

DOCKETED

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CALIFORNIA ENERGY COMMISSION

Results of Invitation to Participate: Set-Top Boxes

Phase II: Appliance Efficiency Pre-Rulemaking
Appliances & Outreach & Education Office
Efficiency Division

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California Energy Commission: Rosenfeld Hearing Room

July 21, 2017



Agenda

- Purpose
- Respondents to Invitation to Participate
- Information Requested
- Responses Received
- General Comments
- Next Steps



Purpose

- The Energy Commission is gathering information for Phase 2 products of the March 14, 2012 OIR for appliance efficiency regulations
- The Invitation to Participate (ITP) is an opportunity for stakeholders to provide information and data that will help shape the Energy Commission's policy regarding Phase 2 appliances



Purpose

- The ITP requested information and data on the following topics:
 - Commercial and Industrial Fans & Blowers
 - General Service Lamps (Expanded Scope)
 - Spray Sprinkler Bodies
 - Tub Spout Diverters
 - Irrigation Controllers
 - Set-Top Boxes
 - Low Power Modes & Power Factor
 - Solar Inverters



Purpose

- During this portion of the workshop, we will discuss the information and data submitted for Set-Top Boxes



Respondents to Invitation to Participate

- American Council for an Energy-Efficient Economy (ACEEE)
- ARRIS Group, Inc.
- AT&T/DIRECTV
- Cablevision
- California Cable & Telecommunications Association
- California Investor-Owned Utilities (CA IOUs)
- CenturyLink
- Charter Communications
- Comcast
- Consumer Technology Association



Respondents to Invitation to Participate

- Cox Communications
- DISH Network
- EchoStar Technologies
- Natural Resources Defense Council (NRDC)
- NCTA – The Internet & Television Association
- Technicolor
- Verizon



Information Requested

- Product Definition & Scope
- Test Procedures
- Sources of Test Data
- Market Characteristics
- Product Lifetime
- Installed Base Characteristics
- Product Development Trends



Product Definition & Scope

- Most commenters discussed the existing voluntary agreement (VA) and potential renewal of the VA
 - Some comments view the roadmap as a parallel process to negotiations on renewal of the VA
 - Several industry comments implied the roadmap and a VA are mutually exclusive and expressed opposition to mandatory reporting requirements
 - The presence or absence of a VA has no impact on the Commission's authority to investigate this topic and hold a roadmap proceeding



Product Definition & Scope

- Industry opposed further Commission consideration of small network equipment, but if it occurs it should be under set-top boxes rather than low power
- Industry comment that preemption applies to cable STB
 - The Energy Commission does not agree
- CA IOUs support development of STB roadmap because additional savings remain available
- Agreement on aligning definitions with ENERGY STAR v5.1 and VA



Test Procedures

- ANSI/CTA-2043 (2013) is adequate and ENERGY STAR has aligned with it
- Further study of how functions are enabled/disabled during setup & on-mode to better understand if the test results reasonably reflect settings as used by consumers



Sources of Test Data

- VA annual reports from D+R International
 - Show new STBs have significant reductions in annual energy
 - Gateway/internet access devices don't have reported data but some are in the small network equipment VA
- <http://www.energy-efficiency.us/#sci-sect-5> has information about all STBs offered by service providers that are VA signatories
- ENERGY STAR certified products list
- 2016 VA annual report to be published summer 2017
- CA savings can be estimated by population weighting



Market Characteristics

- Information on number of subscribers and the way they access content (where, how, length):
 - <https://cta.tech/News/PressReleases/2017/March/Content-Consumption-Milestone-Number-of-Streaming.aspx>
 - <https://www.slideshare.net/adobe/adi-state-of-digital-video/1>
 - <https://www.cta.tech/Research-Standards/Reports-Studies/Studies/2016/The-Changing-Landscape-for-Video-and-Content.aspx> (available for purchase)
- Increasing number of whole-home solutions and cloud-based DVR services resulting in significant savings



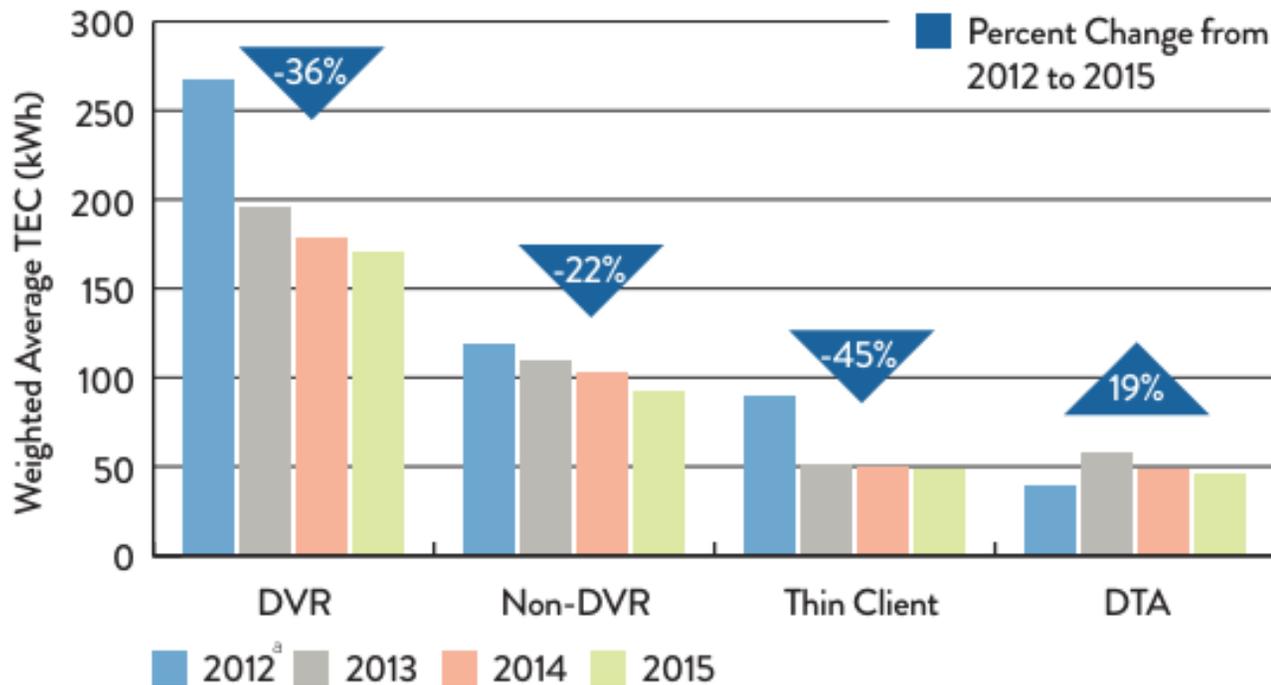
Market Characteristics

- Savings are increasing as the percent of new equipment increases relative to total equipment deployed
- Approximately 121.5 million devices procured by VA signatories between 2013 and 2015
- Upcoming 2016 VA annual report will estimate the percentage of deployed devices which have been purchased since 2013



Market Characteristics

- Weighted total energy consumption average of STBs from 2015 VA annual report



^a 2012 data represents the baseline estimated per unit energy consumption. It was developed using data from the service providers and energy efficiency advocates.



Market Characteristics

- Duty cycle estimates in hours per day from CA IOUs

Operational Mode	Cable without DVR	Cable with DVR	Satellite without DVR	Satellite with DVR
On	12.4	12.9	12.7	11.5
Multi-stream	0	1.8	0	3.8
Sleep	11.6	9.3	11.3	8.7



Product Lifetime

- General agreement on 5 to 7 years
 - Industry indicated it is difficult to make any generalizations that are segmented by equipment type or customer class
 - Some consumers proactively request new equipment (i.e., early retirement)
 - Industry suggested that large scale early retirement could have negative environmental consequences



Installed Base Characteristics

- U.S. existing stock between 227M (2015 VA annual report) to 361M (2013 Fraunhofer)
- Market reports available for purchase that project future shipments along with current stock information
 - S&P Global Market Intelligence, Grand View Research, IHS Markit
- VA annual reports do not have data on the specifics of how the installed stock is changing or if older STB are being permanently retired



Product Development Trends

- Fewer DVR and traditional STB
- Increase in thin client, internet protocol television (IPTV), over-the-top content (viewing without STBs)
- Light sleep, auto-power down (APD), whole-home systems, cloud-based recording, next generation power management
 - 2015 VA annual report estimates 32.5 million cable STB have light sleep capability



General Comments

- Are there any other topics stakeholders wish to discuss?



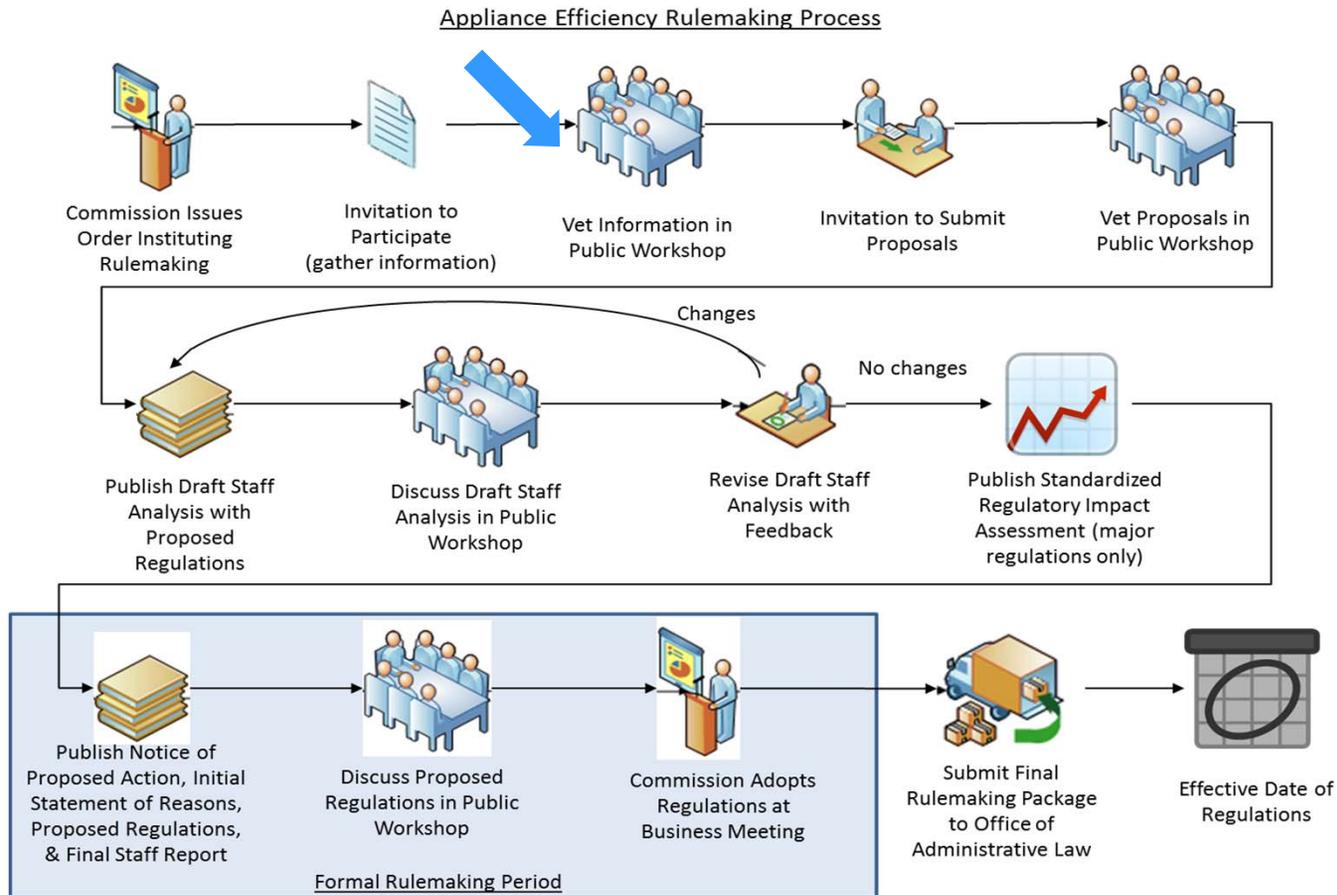
Next Steps

- Following the ITP workshops, the Energy Commission will request proposals for efficiency standards or measures
- Proposal template and guidance is forthcoming.
- Commission staff are available to discuss questions and concerns at any time during the proceeding



Public Participation

1/27/17





Discussion & Comments

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