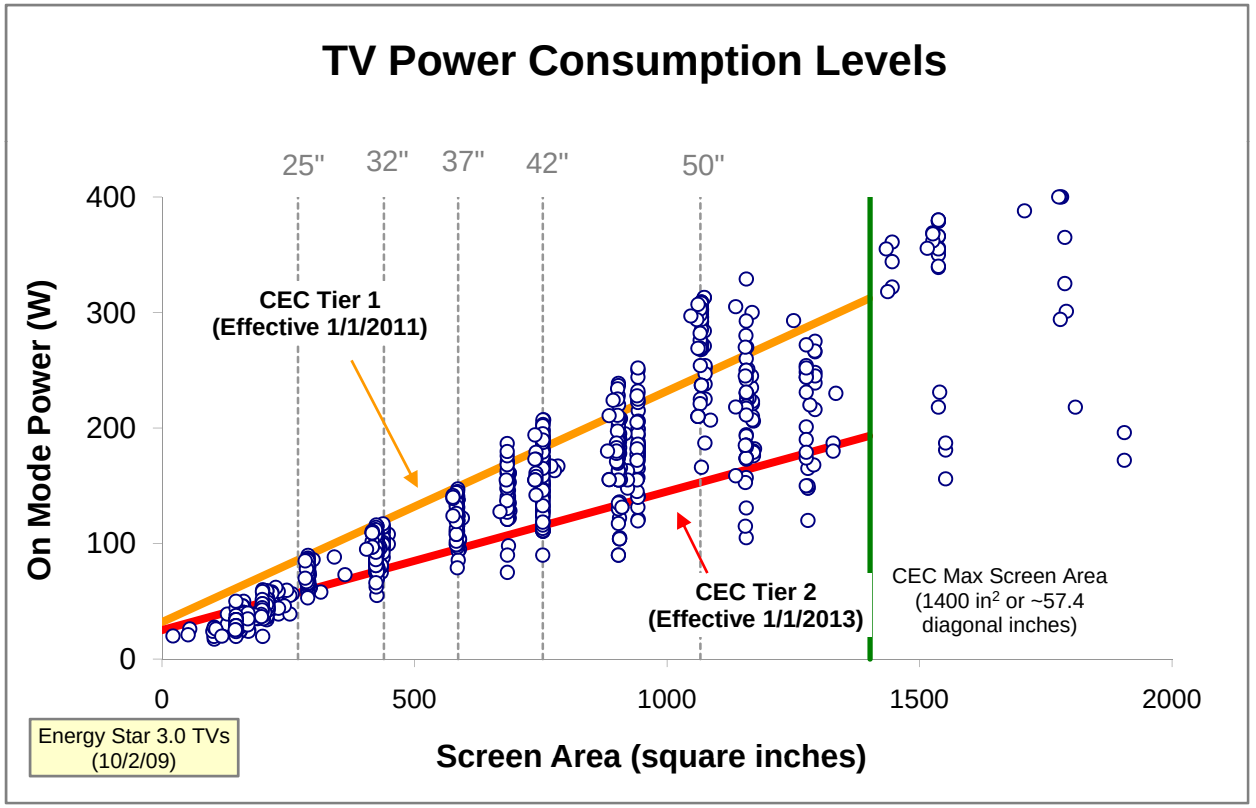
- Improved phosphors and gasses will lead to a reduction in overall material costs
- "Double efficiency" screen technology cuts manufacturing cost by 9-11%
- "Triple efficiency" screen technology will cut costs by 37-38% by reduced hardware and labor.

Technically Feasible Standards

The following comprehensive data was collected from ENERGY STAR television power consumption data was collected for analysis starting from 2007 up to and including the October 2009 ENERGY STAR data. The new data further proves feasibility and the basis for regulation originally drawn from older 2007 data.

Consumers can expect to save between $ 50 - $ 250 over the life of their TV

A 50 inch plasma can consume as little as 307 kWh/yr and as much as 903 kWh/yr



Each point may represent several models of TVs

Television Rulemaking Process

Pre-rulemaking

January 2008 Scoping workshop – televisions were selected as an opportunity

February 2008 initial proposal from PG&E

April 2008 revised proposal from PG&E

May 2008 televisions split from larger rulemaking

July 2008 Efficiency Committee television workshop

December 2008 Efficiency Committee television workshop
January-August 2009 additional time for stakeholder interaction

Rulemaking

September 2009 open official rulemaking
October 2009 Efficiency Committee hearing.

November 2009 possible adoption

Proposed Efficiency Standards for Televisions

Maximum On Mode Power Consumption	
Tier 1:	Tier 2:
Effective January 1, 2011	Effective January 1, 2013
P_{MAX} = 0.20*Screen Area + 32 watts	P_{MAX} = 0.12*Screen Area + 25 watts

- Proposed On Mode energy efficiency standards are based on the screen size of less than or equal to 1400 square inches (screens less than 58 inches diagonal).
- The On Mode standard scales with the size of a television; a larger television is allowed to consume more energy than a smaller television.
- Standard is technology neutral. Various technologies available to manufacturers to meet standards.
- The proposed regulation requires:
  - A luminance standard which will help to prevent the manufacture of inappropriately dim televisions instead of efficient televisions.
  - power factor for televisions to reduce electrical pollution in electrical lines which result in cost savings to the consumers.

Test Procedure

Background

•The Energy Commission is proposing to adopt active mode television energy measurement test method developed by International Electrotechnical Commission (IEC) 62087 Ed.2.

•Manufacturers and CEA were actively involved in the development of this test method, coincidently one of their active members, an Engineer from the Sharp Labs was the lead authored of the test procedure.

How IEC 62087 works

•Measures the power consumption of televisions.

- •A television is set to its default brightness and contrast
- •Features not critical to the display of a 2 dimensional image are then turned off, all built in additional functions such as internal DVD players, Blue Ray DVD Player, IPTV, IPOD docking stations, etc., are turned off during the test
- •An video and audio signal provided from an external DVD player is connected to the television.
- •The power is measured during the DVD's 10 minute test loop

Myth about Job Losses

1. There are no facts in the record that support the assumption that our proposed efficiency standards would be a basis to shift current California retail sales to Nevada or to internet sales.

2. Today, without efficiency standards in place, there are a number of Californians that will travel to Nevada from California or use the internet to purchase a new television.

3. The Energy Commission does not find it reasonable (or finds it silly) to assume that there will be an increase in out-of-state sales due to the efficiency standards:

    - Why would someone in Sacramento spend $3 a gallon to drive to Reno to buy an inefficient television when they can buy a more efficient television at the same price in Sacramento.

    - Why would Californians decide to switch to internet sales to buy an inefficient television when they can buy a more efficient television at the same price and without shipping cost in Sacramento.

Why are California Job Losses a Myth?

There is nothing in the record to support that the opinion that there will be fewer television models available in California due to the efficiency standards. Energy wasting televisions now available to customers on store shelves today will simply be replace with more efficient televisions that will have similar extra features. The reasons for these findings are:

1. The energy wasting televisions will be replaced with similar costing efficient televisions. The plan and simple fact is that the record has established that using existing technologies actually reduces the cost of manufacturing efficiency televisions. These measures include:

    - the use of enhanced gas mixtures in Plasma televisions, and
    - light ray dispersing plastic film in LCD televisions that actually reduces by 40% the numbers backlight lamps that are currently being manufactured in the energy wasting televisions.

2. There is no support for the opinion that efficient televisions cannot be made with innovative extra features such as:

    - 3D-TV, Internet TV, IPod-TV, or Blue Ray DVD Players

What is the basis of this finding? The efficiency standards are based on measuring energy consumption of the television viewing screen area using a specific signal input from the IEC test method. This test method only measures energy consumption due to that specific signal input. It does not measure energy consumption from any other signal input such as 3D-TV, Internet TV, IPod-TV, or Blue Ray DVD Players

ENERGY STAR®

Kathleen Hogan, Director of Climate Protection Partnerships Division of the U.S. EPA in a comment letter regarding the proposed California television standards said:

"televisions and consumer electronics collectively present a meaningful savings opportunity"

"Voluntary and regulatory approaches can work hand in hand over time to improve the efficiency of products"

"The role of standards is to eliminate the least efficient products, and they are mandatory as opposed to voluntary"

Television Standards

The record shows that there will no sales losses because there will be zero net incremental cost

Energy efficient televisions can be manufactured and sold at the same price as energy wasting televisions. Furthermore, since the record shows that the standards are feasible then customers will just have more efficient televisions to choose from because the inefficient television will go away and be replaced similar efficient televisions

The consumers will save approximately one billion dollars a year in lower energy bills, and these savings will stimulate the California economy by increase the disposable income and purchasing power of the 38 million people living in California

The proposed regulations will save approximately 6,515 GWh/year

Reduction in television energy consumption will result in reduced Carbon Dioxide gas emission of approximately 3 Million Metric Tons of CO_2 equivalent per year

Television Standards

The Energy Commission staff's proposed standards will provide 6515 GWh savings, **whereas ENERGY STAR program that CEA proposes will provide unknown savings** to California consumers for the following reasons:

- CEA sponsor website California for Smart Energy, in their Myth vs Fact section quoted "ENERGY STAR produced energy savings from all electronics, including TVs, to the tune of 23 billion kilowatt hours of electricity in **2007 alone** – enough to power San Francisco and San Diego counties for one year." The ENERGY STAR® 3 was adopted in February of 2008 and took effect in November 2008.

- CEC energy savings analysis considered increased television size and viewing time as well as energy use per square inch. Whereas, information provided by CEA is incomplete and misleading, **CEA compares energy use per square inch of LCD televisions with old Cathode Ray Tube (CRT) TV and ignore all other factors responsible for TV energy consumption growth**.

- Under ENERGY STAR® 3 almost all televisions today qualify for ENERGY STAR sticker. Whereas, under CEC Tier 1 standards **more than 25 percent of ENERGY STAR qualified televisions fails to meet Tier I** proposed regulation.

- Power consumption is directly related to brightness. **ENERGY STAR® specifications does not include luminance control measure,** and manufacturers can qualify their TV by reducing the brightness to the inappropriately dim levels.

- ENERGY STAR qualified televisions are being sold along with non ENERGY STAR TVs in California market. **CEA has provided no sales data to show the ratio between ENERGY STAR and non ENERGY STAR TVs.**

- Bill Belt from CEA stated that " If you compare ENERGY STAR data from December 2007 to now, October 2009, you will find that there is a 29.3 percent average power savings weighted across all sizes. That translates into a 41.4 percent energy improvement over that time period." **First of all the ENERGY STAR Specification 3 was adopted in February of 2008 and became effective in November of 2008.** It is preposterous that Bill Belt is counting energy savings from 2007 for ENERGY STAR specifications 3**.** Not all energy star qualified televisions meet CEC's Tier I requirements. The Energy Commission staff analysis on **the current trend of television energy use shows that there is no change in energy consumption. CEA's assertion that ENERGY STAR program is working is not backed up by facts**

Manufacturer and CEA response to new ENERGY STAR®

CEA has said in its letter to U.S. EPA regarding ENERGY STAR® on August 10, 2009 “We have seen a highly respected program whose brand was once based on fact and objective scientific testing, transform into a program that is based on the highly subjective criteria ”
-CEA believes voluntary ENERGY STAR® program specifications to be arbitrary

Jim Palumbo wrote on May 13, 2009 on behalf of the Plasma Display Coalition to the U.S. EPA regarding ENERGY STAR® and stated “Such requirements could significantly curtail innovation and individual manufacturer’s ability to effectively compete in the TV market.“
-PDC believes voluntary ENERGY STAR® program stifles innovation

CEA PROPOSAL

The Energy Commission does not agree nor can it rely on CEA's industry optimism that voluntary measures will meet the Commission's legal obligations. The record simply does not support that industry is capable of transforming the ever-increasing energy consumption by television through voluntary programs or even come close to meeting the goals of AB 32

Furthermore, U.S. EPA does not support CEA's position that the voluntary Energy Star Program can reach the energy consumption reductions that will be obtained by the Energy Commission's proposed efficiency standards.

In July 2008, Kathleen Hogan, Director of U.S.EPA Climate Protection Partnerships Division stated that EPA shares the Energy Commission's interest in improving energy efficiency as a means to address global climate change as well as other issues. The U.S. EPA recognizes that televisions and other consumer electronics collectively present a meaningful savings opportunity and believes that voluntary and regulatory approaches can work hand in hand over time to improve the efficiency of products.

According to U.S. EPA, **Energy Star performance levels are established so that a relatively small percentage of product models (typically about 25%) can meet them** when the specification goes into effect. U.S. EPA stated that Energy Star is distinctly different from efficiency standards because the **role of standards is to eliminate the least efficient products, and they are mandatory as opposed to voluntary.**

The Energy Commission staff has analyzed the CEA's proposal and find it is a baseless economic analysis which criticizes the proposed regulations and process without providing constructive solution.

Examples of ENERGY STAR® 3 Compliant Televisions

CEA is continuously saying for the past year and half that voluntary measures will meet the Commission's legal obligations.

Examples shows that CEA is misleading the facts:

The following table shows the energy use by 52" ENERGY STAR® compliant television models. Sharp's has two Energy Star TVs, one of them will cost $80/year to operate whereas another will cost $28/year to operate. Similarly two 52" ENERGY STAR ® compliant Sony TVs, one will cost $78/year to operate while another one would cost $28/year to operate. In both the cases, one ENERGY STAR compliant models uses almost one third the energy used by another ENERGY STAR compliant model. ENERGY STAR logo means energy efficient television is not true here and consumer is being misinformed. There are numerous examples like this in the data base. Current ENERGY STAR® 3 is ineffective, yet CEA claims it is working and claims success.

Make	Model	Energy Use	Yearly Energy Use	Cost/year
Sanyo	US1H / N6ME	305	581	81.34
Sanyo	US1K/N7KE	217	413	57.87
Sony	KDL-52XBR7	292.6	557	78
Sony	KDL-52VE5	115	219	30.67
Sharp	LC-52XS1U/TU-X1U	300	571.5	80
Sharp	LC-52LE700UN	105	200	28
BestBuy's Insignia	NS-LCD52HD-09	329	627	87.75
Mitsubishi	LT-52153	185	352	49.34

Appliance Efficiency Program

FIRST: Electrical energy is essential to the health, safety and welfare of the people of California and to its economy, and it is the responsibility of the Energy Commission, as a state agency, to ensure that a reliable supply of electrical energy is maintained. *(derived from PRC § 25001)*

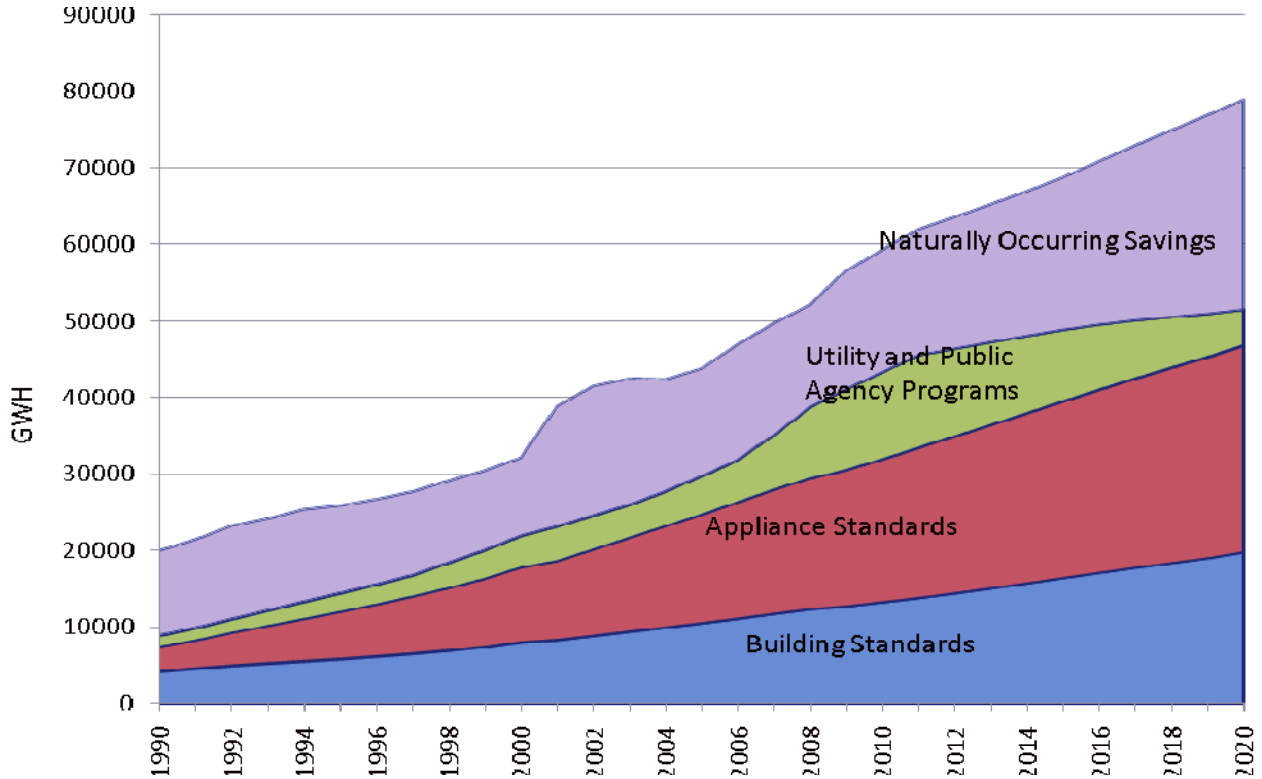
SECOND: There is a concern that the rapid rate of growth in electrical energy consumption due to wasteful and inefficient appliances if left unabated will result in serious depletion or irreversible commitment of energy, land and water resources, and potentially threatens the state's environmental quality. *(derived from PRC § 25002.)*

To fulfill its obligations under the Warren-Alquist Act the Energy Commissions has determined that appliance efficiency standards, such as the proposed television standards reduce overall electricity demand and, therefore, the overall need for new power plants and helps system operators in several ways.

- Reducing demand increases system reliability because less demand means less strain on the electricity system since less energy has to be generated and delivered.
- Because California's renewable energy goals are based on a percentage of retail sales of electricity, reducing overall electricity demand means less renewable energy that must be generated.
- Fewer renewable plants needing to be built will reduce the operational and reliability issues associated with those less power plants.

Impact of Appliance Efficiency Regulations

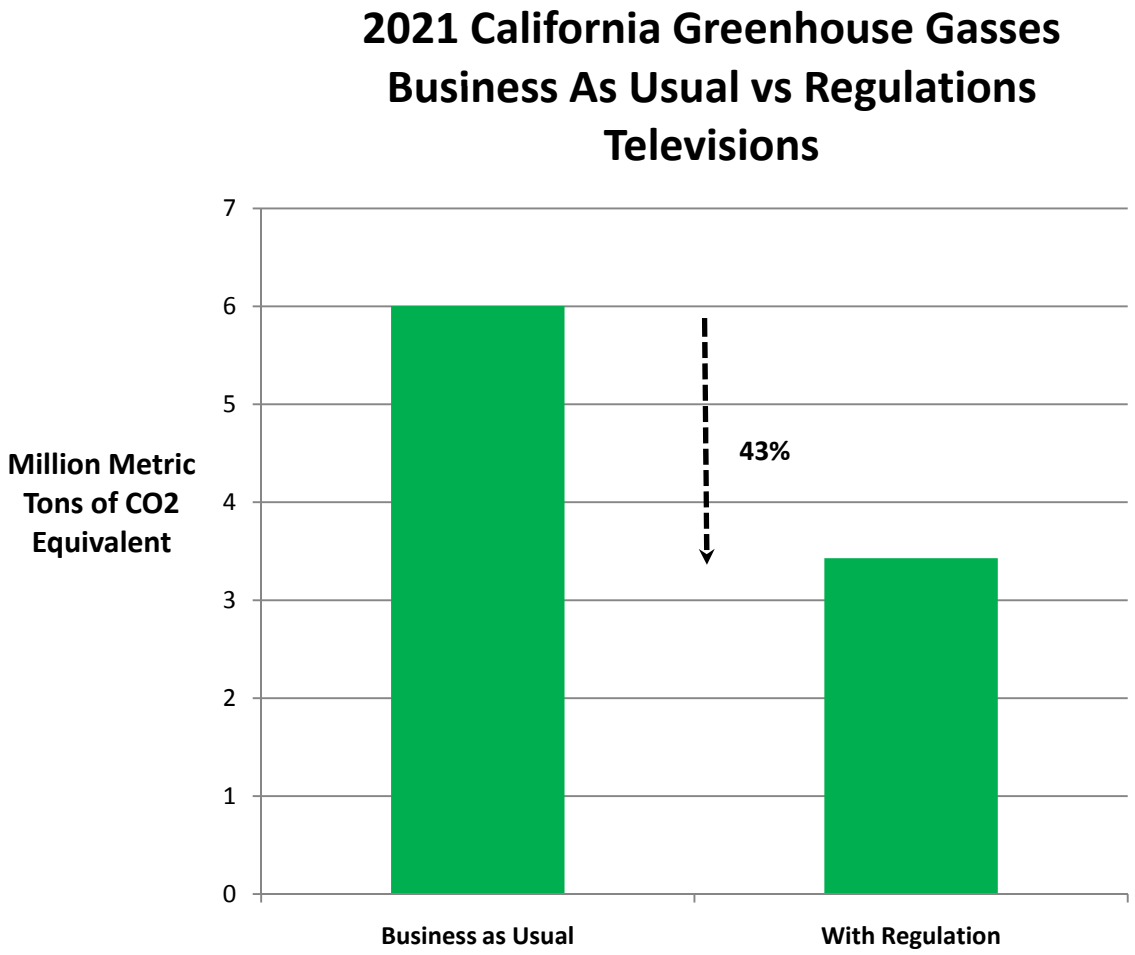
In 2009, approximately 31% (17,896 GWh) of California's energy savings are achieved through appliance efficiency standards. This saves $2.5 billion in electrical bills annually. [*2009 Integrated Energy Policy Report*]



Other Benefit

Impact of Television Standards on Greenhouse Gases

Reduction in televisions energy consumption will result in reduced Carbon Dioxide gas emission of approximately 3.1 Million Metric Tons CO2 equivalent per year



Appliance Efficiency Program

The Energy Commission's Engineering staff has analyzed all available relevant information and data related to televisions from CNET, ENERGY STAR®, Public Interest Energy Research, European Information & Communications Technology Industry Association, and Market Transformation Program Europe. Data analysis was conducted within the Public Resources Code (PRC) and Administrative Procedures Act guidelines to determine and draft proposed energy efficiency standards for televisions.

Staff used the same criteria and methodology used for other appliances in the previous rulemakings.

Based on the analysis; staff found that televisions across various sizes and technologies meet the proposed regulations. Staff has also determined that the proposed standards are technically feasible, cost effective, and save energy. In addition staff has found that the proposed regulations will not hinder development and implementation of new technologies and innovations.

Proposed Efficiency Standards for Televisions

Definition

Television (TV) means:

an analog or digital device designed primarily for the display and reception of a terrestrial, satellite, cable, internet protocol TV (IPTV), or other broadcast or recorded transmission of analog or digital video and audio signals.

TVs Definition include:

Combination TVs

Television monitors

Component TVs, and

Any unit that is marketed to the consumer as a TV

Television does not include computer monitors

Proposed Efficiency Standards for Televisions

Television Energy Use Measurement

Test Methods

Standby Test Method

IEC 62301:2005 Edition 1.0“Household Electrical Appliances – Measurement of Standby Power”

On Mode Test Method

IEC 62087:2008(E) Edition 2.0“Methods of Measurement for the Power Consumption of Audio, Video, and Related Equipment.”

Label and Data reporting requirements

Labeling:

Labeling requirement is limited to sales materials for consumer information

Requires digital label, not physical

Label should be included in websites, boxes, and retail displays

Data Reporting:

Reported information will be used to determine compliance and will be publically listed.

Label and Data reporting requirements

During the external power supply (EPS) rulemaking process in 2005 CEA claimed that EPS standards would:
-Reduce consumer choice with popular products being removed from the CA market
-Force manufacturers to provide less featured products (stifle innovation)
-Diminish the long term effectiveness of the ENERGY STAR® program

In the end the consumer electronics industry continued to provide quality products to California and consumers saved energy by using efficient external power supplies. Other states quickly followed CA's leadership role, and eventually the U.S. Department of Energy a national standard. The ENERGY STAR® program continues to maintain its strong brand image and has gone to new specifications which well surpass the 2005 California standards.

Appliance Efficiency Program

Television Standards:

- Originally Incorporated in a larger group of proposed regulations in the scoping order. The Scoping order created two parts: part A and part B of which televisions was in part B along with pool pumps, metal halide luminaires, and battery chargers.
- Televisions were moved into its own rulemaking part C in a decision to gather more information and further investigate industry concerns.

TV Standards Worldwide

Energy Consumption

Since the introduction of digital TV in the late 1990's, energy consumption has grown at a rapid rate *without regulation* - from approximately 3% of residential use to about 10%. Energy consumption by televisions continues to grow due to various factors to be discussed in this presentation.

Efficiency Concerns

The European Union has implemented energy disclosure standards, and is considering On Mode standards.
Australia already has adopted standards.
China is in the process of adopting standards.
India and Canada are considering the feasibility of new standards.
Stateside, Massachusetts has held hearings, and Washington is gathering information on new standards that match California's proposed standards.

International test procedure

The member countries of the International Electrotechnical Commission (IEC) developed one common test procedure IEC 62087 Ed. 2 to have a globalized standard for TV energy measurement. Energy Star uses this test method; California is proposing to adopt it.

Television Standards

Currently, California Appliance Efficiency Regulations have standards for televisions in **standby mode**.

The Energy Commission staff is proposing to the Energy Commission to **adopt active mode** standards for televisions for the following reasons:

- The estimated television electric energy use, from 1976 to late 1990's was between 3-4 percent. In the last ten years, the residential television electric energy consumption has grown to about 10 percent and it is continuously growing and projected to reach 18 percent by 2023. **This growth is a clear statement that voluntary programs simply have not been effective at curbing the energy consumption of televisions.**
- The Energy Commissions Engineering Staff has **conducted rigorous and comprehensive analysis of the television energy use data** and relevant information and staff has determined that proposed energy efficiency televisions standards are technically feasible and cost effective. From the analysis staff has found that the cost of manufacturing energy efficient televisions is negative or zero. Staff has also found that various new innovations and technologies that are available to television manufacturers will help in meeting the proposed standards at no cost. This fact is confirmed in October 13, 2009 public hearings by the television and parts manufacturers, television design Engineers, and consultants.
- The Energy Commission Engineers are continuously collecting and analyzing the **latest data, including ENERGY STAR® October 16, 2009** and include the new data to support calculations and assumptions and findings. The finding continue to support the case for proposed standards.
- The proposed standards shall not effect the retail price of the energy efficient televisions, instead the energy efficient television will reduce the consumers spending on electric bill and save money. The **proposed standards are helpful to consumers,** and will not effect the retail and/or manufacturing business.
- The proposed standards, after the effective dates and after the existing television stock replacement, **will save approximately 6515 GWh**. Additionally the proposed standards **will save at least $615 million in construction costs of new 615 MW power plant.**
- Proposed standards will result in **savings of approximately $1 billion/year to the consumers**. The total value of **savings from the proposed regulations is greater that $8.1 billion**. Additional money available to the consumers will ultimately be spent and stimulate the California economy and will increase revenues to State General Fund.

Television Standards

- The proposed regulations once become effective will stop the continuous growth in television energy consumption and minimally reduce the residential energy consumption. The television energy consumption is shown in the graph on the next page. Energy consumption with regulations and business as usual without regulations.