Response to CEA's presentation and Economic Analysis presented on October 21, 2009 at the California Legislature Hearing
Response prepared by Bill Staack, Harinder Singh, and Ken Rider

Slides # 1 is top left, Slide # 2is top right, slide # 3 is bottom left and slide

4 is bottom right

On page 1 Slides 1, 2, and 3 are skipped

Page 1, slide 4:

CEA states that voluntary efforts already are succeeding without regulations:

Response:

Staff analysis of the record has shown that the trend for the ENERGY STAR program and voluntary efforts will not meet the level of efficiency for television in California that the proposed standards will. More than 30% of the televisions will not meet the proposed Tier I in 2011. The rate of efficiency improvement from 2008 to 2009 is not great enough for all televisions to meet the proposed Tier 2 standard by 2013. CEA's statement that "voluntary efforts already are succeeding without regulations," is an unsupported opinion. CEA has provided no sales data of television in the California market to support this opinion.

Regulations undercut innovations

Response:

1. New innovative technologies such as: Light Emitting Diodes (LED). Hot Cathode Fluorescent Lamp (HCFL), Organic LED's (OLED) are available in the California market today. Staff has determined that these innovated technologies, which are energy efficient and far exceed the proposed energy efficiency standards, could not have been banned, and in fact would be more prevalent in California's market if the proposed efficiency standards were already in effect.

2. Innovative features such as IPOD and 3D in TVs can be turned off during the testing as stated in the test method. The additional energy required for innovative features such as these are not measured because there are not part of the testing and reporting requirements for the efficiency standards.[1]

3. The innovative features described above use processors in the television to allow the optional features to function. The IPod and 3D enabling processors consume additional energy to perform the functions of these innovative features, but only when these functions are in use. If the processor is manufactured with energy conservation as a design priority there will be little energy consumption when the IPod and 3D enabling functions of the processor are dormant. Consumer electronics where energy consumption is considered, such as cell phones and laptops where battery life is of primary concern, incorporate sleep and low power states in their features and processors. These features and processors therefore do not consume appreciable energy while not in use with good design. However, if energy conservation was not a design priority for the IPod and 3D enabling functions of the processor, there will be wasted energy consumption in the processor when these functions are dormant. This waste energy consumption is called "Vampire load For example staff has estimated that 3D processors consume 4 to 5 watts of energy. When compared a 2D television picture processing with a 3D televisions processing a 3D processor uses only 15 to 20% more energy in 3D mode. 2 D television processing consumes 20 watts and when same television is processing a 3D picture it is consuming 4 to 5 watts more. For those inefficient processors that consume Vampire energy when they are not enabled this wasted energy consumption will only be 4 to 5 watts. It is a well established fact that electronic industry is highly innovative. Example: A prototype product development takes short time before its functionality, speed, power consumption and performance doubles and this is a proven fact. Intel Co-founder Gordon Moore predicted in 1965 that the number of transistors on a chip will double about every two years and at lower manufacturing cost. Moor's law applies to picture processing chips and is resulting in higher processing power at reduced lower energy consumption.[2] This will provide television manufacturers with processors that will not affect their ability to meet the proposed standards

[1] http://www.energy.ca.gov/2009publications/CEC-400-2009-024/CEC-400-2009-024.PDF
[2] http://www.intel.com/technology/mooreslaw/

while giving them the ability to innovate and do complicated operations for future features.

4. Staff had determined even if the manufacturer does not design an efficient processor for the 3D processing, the addition of 4 to 5 watts of the Vampire energy consumption waste will only represent 5 percent of the total television energy consumption and there will be no problem for these television meeting the tier 2 efficiency levels. is

Page 2, Slide 1: Summary:

CEC's regulations wrongly assume the accuracy of flawed out of date stakeholder studies:

Response:

Proposed regulations are based on 2007 data from CNET, Market Transformation Program (MTP), Public Interest Energy Research (PIER), European Information and Technology industry Association (EICTA) as the baseline and supplemented with new studies and data from ENERGY STAR and CNET. Staff has continued (latest date Oct. 30, 2009) to obtain the latest ENERGY STAR data to evaluate the credibility of the original baseline and has determined that the new data not only adds support to the baseline but has strengthen the Commissions finding that proposed energy efficiency regulations are credible and feasible. CEA statement is an unsupported opinion that is not supported by the record. CEA has not provided and evidence that the studies out-of-date or they are flawed.. [3]

CEC grossly overestimated potential energy savings:

Response:

CEC energy savings estimates are conservative. CEC staff analysis is based on widely accepted and used methodology by research organizations, Engineers, Energy Analysts, Federal Department of Energy (DOE) etc., for calculation of energy savings. The Commission's 30 year of experience in developing efficiency standards for appliances had found that it is the industry practice to always design their compliant appliances to

[3] http://www.energy.ca.gov/2009publications/CEC-400-2009-024/CEC-400-2009-024.PDF

meet a greater level of efficiency than required by the standard which insures that each appliance easily meet the standards and can be sold in California. Furthermore, the cost of energy used in the estimates was only $ 0.14 per kWh which is less than the actual cost of the energy that will be replaced by efficiency savings. Utilities generate the least efficient energy to support the power consumption of peak loads. Therefore in reality the cost per kWh saved by the regulation will be the much high "avoided cost" estimates of the highest energy cost that is being replaced. Had the Commission's energy savings estimates included the greater efficiency design levels of the compliant television and the actual "avoided cost" of energy generation that the television standards are actually replacing its estimates of energy saving would be much higher. This can be demonstrated by the tiered structure of utility electricity rates which charge greater rates past baselines. PG&E rates of October, 2009 go from $0.11 to $0.44 per kWh from Tier 1 to Tier 5. This reflects the high cost of energy procurement to meet the last of the system demands.

CEA's statements about the Commissions estimates are confusing. It appears that CEA did not analyze energy savings using the same methodology as the Commission. CEA made assumption as to the Commission methodology and then based their numbers on those assumptions.

Page 2, Slide 2 and 3: Summary:

Power factor correction requirement unjustified.

Response:

Power factor correction requirement is based on study and analysis provided by PG&E.[4] PG&E's study shows that the proposed measure is cost effective. Additionally, more than 70 percent of the current ENERGY STAR compliant televisions meet the proposed power factor requirements. ENERGY STAR collected power factor data, but did not publish it. Staff requested ENERGY STAR to provided power factor data to perform analysis for power factor feasibility; proposed regulations require power factor compliance for televisions that use more than 100 watt. Due to 100 watt requirement staff estimates that once Tier II regulations take effect about 40 percent televisions will

[4] http://www.energy.ca.gov/appliances/2008rulemaking/documents/comments/04-13-09_Energy_Savings_Estimate_for_Power_Factor_Correction_in_TVs_TN-51939.pdf

be exempt from power factor requirements. Power factor is estimated to save 6 kWh per year for a TV that consumes 150W. The proposal is shown to be cost effective for televisions which consume as little as 95W. The proposed regulations are conservative and set the limit for power factor correction only for televisions which consume 100 watts or more. The more power a television consumes the more cost effective the regulation becomes. The proposed power factor regulations can be met using power factor correction chips or capacitors which have been available for decades and are already mass manufactured. The cost of power factor correction is less than the savings of the correction. The regulation is therefore technically feasible, cost effective, and is shown to save energy.

CEA's statement is unsupported opinion. Although 70 percent of the current ENERGY STAR compliant televisions meet the proposed power factor requirements CEA has not provided evidence as to why it should not be in the standard.

CEC ignores the cost of compliance.

(i) to consumers,
(ii) to manufacturers,
(iii) to innovations, and
(iv) to the California economy far outweigh any speculative benefits of regulations over the voluntary measures well underway:

Response:

The record has established that the cost of compliance to manufacture energy efficient televisions is negative and/or zero. Therefore the cost of compliance to consumers and manufacturers is negative and/or zero. The record has also established that proposed regulations will not hinder innovations. Finally, the record has established that the regulations will produce energy savings as shown in the staff report and will reduce consumers' energy bills. The consumer will save $268.70 in present value dollars for the average sized Tier 2 television (approximately 37 diagonal inches). The record does not support that a voluntary program are able to provide significant energy savings as the proposed standards.

CEA statement is unsupported opinion. They have not provided any evidence to support this opinion.

Page 2, Slide 4:

There is another Way!

Work with CEA, TV manufacturers, retailers to

(i) Educate consumers;
(ii) Teach consumers to reduce TV energy use,
(iii) Monitor market innovations to reduce TV energy consumption

Without harming innovation, consumers, and business interests.

Response:

The Energy Commission welcomes CEA proposal to educate the consumers to reduce energy use and welcomes the steps taken by manufacturers to implement new technologies that reduce energy use including full energy consumption data placed on each television sold. During the developing of the proposed standards the Commission found that there is no existing energy consumption disclosure on the television. As an example, when a customer was looking at 52 inch Sony televisions that had an ENERGY STAR logo the customer had no way of knowing that one used 105 Watts of energy and the other 329 Watts of energy. The higher wattage consuming televisions would cost the consumer $57 dollars per year to operate and $570 over the life of the television. In addition, non-ENERGY STAR 52 inch television next to these may use from 335 watts to over 500 Watts of energy and cost the consumer will be from $88 to $133 per year to operate and $886 to over 1330 over the life of the television.

California's proposed regulations Tier I for a 52"television allows for maximum power use of 232 Watts, whereas current ENERGY STAR 3.0 allows for 332 watts for 52" television. This is why the Commissions proposed standards require each television to have a label as to energy consumption so the consumers can become educated as to what they are buying.

The California Energy Commission has been monitoring market innovations to reduce TV energy consumption since 2006 and has invested Public Interest Energy Research (PIER) money and years of technical staff time to understanding this market. What is apparent is that energy efficiency has been categorically masked in the television

marketplace by an ENERGY STAR program which has reached nearly complete market saturation and complete confusion on television energy consumption by consumers. In addition it has been clear that energy efficiency is lower in importance than price and picture quality. Price and picture quality is where consumers invest research and decision making time. It would surprise most people that many LCD televisions consume more energy than Plasma televisions. The operating costs of televisions have consistently approached 30-50% of the total cost of the product. Consumers have been making highly uneconomical choices which are affecting the power quality and grid integrity of the state of California. It is precisely the monitoring of the television market that have lead to the conclusion that regulatory action is appropriate.

1. The record shows that technologies to manufacture energy efficient televisions at negative and/or zero cost are being used in today's market and have been available to manufacturers for quite some time. The Commission has monitored the television market and has determined that, the manufacturers have not fully implemented these available technologies for all the television they market, they still sell a large number of energy wasting television. The record has shown that industry's market innovation theory has not produced nor resulted in transforming the market to more efficiency television. The basis is summarized in CEA's statement that energy efficiency is only 5th on their list of design features for television the market.

2. While proposed regulations were developed staff considered all issues related to stifling innovation and ensured that the proposed regulations did not hinder innovations. In the development of proposed regulations staff also considered business and consumer interest.[5] The record supports the fact that the proposed standards will not harm California businesses, as energy inefficient televisions will be replaced with energy efficiency televisions with the same features and without any additional cost to manufacture.

3. CEA statements are unsupported opinion. They have not provided supporting evidence showing how they have come to this conclusion.

Page 3 Slide 1, 2, 3, and 4:

[5] http://www.energy.ca.gov/2009publications/CEC-400-2009-024/CEC-400-2009-024.PDF Page 28, paragraph 1

Regulations Stifles Innovations:

Response: See 3 above on this page.

Skip Slide 2, 3, and 4

Page 4 Slide 1:

Consumers want innovative features, energy savings is important, but fifth on the list.

Response:

On December 10, 2008 CEA issued a report Consumer Desire for "Green" Electronics on the Rise, CEA stated that an Examination of the Green Trend and What it Means to Consumers and the CE Industry, finds that 89 percent of households want their next television to be more energy efficient, for example. Although awareness of "green" that CEA is offerings lags behind sectors like household products[6]. The Commissions supports the awareness of "green" which is why the proposed standards require each television to have a label as to energy consumption so the consumer can become educated as to what they are buying. Because the Commission has established in the record that efficient television do not affect the cost of manufacturing or availability of opinions for an efficient television the Commission does not understand the significance of CEA's comment that energy savings is not that important to consumers; being rated only fifth. Energy efficiency is economical and does not impact the quality or price of televisions. This highlights a deficiency in the marketplace where uneconomical choices are being made despite high competition. Regulations will help to break the economical deficiencies of the market by eliminating the worst choices in terms of energy consumption and encouraging better choices through labeling.

Page 4 Slide 2:

Innovations require early success:

Response:

[6] http://www.encyclopedia.com/doc/1G1-190569762.html

The Commission has established in the record that efficient television do not affect the cost of manufacturing or availability of options, or innovated new options. It appears that CEA is making an assumption that the propose standards would hinder innovations but has not provided any evidence to support this opinion. Innovations can also be made at rapid pace even in light of power limitations. The most rapidly changing and growing consumer electronics sector is in mobile electronics. MP3 players, laptops, cell phones, digital cameras all are limited in power consumption by battery technology. When energy efficiency is part of the design process of new innovations engineers can overcome such obstacles with the type of engineering that is typically occurring in the 2nd or 3rd phases of television technology development.

Page 4 Slide 3 and 4, page 5 slide 5 and 6:

Product development requires flexibility, not regulations:

1. The record supports the fact that the proposed efficiency standards do not hinder television innovations and development of new technologies. Example: Newly developed OLED television technology far exceeds the proposed energy efficiency standards and the record shows that the proposed standards, if in effect today, would not have prevented or slowed the development of this technology. LED televisions introduced last year also exceeds the proposed regulations and again the record shows that the proposed standards, if in effect today, would not have prevented or slowed the development of these highly efficient LED televisions. The On mode power regulations are performance based as opposed to prescriptive and therefore allows manufacturers flexibility in how they chose to meet the standards. While the Energy Commission expects most savings to be saved using screen technology improvements, manufacturers can also improve internal electronics and power supplies to meet the standards.

2. New technology that is being implemented in plasma TVs exceeds the proposed Tier I and Tier II regulations. Plasma television technology developers have issued information on their new upcoming energy efficient models. Example: A 42" plasma TV would consume less than 70 watts of power once lumens per watt luminous efficacy are realized.[7] Proposed standards for a 42" TV would allow for 115 watts

[7] http://www.advanced-pdp.jp/fpd/english.html

starting January 2013. The record shows that the proposed standards, if in effect today, would not have prevented or slowed the development of these innovations for plasma television technology.

3. Most Digital light Processing (DLP) in all sizes exceeds proposed Tier 2 regulations and also 3D ready. The record shows that the proposed standards, if in effect today, would not have prevented or slowed the development of these highly efficient televisions and options.

4. LCD televisions in all sizes exceed proposed Tier 2 regulations. The record shows that the proposed standards, if in effect today, would not have prevented or slowed the development of these highly efficient LCD televisions.

CEA statement is unsupported opinion. They have not provided any evidence to show that proposed regulations will hinder innovations and development of new technology.[8]

Page 5 Slide 3:

Product development requires time not timetable: Improvements in performance, longevity, energy consumption occur time.

(i) Identify problem, develop solutions,
(ii) Experiment with new materials and processes
(iii) Millions of investment dollars, thousands of hours,
(iv) Manufacturing equipment and experience,
(v) Consumer demand, consumer feedback:

Response:

All of the above identified product development processes to manufacture energy efficient televisions have been established years ago. Manufacturers have many choices and methods to manufacturer energy efficient televisions. It's not that they have to invent new process to meet regulations; they have choices available to manufacture energy efficient televisions at negative and/or zero cost. Additionally, proposed

[8] http://www.energy.ca.gov/appliances/2009_tvregs/documents/2009-10-13_hearing/2009-10-13_STAFF_PRESENTATION.PDF Page 30-40

regulations Tier 1 take effect on January 1, 2011, and Tier 2 takes effect January 1, 2013. The Commission has established in the record that both Tier I and Tier 2 do not require new product development which is base on the fact that there exists today many existing technologies in television being manufactured and sold in the California market today that meet the standards. These dates provide sufficient time for manufacturers to adjust their designs to use this existing technology in the inefficient television they are still marketing today. Furthermore, newer technologies such as LED, OLED, HCFL that already far exceeds the energy efficiency proposed regulations are being manufactured and sold in the California market today.

Moreover the consumers demand and consumer feedback is clear from CEA's own survey conducted last year "Consumer Desire for "Green" Electronics on the Rise, CEA stated that an Examination of the Green Trend and What it Means to Consumers and the CE Industry, finds that 89 percent of households want their next television to be more energy efficient." [9]

As was demonstrated in the graphic presented to the legislature time has only shown rapid growth in television statewide energy consumption. The economic incentive of being able to be sold in the large market of the state of California will compel manufacturers to make energy efficient televisions sooner rather than later.

CEA statements are unsupported opinion. They have not provided any evidence to show that proposed regulations will hinder innovations and product development.

Page 5 slide 4:

Regulations bind a future none can see.

Response:

This comment is purely speculative. History has time and time again has shown that innovation happens and innovations will continue to happen through technology and that there are many paths. In late 1990's Cathode Ray Tube (CRT) televisions were converting to flat surface and picture quality was improving. CRT TV is used to display high definition digital signal with great quality. Manufacturers introduced flat screen

[9] [9] http://www.encyclopedia.com/doc/1G1-190569762.html

plasma, DLP's and LCD televisions. DLP and Plasma televisions lost their market share to LCD televisions. CCFL LCD televisions are losing their market share to LED LCD televisions. Innovations take their own path. Example: Manufacturing of energy efficient Surface-conduction Electron-emitter Display (SED) that offered richer colors, faster response and a better picture quality was stopped by Toshiba and Cannon. SED TVs were never produced although to many this was a loss of a great television technology.[10] To say what happens to the next DTV technology is really unknown with or without regulations. All the proposed regulations do is to make sure the path will remove the older energy wasting television from the market.

The Energy Commission already regulates 23 different product categories. There has been no evidence that any of those regulations have prevented technologies and innovations for those product types. For instance the refrigerators available in other countries do not have innovations which are not available in California.

Page 6, slide 1:

Regulations stifle innovation:

Response:

This is unsupported opinion. As mentioned the record has clearly established that the proposed efficiency standards do not hinder television innovations and development of new technologies. Staff presentation on October 13th hearing have shown the technical feasibility and innovations of the proposed regulations.[11]

As previously mentioned the Energy Commission has experience regulating dozens of products for energy and water consumption. Innovation has not been stifled by these regulations.

Page 6, slide 2:

What happens to the next DTV technology?

Response:

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[10] http://www.reghardware.co.uk/2007/05/25/sed_tv_delayed_again/

[11] http://www.energy.ca.gov/appliances/2009_tvregs/documents/2009-10-13_hearing/2009-10-13_STAFF_PRESENTATION.PDF Page 19, 30-40.

In late 1990's Cathode Ray Tube (CRT) televisions were converting to flat surface and picture quality was improving. CRT TV is used to display high definition digital signal with great quality. Innovations take their own path. Example: Manufacturing of energy efficient Surface-conduction Electron-emitter Display (SED) that offered richer colors, faster response and a better picture quality was stopped by Toshiba and Cannon. SED TVs were never produced. Now here is a loss of a great television technology.[12] To ask what happens to the next DTV technology because of the proposed regulations is academic because the record of appliance regulations both federal and in California has shown that standards promote innovation by adding energy efficiency as a factor in the development of appliances.

What is clear is that the next DTV technology will not be one that causes the product to double in system wide energy consumption.

Page 6, slide 3:

Voluntary measures by consumers and manufacturers can achieve better energy savings

Response:

Staff analysis and graphs from television energy use in the record clearly demonstrate a significant trend of increased household energy consumption by television. CEA's opinion is not supported in the record. CEA has not provided any sales data of the energy use of televisions being sold in California to support their opinion that the existing voluntary measures have not resulted in overall energy consumption increase in residential home from 3% to 10% in the last 10 years. Nor has CEA provided evidence that the existing voluntary program can stop the expected energy consumption increase from being 18 percent in 2020. The Commission has found and agrees with U.S. EPA's ENERGY STAR program when they stated that its voluntary program only encourages innovation but does not remove energy wasting television, that need to be done by regulations.

The Energy Commission believes in using all approaches to accomplish energy efficiency for television. The Commission is proposing power consumption regulations

[12] http://www.reghardware.co.uk/2007/05/25/sed_tv_delayed_again/

for televisions. There is already a national voluntary effort ENERGY STAR, and the same utilities that have worked to create the mandatory California standards are also providing rebates to retailers to sell and advertise energy efficient televisions. The California Public Utilities Commission supplies utility companies with funding to work on education, regulation, and voluntary incentives. This recognizes the importance of all three approaches and that no one approach alone can truly effect a full market transformation.

Page 6, slide 4:

Voluntary measures and new initiatives to save energy:

- **(i) ENERGY STAR**
- **(ii) Auto off**
- **(iii) Forced menu functionality**
- **(iv) Automatic brightness control**
- **(v) Consumer education**
- **(vi) Incentives/rebate program**

Response:

The Commission supports these proposed ideas but has found that these ideas alone are not sufficient to achieve energy saving that proposed regulations will generate. The proposed regulations are based on feasible and available technologies that do not add any cost to the consumer for the life the television and will obtain a significant amount of energy savings on a statewide basis

Page 7, slide 1:

ENERGY STAR: Rapid adoption of ENERGY STAR 3.0 (Nov 2008)

Today more that 1,225 compliant DTV models

- **(i) LCD, Plasma, and DLP**

Many surpass 3.0 standards

Many faster than anticipated

(i) One manufacturer had 11 compliant 2004 models;
(ii) 56 compliant models today

Effects of competition and EPA publicity

Response:

Staff analysis shows that ENERGY STAR specification 3 is not stringent at all and almost all inefficient television models qualify for ENERGY STAR sticker. Current ENERGY STAR specification 3 has insignificant impact on TV energy use reduction. Staff analyzed energy use trend for ENERGY STAR specifications 3 compliant televisions and the trend shows that energy use reduction was minuscule. Staff cannot support CEA opinion that this is success story that will obtain the significant levels of statewide energy savings that the standards will achieve. CEA statement is not supported by the record.

As an example, when a customer is looking at 52 inch Sony televisions that had an ENERGY STAR logo the customer had no way of knowing that one used 105 Watts of energy and the other 292 Watts of energy. The higher wattage consuming televisions would cost the consumer $50 dollars per year to operate and $500 over the life of the television. In addition, non-ENERGY STAR 52 inch television next to these may use from 335 watts to over 500 Watts of energy and cost the consumer will be from $88 to $133 per year to operate and $886 to over $1330 over the life of the television.

California's proposed Tier I standard for a 52"television allows for maximum power use of 232 Watts, whereas current ENERGY STAR 3.0 allows for 332 watts for 52" television. This evidence is support why the proposed standards require each television to have a label as to energy consumption so the consumers can become educated as to what they are buying.

Page 7, slide 2: skipped

Page 7 slide 3:

ENERGY STAR early returns: Comparing ENERGY STAR data 12/2/2007 to 10/2009,

(i) 29.3% average power savings (weighted all size),
(ii) 41.4% efficiency improvement.

Response:

This statement is misleading and CEA is reporting overestimated efficiency improvement. The Energy Commissions estimates of energy consumption between the years 2007 and 2009 have increased. The statement itself is flawed, how is it possible to have a 29.3% power saving while having a much higher 41.4% efficiency improvement? There are clearly some missing pieces to these statements which are purposefully omitted to cause a misinterpretation of facts. A 29.3% in power savings should translate to 29.3% efficiency improvement in apples to apples comparison. In addition ENERGY STAR 2007 data consists of a sample of televisions chosen by manufacturers to represent what will be available in the year 2008 so that ENERGY STAR could devise an appropriate efficiency goal. Clearly the information provided did not accurately represent what manufacturers would be making in 2008 as market saturation of energy star was nearly 80% from its outset.

Page 7 slide 4, and Page 8: slide 1, 2, 3, and 4

Auto Off;

(i) Estimated annual savings: 90-145 GWh,
(ii) Forced Menu functionality: 47 GWh,
(iii) Automatic Brightness control,
(iv) Consumer Education 560 GWh
(v) Incentives/rebate program 10 GWh

Response:

Energy Commission supports the above mentioned measures; however the record for voluntary and energy savings measure that EA is proposing, have not reduce or stopped the trend of home energy consumption increasing from 3% to 10% in the last 10 years. To reduce television energy consumption the Energy Commission has made a determination that regulations are needed to stop the growing trend of household energy consumption. Consumer education and incentive/rebate programs are already being executed through the public utilities commission. The remaining proposals are incorporated in the proposed standards.

Page 9, slide 1:

Voluntary Efforts Work:

Expected annual savings 960 GWh

Additional factors could increase savings

- **(i) Short term legacy benefits for legacy DTV**
- **(ii) Faster manufacturer adoption rate for ES 5.0**
- **(iii) Products that surpass energy targets**
- **(iv) Smaller set sales increase, larger sets more efficient.**

Response:

CEA expected annual 960 GWH of energy savings is unsupported opinion. CEA has not provided evidence in terms of data, assumption, and methodology used to make this calculation. It is also unclear if this opinion is for California savings or nationwide savings.

CEA comments related to additional factors could increase savings are good opinions but not supported by any evidence. The CEA has not presented any basis, methodology, or data to show that 960 GWh/year will be saved by the ENERGY STAR 3.0 specification.

Page 9, slide 2:

CEC's proposed regulations: flawed, obsolete data, leads to overstated assumptions:

Response:

There is nothing in the record supports that the proposed regulations are flawed, using obsolete data, and leading to overstated assumptions. Proposed regulations are based on 2007 data from CNET, MTP, PIER, EICTA as the baseline and supplemented with new studies and data from ENERGY STAR and CNET. Staff has continued (latest date Oct. 30, 2009) to obtain the latest ENERGY STAR data to evaluate the credibility of the original baseline and has determined that the new data not only adds support to the baseline but has strengthen the Commissions finding that proposed energy efficiency regulations are credible and feasible.

New data has also proved that the PG&E studies used for proposing standards were accurate and creditable. The assumptions used to model energy savings are widely used and accepted by scientific community.CEA statement is unsupported opinion. and CEA has not provided any evidence to supported their opinion. [13]

Page 9, slide 3"

Unsupported assumption: assumes that TVs use 10% of residential energy use.

Response:

The record does not support CEA's opinion that the Commission used unsupported assumption. The record includes staff's data analysis for television energy consumption data and provides the calculations that determine statewide television energy consumption. The calculated numbers were later compared with demand analysis data and confirmed with the demand analysis staff. These numbers were found to be accurate and correct. Based on the analysis of data staff determined that television energy consumption is about 10% of residential energy consumption. These numbers have been corroborated by studies performed by PG&E studies.

Page 9, slide 4, and Page 10, slide 1, and 2:

Flawed, stale PG&E data:

Response:

The record does not support CEA's statement about the use of flawed, stale PG&E data. Proposed regulations are based on 2007 data from CNET, MTP, PIER, EICTA as the baseline and supplemented with new studies and data from ENERGY STAR and CNET. Staff has continued (latest date Oct. 30, 2009) to obtain the latest ENERGY STAR data to evaluate the credibility of the original baseline and has determined that the new data not only adds support to the baseline but has strengthen the Commissions finding that proposed energy efficiency regulations are credible and feasible.

[13] http://www.energy.ca.gov/2009publications/CEC-400-2009-024/CEC-400-2009-024.PDF

New data has also proved that the PG&E studies used for proposing standards were accurate and creditable. The assumptions used to model energy savings are widely used and accepted by scientific community.

The record shows that staff has continued to use updated, when it becomes available to revaluated, the proposed regulations. Staff has determined that the new and latest ENERGY STAR and CNET data supports the findings developed from the2007. The analysis performed with most current data (October 30, 2009) has further strengthened the staff conclusion that proposed standards are credible and feasible. The record clearly demonstrates that the energy consumption and savings estimates are accurate and are based on scientific and widely accepted methodology used by other similar organizations.

CEA's statements are unsupported opinion and not been supported by evidence in the record.

CEA stated that PG&E completed CASE study months before ENERGY STAR 3.0 took effect. Staff believes that this statement is irrelevant and meaningless. As the record shows the proposed regulations are based on the staff analysis of new and old data as stated above. The analysis performed with most current data (October 30, 2009) has further strengthened the staff conclusion that proposed standards are credible and feasible.

Page 10, slide 3:

Report fundamentally flawed: By relying on PG&E's figures, CEC's staff report is:

- **(i) Overstated magnitude of consumption**
- **(ii) Overestimated potential savings**
- **(iii) Skews results in favor of regulations**
- **(iv) Lacks current data to support it**
- **(v) Prejudices TV manufacturers, retailers and consumers who are being asked to shoulder all cost of the regulations**

Response:

The record provides the evidence of the Energy Commission staff analysis and shows that the magnitude of energy consumption is accurate, potential savings are accurate and proposed regulations are based on credible data and the proposed regulations are feasible, cost effective and save energy. The record supports the determination that the incremental cost to meet the proposed standards is negative or zero. With this evidence the Energy Commission has determined that consumers should benefit from the lower price of energy efficient televisions and reduced cost of their electric bill.

Proposed standards are not prejudicial to manufacturers and/or retailers. The Energy Commission staff requested many times for data and information from manufacturers and retailers to help develop the proposed regulations and to verify claims made by them. These data requests started in early 2008. As of this date the Commission has received very little evidence to support the opinions made by CEA. Furthermore, the record shows the regulations are feasible and cost effective to the consumer.

CEA has not provided evidence to support their opinion that the record does not support the proposed standards. Despite this fact Staff has continually updated the record with new information from ENERGY STAR and other sources to track the television market during the course of the development of the television standards.

Page 10, slide 4:

The mandated standards have no factual support: given that the PG&E Report is based on obsolete, fallacious assumptions and overblown estimates, there certainly is no support for standards more draconian than those proposed by PG&E.

Response:

As stated above the record does not support CEA's statements and the CEA has provided no evidence to corroborate their statements.

Page 11, slide 1, and 2:

CEC staff report methodology is flawed.

Fundamental feasibility errors:

Assumes technological differences have no effect on the ability to comply with mandate

(i) Plasma, LCD, DLP, OLED all have different physical and electronic characteristics
(ii) Each consumes power differently
(iii) Each consumes different amounts of power

Ability to comply varies for each technology

Cost to comply varies for each technology

Response:

The Commission has determined that the record contains information necessary to show technical feasibility, cost effectiveness, energy savings and to show that the proposed regulations will not harm the state's economy and would not result in the loss of jobs. The information, analysis, calculations are based on the facts, data, proposals, studies, reports, stakeholder comments that are part of the record. This information was collected by the staff through its own research and research provided by stakeholder. The methodology used in calculating energy consumption and savings has not changed from that methodology used in previous appliance efficiency rulemakings. This methodology is scientific, widely accepted and used by engineers, scientists, economists, and energy consultants in the United States and worldwide.

Based on the record and analysis staff has determined that proposed standards are feasible. It has been determined that existing technologies can comply and will result in an incremental cost that is negative and/or zero. Many technologies and options are available for manufacturing energy efficient television for each type of technology and one technology is being required by the standards. Cost to comply can vary depending on individual manufactures choice to use negative and/zero cost or more expensive technology. However the negative and/or zero incremental cost is technologies are available.

The Energy Commission staff is aware of the various television technology types both existing and demonstrated as prototypes. Evidence and data show plasma TVs which consume less energy than LCD televisions, and LCD televisions which use less energy

than DLP televisions. In other words the power consumption by technology is a mixed bag of efficient and inefficient televisions. While the technologies are all different it is clear that they can all meet the proposed standards.

CEA opinion is unsupported and CEA not provided evidence as to how the Commission's methodology is flawed.

Page 11, slide 3:

Power factor correction is irrelevant:

Response:

The record supports that power factor will save the consumer energy because it will reduce energy loss due to excessive resistance that causes heat buildup in the house wiring resulting in wasted energy and higher electric bill to consumers. The support of power factor requirement is based on a scientific report in the record provided by PG&E dated April 13, 2009 and is in the record.[14] Poor power factor is a burden to consumers directly in excess kWh charges and indirectly through massive systems maintained by utilities to provide high quality power in spite of the system defects that low power factor cause. Both costs are passed directly to ratepayers.

CEA opinion is unsupported and CEA has not provided any evidence to support their claim.

Page 11, slide 4:

CEC Assumptions:

CEC admits

"the cost of compliance can be negative, zero, or positive, depending on the route a manufacturer chooses to pursue"

But-

[14] http://www.energy.ca.gov/appliances/2008rulemaking/documents/comments/04-13-09_Energy_Savings_Estimate_for_Power_Factor_Correction_in_TVs_TN-51939.pdf

"assume(s) that there is no unit price increase as a result of compliance and that competition will continue to keep prices stable"

Response:

CEA is misinterpreting the CEC's statement related to incremental cost. The CEC stated that the incremental cost for meeting the proposed Tier I and Tier standards is negative or zero based on technologies found to be in common used in television manufactured today. However, for example: If a manufacturer chooses to abandon Cold Cathode Fluorescent Lamp (CCFL) LCD technology which has negative and/or zero incremental cost, and replace all their television models with newer OLED technology then cost may increase.

Page 12, slide 1:

CEC Conclusions: $8.1 B net present value savings But….:

Response:

The record shows that savings in dollars are calculated based on the net present value. The net present value is calculated by standards methodology used by the Energy Commission for all other previous appliance rulemakings. The discount rate of 3% is calculated based on the current interest rate for loan, multiplied by tax effect (includes federal and state taxes) and, inflation rate. The calculated net present value is the ratio of future value and (1+ discount rate) ^{2}.

Total value of the proposed regulations is $8.1 Billion. It is the product of energy savings of 6515 GWh and $1.24 (a 10 year net present value of energy savings).

At the legislative hearing CEA's witness testified that they believed the discount rate should be at credit card levels. As stated by this witness this apparently was based on the assumption of the customer financing the television purchase not what the cost of the energy savings would be through the homeowner's electrical bill. When estimating energy saving as required for the adoption of the proposed regulating by the Warren Alquist Act, it is wrong to consider financing the television purchase.

It appears that CEA did not take into account how these calculations should be made, and what factors are to be taken into consideration when calculating the value of proposed regulations.

Page 12, slide 2:

CEC Assumes:

- **(i) 2007 baseline based on flawed data**
- **(ii) 6.5 TWh per year**
- **(iii) Zero energy efficiency gains from 2007-2022 without regulations**
- **(iv) Zero cost to consumers from proposed regulations**
- **(v) 3% discount rate**
- **(vi) 10 year turnover**
- **(vii) 4.36-5.5 million TVs purchased per year.**

Response:

The record has established that the 2007 baseline is an accurate assessment of energy consumption as corroborated by the most recent 2009 energy data. The energy saving calculations of 6.5 TWh a year are still accurate and correct. The zero efficiency gains from 2007 to 2023 are based on analysis conducted with data in the record, zero cost to consumers is based on the data in the record, 3% discount rate is accurate and is based on the current economic situation, 10 year turnover is based on the average expected life, and finally 4.36-5.5 million TV sales are based on the market research conducted by credible organization Display Search.

Page 12, slide 3:

Staff report ignores contrary evidence of cost of compliance:

Response:

Typically ENEGY STAR provides an incentive for manufactures to develop television with very high efficiency levels. Although an ENEGY STAR rated television may not cost anymore to manufacture that the current inefficiency television being sold, retailers will charge a premium for ENEGY STAR label televisions because the manufacturer wants to recover research and development costs. Customers have accepted this added

cost because they are buying and EnergyStar television. Once as new EnergyStar level has been established these televisions no longer have an EnergyStar logo and the customer no longer sees a justification to pay a premium of a regular television. At no time does the Tier I or Tier II efficiency levels meet the current EnergyStar requirements and thus there is no longer the ability to charge a premium as an EnergyStar labled television.

The California Energy Commission has received two pieces of information that suggest an incremental cost from Vizio and Best Buy and analysis from Agoura technologies, 3M, PG&E, NRDC, Imagine Design, and others that suggest a decrease in price. VIZIO stated that by improving light filtering the price increase would be tens of dollars. This incremental cost is far smaller than the $268.70 in energy savings expected for the average television. Best Buy claimed substantially higher cost of compliance due to analysis they conducted between the prices of ENERGY STAR and non ENERGY STAR televisions. This analysis could not be replicated using prices and information on Best Buy's own website and in visits to their retail locations staff were unable to find non ENERGY STAR televisions. The Commission contacted Thad Carlson and Laura Bishop from Best Buy to obtain the source of this analysis so it could consider the incremental cost argument made by the company. Best Buy did not provide the source of the analysis and did not provide the Energy Commission with more detailed information despite requests. The incremental cost claims were therefore considered in the development of standards.

In most cases more efficient technologies and appliances come with an associated incremental cost. This incremental cost to consumers is a result from the manufacturer's cost of compliance with standards. However, the Energy Commission has determined from the record that televisions are generally an exception to this rule. While there are some technologies that can be implemented at an incremental cost increase, such as the implementation of automatic brightness control, the Energy Commission had determined from the record that there are many efficiency measures for television that have zero or negative cost. Television screen settings can be changed to meet compliance without changing any parts or manufacturing processes. Component suppliers such as 3M, Augora Technologies, and Imagine Design have developed new films for television screens which have a total incremental cost which is reduced to zero due to the cost savings by the manufacturer by the reduction in parts needed for the

television. Therefore the cost of compliance can be negative, zero, or positive depending on the route a manufacturer chooses to pursue. [15]

In addition the California Energy Commission is not requiring ENERGY STAR labels for televisions which have brand value and therefore have inherent incremental costs. ENERGY STAR requirements will be more stringent than proposed Energy Commission standards for televisions at all times.

Page 12, slide 4:

Fact: Energy savings have costs:

Response:

The record has established that the results of manufacturing an energy efficient television has an incremental cost that is negative or zero. There is nothing in the record to support CEA's statements that the Commission's findings on energy saving costs are inaccurate. The CEA has repeatedly claimed incremental costs without identifying or substantiating what those costs may be. The CEA has not even provided a cost estimate for compliance with the standards. It is therefore impossible to even evaluate CEA claims in terms of cost effectiveness of standards because CEA has not submitted a cost to consider.

Page 13, slide 1:

Staff report ignored evidence that energy savings HDTV's cost more:

- **(i) $167 higher average prices for ENERGY STAR TVs versus non ENERGY STAR TVs.**
- **(ii) January 19, 2009 Best Buy Comments**
- **(iii) ENERGY STAR findings, cited in staff report show energy star models cost as much as $400 or 40% more than the most popular TVs**

Response:

Staff had conducted research and visited number of Best Buy stores in California to find price differences between ENERGY STAR and non ENERGY STAR televisions. Staff

[15] http://www.energy.ca.gov/2009publications/CEC-400-2009-024/CEC-400-2009-024.PDF

was told by Best Buy staff that non Energy star televisions are not legal to be sold in California and therefore they don't carry them.

CEA and Best buy has not provided any data or information to show why an ENERGY STAR television would cost more. Best Buy has not provided the Energy Commission with any information to substantiate incremental cost claims. The price difference may be caused by comparing old non ENERGY STAR televisions with new ENERGY STAR televisions and thereby is confounded by the price increase of old models vs new models. It is not even clear that the incremental price is comparing same sized televisions to one another. The Energy Commission needs to see the data and analysis used to find these cost differences. Despite requests, Best Buy has not provided any further information regarding this analysis or its findings.

In Best Buy's January 2009 letter to the CEC they claimed an incremental selling cost of $99 for models that met Energy STAR 2.0. As ENERGY STAR 2.0 only addressed standby power (the power used by a TV when it is turned off), and since the incremental production cost to achieve the 1W standby power requirement is well under $5 and for many sets < $1. Staff believes that a $99 incremental cost far exceeds the actual cost for the standby and would like further evidence showing this number is accurate and why such a large premium would be established for such a low cost addition.

Page 13, slide 2:

Informed consumers makes smart choices:

- **(i) TVs are not like toasters.**
- **(ii) TVs are central to consumers' lives, not utilitarian appliances**
- **(iii) Performance counts:**
- **(iv) Consumers chose digital TVs based on variety of factors**
- **(v) CEC should not choose winners and losers based on solely on a single factor:**

Response:

Staff agrees with the first three comments.

Staff does not find this statement (iv) to be relevant to the standards because the standards are feasible with existing technology, they do not affect innovation, nor affect the options available on the television and they are cost effective for the consumer. Furthermore as stated above, the standards require full disclosure to the consumer concerning energy consumption which will aid the consumer in choosing a digital TV.

Staff does not find the statement (v) to be relevant to the standards because the standards are removing from the market energy wasting television which will be replaced with efficient television that cost the same, have the same options but cost less to operate. CEC analysis is comprehensive, technology neutral, based on facts, data, relevant information and research conducted by the Energy Commission staff. The record is clear that the Energy Commission has relied on all relevant evidence in the record in making its determination the proposed standards aqree fully supported. As required by the Warren Alquist Act.

Page 13, slide 3:

ENERGY STAR+ Disclosures = Informed customers:

CEA TV manufacturers and retailer support ENERGY STAR efforts

All support energy use disclosures and ongoing work of the FTC

Voluntary labeling works

i. **High consumer recognition of ENERGY STAR**
ii. **Spurs completion among manufacturers**

Response:

CEA statement is misleading. Today when consumers shop for a new TV there is no information on the television telling the consumer TV's energy use or operating costs so the consumer cannot make comparisons between similar models. As an example, when a customer was looking at 52 inch Sony televisions that had an ENERGY STAR logo the customer had no way of knowing that one used 105 Watts of energy and the other 329 Watts of energy. The higher wattage consuming televisions would cost the consumer $57 dollars per year to operate and $570 over the life of the television. In addition, non-ENERGY STAR 52 inch television next to these may use from 335 watts to over 500

Watts of energy and cost the consumer will be from $88 to $133 per year to operate and $886 to over 1330 over the life of the television. While "white goods" such as refrigerators and clothes washers provide this information at the point of sale via the yellow Energy Guide labels required by the Federal Trade Commission (FTC), no such information exists for TVs.

Page 13, slide 4:

Conclusion:

Industry supported alternatives can save as much or more energy than mandated limits on TVs.

CEA and TVs manufacturers and retailers will work with CEC to generate energy savings from voluntary efforts and new initiates:

These efforts succeed with no harm to

(i) Consumer choice,
(ii) California retailers,
(iii) DTV innovations,
(iv) Motion picture and TV related industries

Response:

There is no evidence in the record to support CEA's statement. The record shows that CEA's alternatives have insignificant impact on energy savings and cannot meet the level of energy savings that will be obtained by the standards.

CEC welcomes CEA voluntary efforts and new initiatives. Along with regulations, CEA's proposed initiatives will be helpful.

Page 14, slide 1 and 2

Recommendations to CEC:

- CEC should join the CE industry to

  (i) Rapidly increase consumer awareness

(ii) Promote smart energy choices

- Embrace continuing dramatic energy efficiency already in progress

(i) continue annual oversight

Response:

The record shows that CEA's recommendations have not transformed the market towards more efficient television and in fact the record has shown the voluntary efforts over the last ten years have failed to control and reduce the television energy consumption that has grown from 3% to 10% of home energy consumption. No energy reduction has been seen in residential television energy use; on the other hand record shows that televisions energy consumption is growing. The record clearly shows that the Commission's appliances have worked in California. California has been able to maintain its per capita power consumption at the same level for the last thirty years by implementing a system of standards through the Energy Commission and various other programs through utilities and the CPUC. CEA is wrong that these programs are substitutions to regulations. The points made here are additive effects to the Commission's proposal and will work to save energy beyond the scope of the regulation.

Page 14, slide 3:

CEC History with Electronics:

iii. External power supplies: amended due to marketplace impacts on multiple industries
iv. After the Digital Television Adapter (DTA) regulations of products not yet on market; ultimately rescinded
v. Standby standards for consumer audio video products: apparently no energy saved.

Response:

External power supplies: The regulations transformed the electronic industry. All power supplies in the market today comply with regulations. Many manufacturers far

exceed the energy standards adopted by California and Federal regulations. Federal Department of Energy adopted California external power supply standards.

After the Digital Television Adapter (DTA) regulations were adopted, the energy efficiency of DTA's was far exceeded the regulations. CEC removed the regulations as they were not necessary. Before regulations DTA's were consuming high energy.

Standby standards for consumer audio video standards save energy. The standards need to be updated in the near future. CEA's statement is not backed by data.

Page 14, slide 4:

Recommendations:

i. **Revisit Warren Alquiest Act (not substantially revised in 30 years)**
ii. **Checks and balances needed**
iii. **Flexibility needed**

Response:

Warren Alquist works and record based on data shows that California was able to maintain its per capita power consumption at the same level for the last thirty years. CEA is wrong on this issue

Response to CEA criticism of CEC economic analysis:

During the October 21, 2009 Assembly Committee on Utilities and Commerce Informational Hearing on the Energy Commission's proposed television standards CEA's economist Paul Wazzan made several assertions to discredit the $8.1 billion value of the regulations.

The first assertion is that the Energy Commission staff analysis contains a fundamental mathematical error. There is no mathematical error in our calculations. The net present value (NPV) calculated as the value of the proposed regulation is based on a complete California stock of Tier 2 compliant televisions by the year 2023. Each time a Tier 2 compliant television is sold the NPV of the energy savings from that television is added to the total value of the regulations. This occurs until all televisions are Tier 2 televisions and begin to be replaced with like-kind Tier 2 televisions. The Energy

Commission estimates over 40,000,000 Tier 2 compliant televisions to be sold by 2023 and that the energy savings from these more efficient televisions to be 6,515 GWh/year. This leads to a monetary savings of $912.1 million/year at $0.14 per kWh.

Consumers save energy on their televisions for their design life, which is estimated to be 10 years. To calculate the energy value of switching 40,000,000 televisions to tier 2 levels for 10 years the Commission uses a NPV calculation. The value of saving 1 kWh/year over 10 years at $0.14/kWh is in simplistic terms 10 x 0.14 = $1.40. However it is generally accepted that a dollar earned today is worth more than a dollar earned tomorrow as you can earn further money by investing the dollar today. To account for this factor the Energy Commission made a NPV calculation using a 3% discount rate which alters the value of saving 1 kWh/year over 10 years from $1.40 to $1.24.

The resulting $1.24 value is then multiplies by the savings 6,515 GWh (1 GWh = 1,000,000 kWh) the result is in $8.1 billion.

The CEA has misstated the Energy Commission's assumptions in its "Exhibit 2" as presented to the California Assembly Committee on Utilities and Commerce in its informational hearing. The Commission never claimed full savings in the first effective year of the regulations. Their calculations do in fact contain mathematical errors. They discount money from energy savings that people are getting in the first year of owning an efficient TV as if they were receiving the savings 8 years down the line. In addition they do correctly factor in the fact that televisions have a 10 year life and that the savings are therefore gained for 10 years. The CEA made no attempt to contact staff or discuss the assumptions or calculations of these numbers. The CEA made similar claims of math errors in the Energy Commission's public hearing without any supporting exhibits or information. When Energy Commission staff requested further detail we were responded to by CEA's economist that he was told not to discuss the claims made at the hearing. This is a completely obstructive action, and not one of good faith.

The CEA also claimed in the informational hearing that the discount rate used to discount the value of future dollars was inappropriately low. CEA revised the discount by more than tripling it using a rate of 10% rather than the Energy Commission's 3%. This is especially surprising as the CEA's economic report submitted to the Energy Commission on March 23, 2009 uses a 3% discount rate and cites the source of that rate

as "The reasonable discount rate of 3% assumed in the CEC Staff Draft Report is applied to calculate the Present Value." The CEA assumes that a credit card interest rate is a more appropriate discount rate. Whether they discount for inflation and for post-tax rates is unknown. It is impossible to understand the basis for their assumptions as they have not made them public. The commission has done research to arrive at this 3% discount rate and has used it in appliance and building standards for decades.[16] This methodology has been widely vetted and withstood criticisms over the years. Even with some of the more outrageous discount rates claimed by CEA's economist Paul Wazzan (as higher than 20%) the standards still represent a multi-billion dollar value to California consumers. The Energy Commission has been transparent in its assumptions and thorough in its analysis. The basis for much of what the CEA presented to the Assembly Utility and Commerce is still unclear and requests for more detailed information have been denied by the CEA.

Analysis 3D and High Quality image processors for TVs:

CEA has claimed that our standards will stifle innovation. One of the features that CEA has claimed may be stifled is 3D television. Television image processors must calculate the correct output for each pixel of a television screen. For a 720P resolution TV that is 921,600 pixels and for a 1080P TV that is 2,073,600 pixels. A processor of a 1080P television must therefore do roughly twice the number of calculations to produce an image as a 720P television. Moore's law for processors is that the processing power doubles every 2 years. While the processing power doubles, the power consumption remains relatively flat with Moore's law. In fact one can choose to have a processor with half the power consumption instead of doubling the processing power.

To create a 3D image requires stereoscopic images, which means a separate image for your right and left eye. This requires televisions to double their image processing calculations as now two images must be presented in the time frame that one image was formerly presented. Again one can imagine that the processing power must be doubled. With Moore's law, the processor required to do these calculations would take the same amount of power as one used to calculate 2d images today by the time Tier 1 becomes effective in 2011 (two years from now). Further under Moore's law by 2013, the effective year of Tier 2, the 3d processor would use half the power of a 2d processor

[16] http://www.energy.ca.gov/appliances/2009_tvregs/documents/comments/

today. Therefore the proposed standards which can be obtained today using 2d processors should be easily obtainable for 3d processors in the future with room for even greater processing power in the future for other applications.

In addition the test method only tests the televisions using a 2d image. This requires less processing than a 3d image. The processor will therefore only consume as much power as needed to calculate a 2d image. While a processor may have a rated power of 30W when at full calculating capacity, the actual consumption at less than capacity will be much less than at full capacity. In that way expanding the processing capability of a television for 3d image processing will not lead to considerable power increase when measured under the Energy Commission's proposed test methodology. Examples of this trend in processor consumption vs. calculation loads can be found in the following documents:

http://www.xbitlabs.com/articles/video/display/ati-vs-nv-power_9.html
http://software.intel.com/en-us/articles/power-efficiency-analysis-and-sw-development-recommendations-for-intel-atom-based-mid-platforms-2/

For example an ATI RADEON X800 XT graphic processor used for high-end graphics processing for computers uses 65.9W when utilizing its full capacity and uses only 18.4W while using minimal capacity. The same trend in wattage consumption of a 3d processor can be expected, and that when displaying a 2d image the power consumption will scale down, and the extra capacity of the processor will not hinder the ability of a television to meet our proposed standards.