DOCKETED

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Project Title:	Computer, Computer Monitors, and Electronic Displays
TN #:	204151
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California IOUs Title 20 Workshop Presentation 04-15-15

Additional submitted attachment is included below.

Computers

Response to Standards Proposal

Presented to the California Energy Commission

April 15, 2015

PG&E

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

SDGE
A Sempra Energy utility

The Gas Company
Sempra Energy utility

Why Standards?


Desktop


All-in-One


Notebook


Thin-client


Workstation


Small-scale server

- Despite progress, still significant wasted energy.
- Cost-effective and feasible solutions.
- State policy goals.

- **IOUs generally support the CEC's proposal.**
- **Several areas for improvement.**

Real-World Use and Savings Potential is Even Higher

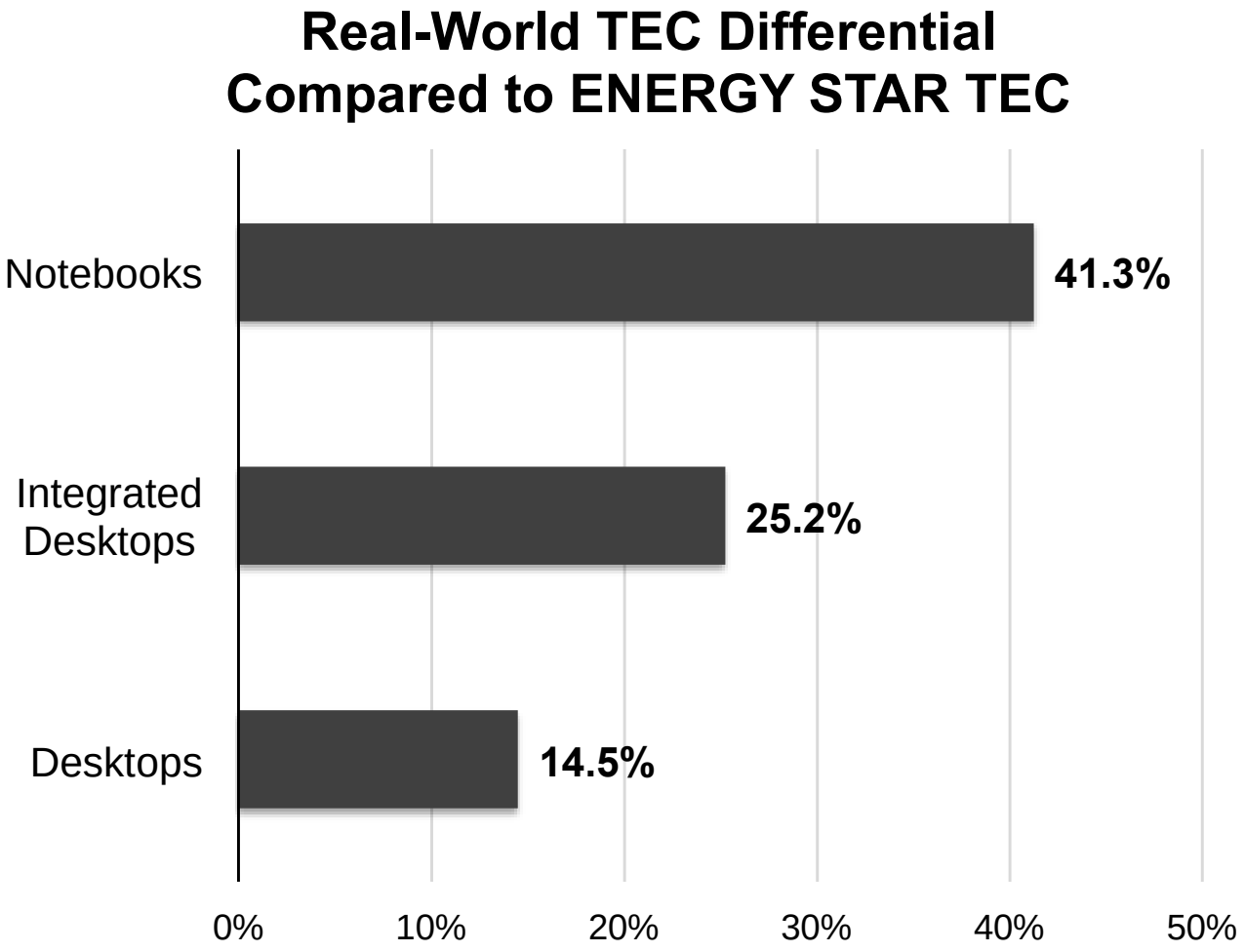
Example Notebook

TEC (ENERGY STAR estimated): **24 kwh/yr**

- Under-estimated activity in idle mode.
- No peripherals, e.g., docking stations, printers.

CA IOUs, Real World Adjustment Factor, Oct 2014 CASE report addendum, Docket #12-AAER-2A

Real-World Use and Savings Potential is Even Higher



CA IOUs, Real World Adjustment Factor, Oct 2014 CASE report addendum, Docket #12-AAER-2A

Real-World Use and Savings Potential is Even Higher

Example Notebook

TEC (ENERGY STAR estimated): **24 kwh/yr**

TEC (w/ Real-world Adjustment Factor): **34 kwh/yr**

- Accounts for actual power draw when not actively being used.

- Impact on cost-effectiveness and statewide savings.
- No proposed revision to test procedure or reporting.

CA IOUs, Real World Adjustment Factor, Oct 2014 CASE report addendum, Docket #12-AAER-2A

Notebooks present an opportunity.

Example

Same:

- System Performance
- Weight & Screen Size
- Operating system

Source: Online retailers, Feb. 2015

Notebooks present an opportunity.

Example

TEC: 29.5 kwh/yr

Price: $513.99

Source: Online retailers, Feb. 2015

Notebooks present an opportunity.

Example

TEC: 29.5 kwh/yr

Price: $513.99

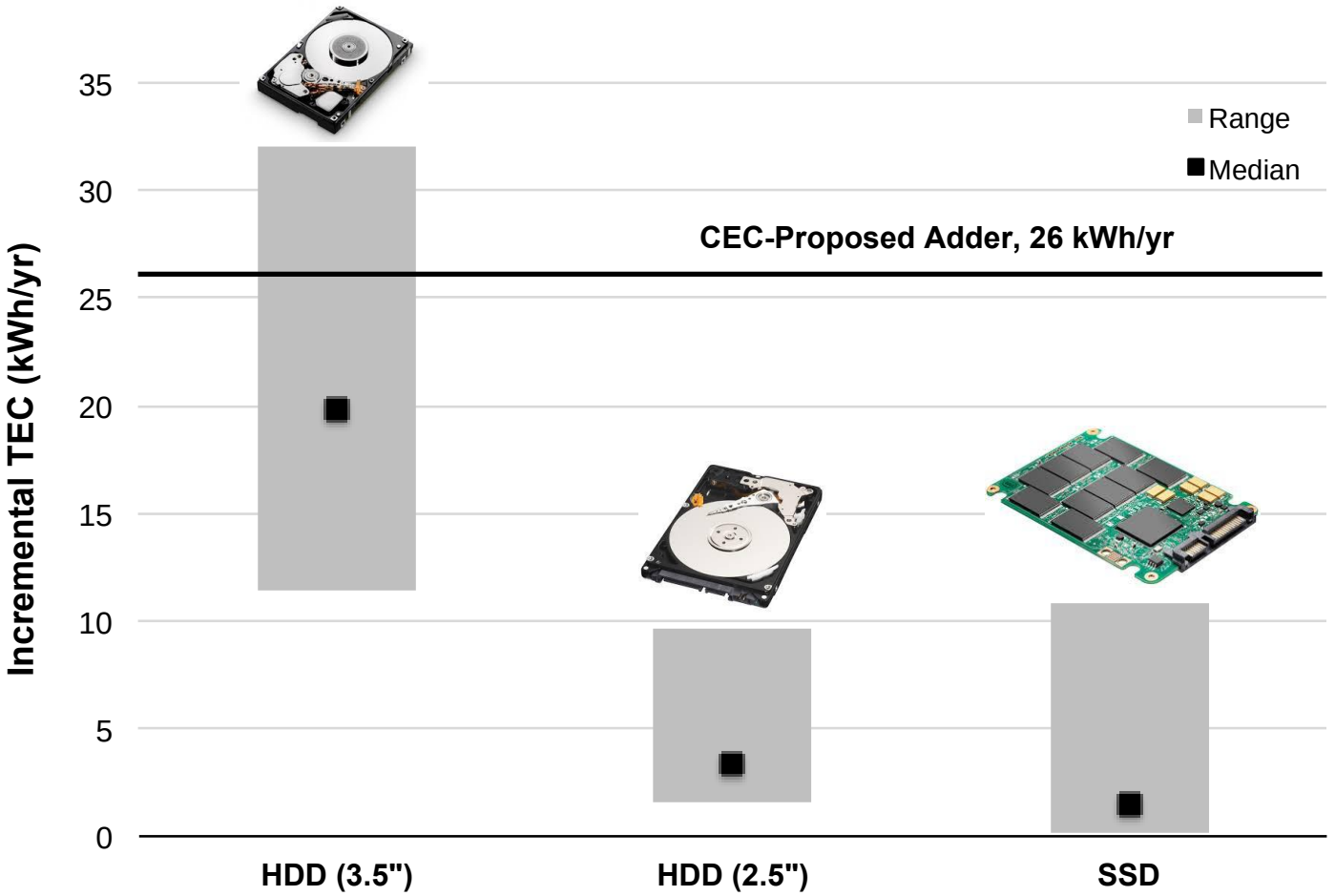
TEC: 19.4 kwh/yr

Price: $509.99

Source: Online retailers, Feb. 2015

Desktop (& Notebook) Adders

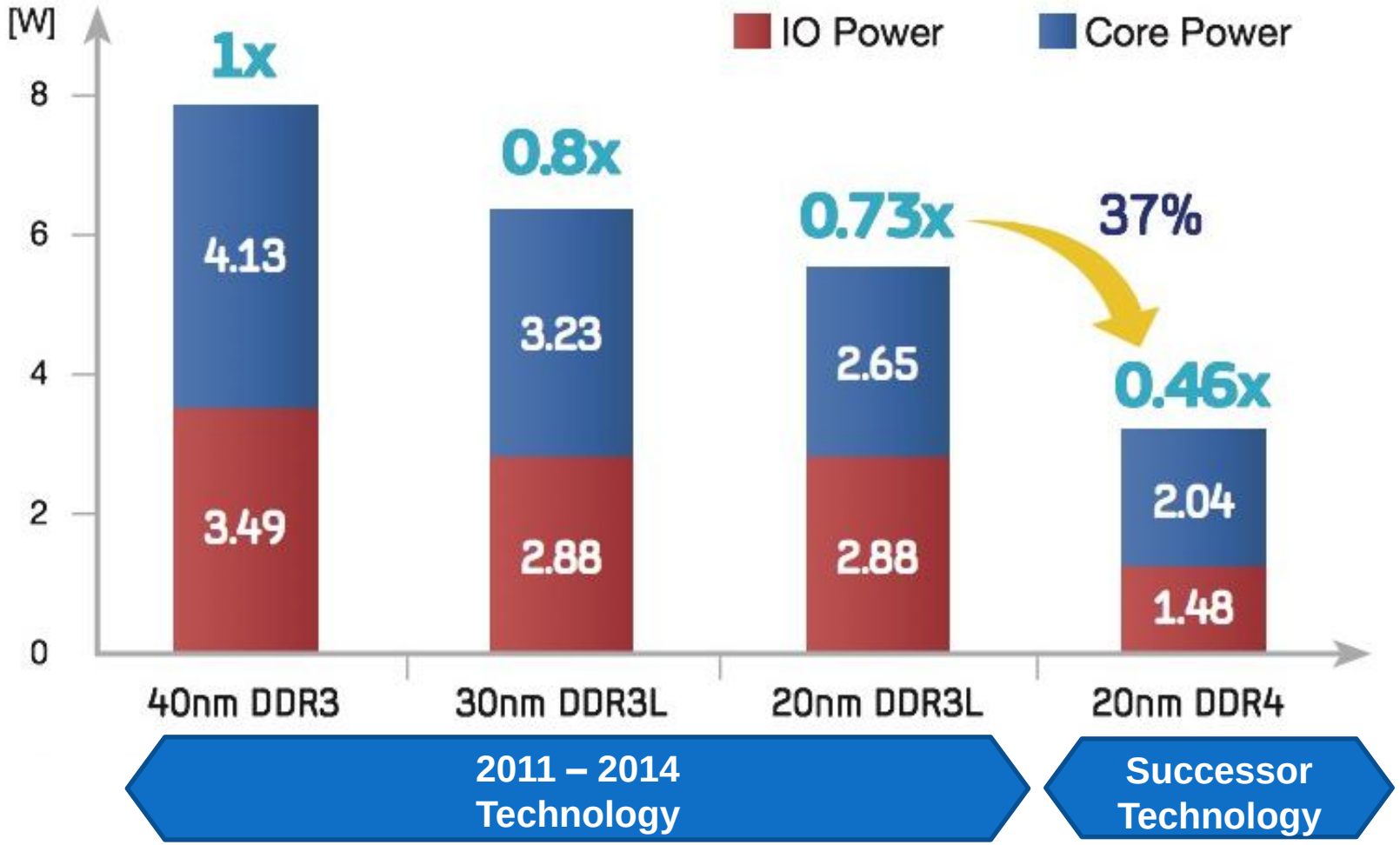
Secondary Storage Adders: Generous and Potentially Unnecessary



Tom's Hardware 2013-2014 data.

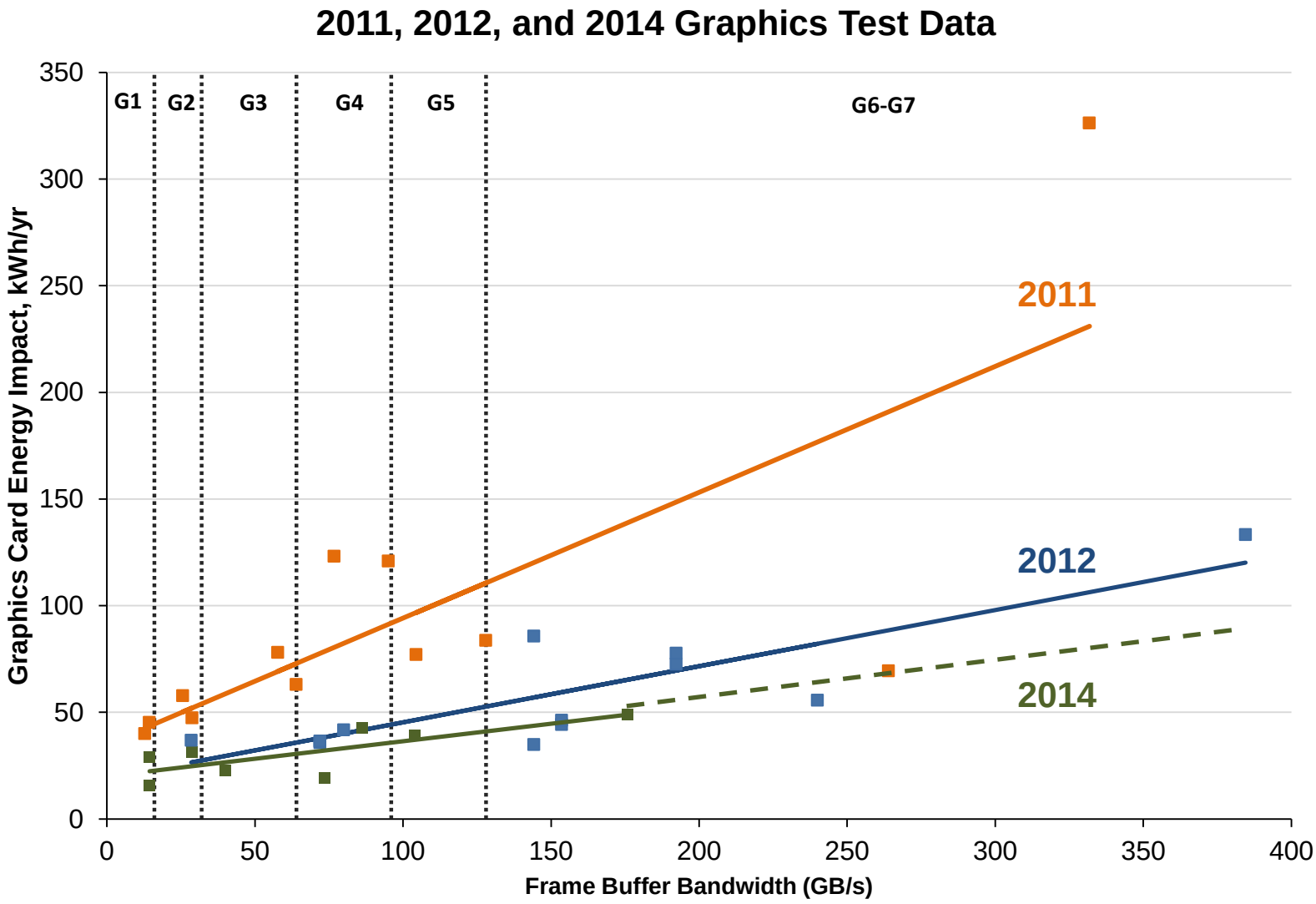
2.5" hard drives and solid-state drives can easily meet proposed storage adder with room to spare.

Memory adder ignores advent of DDR4, which brings 20-40% power savings



Active power for a 4 X 4 GB memory configuration. Samsung, 2013.

Rapid, multi-year trend downwards, not including graphics switching in desktops



IOU, NRDC, CLASP data, 2011-2014.

Why Standards?

Desktop

All-in-One

Notebook

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Workstation

Small-scale server

- Opportunities for savings.
- Future progress is not guaranteed.
- Sales are significant, even for desktops.