DOCKETED

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NRDC's Comments on CEC's Proposed Monitor Energy Efficiency Standards

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Natural Resources Defense Council

October 10, 2016

CEC's proposed standards headed in right direction

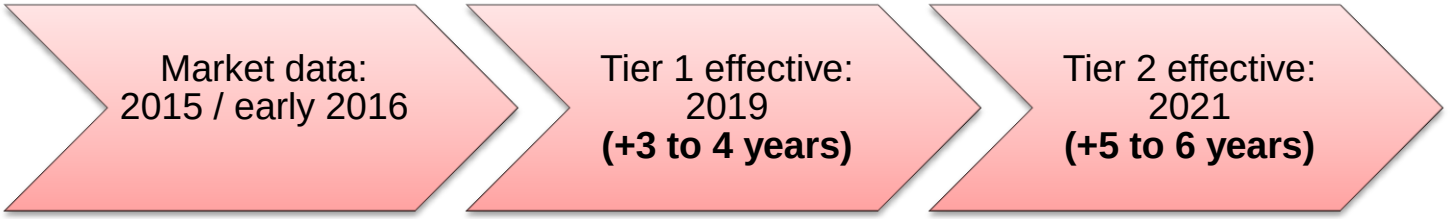
- ✓ Significant projected energy savings

Annual savings after stock turnover	Energy (GWh/y)	Bills ($M)	Carbon (kMT CO2)
Computers	1,636	$261	513
Monitors	696	$111	218
Total	**2,332**	**$372**	**731**

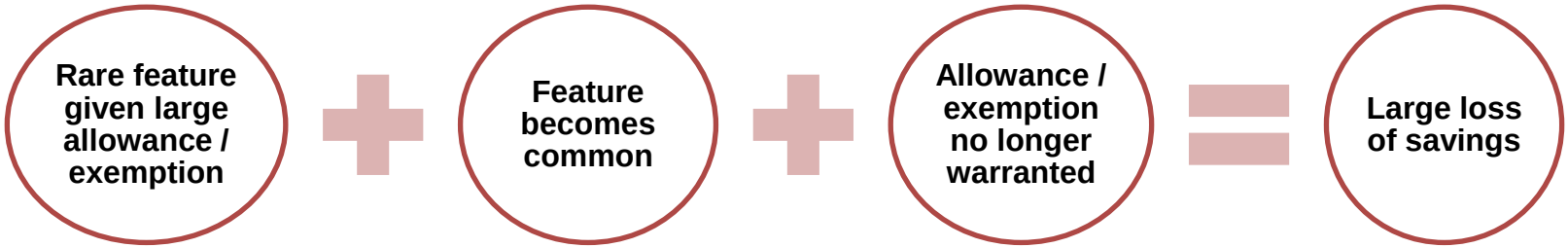
- ✓ NRDC appreciates CEC's fact-based, collaborative process, which led to Sept. 9 proposal
- ✓ Generally strong proposal, significant improvements over existing standards (ENERGY STAR v6, EU Ecodesign)
- ✗ Disappointed with effective dates of 2019 and 2021: we demonstrated that CEC Tier 2 levels are technically feasible and cost-effective today

But overly generous allowances and exemptions create risks of major holes which could wipe out much of projected savings if not closed

Long timelines…



…create conditions for potential loopholes if following conditions are met:



A word about functional allowances (a.k.a. “adders”)

- Current proposal provides sizable additional energy adders (allowances), exemptions, or weaker levels for various functions and features
- Example:
  - A standard **27-in, 2-MP monitor** would get a **21.5 watt** on mode allowance, or **50 kWh/y**
  - An **Adobe-RGB** enhanced performance display would get a **60% adder**, meaning a **80 kWh/y** allowance (**+30 kWh/y**)

- Why can this become a problem?
  - Even if this were justified today, historical technology trends have shown display quality increase steadily while power decreased
  - If Adobe-RGB became standard and required little/no extra power by 2021, the extra 30 kWh/y could wipe out much of the savings from the standards

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Monitors: high risk of major loss of savings

- High probability that at least one if not several loopholes will grow large by Tier 2 (Jan. 2021), leading to much of expected savings not materializing

Feature	Potential loophole	Tier 1	Tier 2	Risk level
Gaming monitors	Adder	+35%	**+35%**	**High**
Enhanced performance (EPD)	Adder	+75%	**+60%**	**High**
OLED	Adder	+30%	**+20%**	Medium
Curved	Adder	+30%	**+20%**	Medium
Larger than 30-inch	Weaker req'mts (ESTAR v6)			Medium
"Very High performance"	Exemption			Medium
COMPOUNDED RISK				**VERY HIGH**

Monitors: Gaming monitors

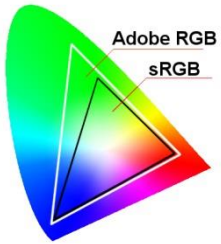
- CEC proposal:
  - **35%** / **20%** adder (tier 1 / tier 2)
- Test method doesn't test VRR:
  - Test method uses fixed refresh rate, not variable ➔ no need for any extra allowance
- Technology exists today that doesn't need any extra power:
  - **FreeSync:**
    - Purely software-based, all work in GPU, no extra power draw in monitor
  - **Gsync:** Hold to same standard (performance-based standards)
  - **73%** of GSync, **57%** of FreeSync monitors on market today already comply with no adder.
- Market share:
  - Software solution adds no additional cost, could spread quickly

- Loophole test:

How many products by effective date	High
Impact per product	High
Not warranted by effective date	100%
OVERALL RISK	HIGH

- NRDC recommendation:
  - Critical: no adder for tier 2
  - Adder not warranted for tier 1 either, but open to reduced 10% adder if necessary
  - ⚠ Avoid exemption, would be a larger loophole

Monitors: Enhanced Performance Displays (EPD)



- CEC proposal:
  - Standard RGB adder : **30%** (tier 1) / **20%** (tier 2)
  - Adobe RGB adder : **75%** / **60%**
- Technology:
  - **63%** sRGB, **48%** Adobe-RGB in ESTAR v6 already achieve CEC's tier 2
  - **100%** ESTAR v7 Adobe-RGB pass
  - In 4 years, 100% will most likely pass
- Market share:
  - Natural evolution of display technology
  - sRGB is low-bar, very likely to become common. Adobe-RGB is higher bar, but proposed adder is huge (high impact)

- Loophole test:

How many products by effective date	**High**
Impact per product	**Very High**
Not warranted by effective date	**100%**
OVERALL RISK	**HIGH**

- NRDC recommendation:

	sRGB	**Adobe RGB**
Tier 1	10%	50%
Tier 2	0%	25%

⚠ Avoid exemption, would be a larger loophole

What's to do?
Close major potential loopholes to preserve savings

CEC should take two actions to minimize risk of major loophole and preserve savings:

1. **Tighten top potential loopholes**:
   - As recommended in this presentation

2. **Post-adoption off-ramp**:
   - Monitor the market (CEC database)
   - Open sub-rulemaking within 3 months if exempted function or adder accounts for > 10% of models registered in database over last 6 months.
   - Outcome - Sunset or reduce exemption/adder within 12 months.

If **half** of projected savings did not materialize due to various loopholes, this would deprive Californians from **$1B over 6 years**, and result in **2 million tons** of unnecessary CO2 emissions

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Summary

- Potential for significant benefits to Californians if savings are preserved
- NRDC not challenging overall framework, dates, or major levels in standards, only reasonable tweaks to ensure savings materialize
- NRDC hopes to be able to support adoption of revised standards by end of the year

THANK YOU!