ACEEE
American Council for an Energy-Efficient Economy

How Big Energy Efficiency?

*If Catalyzed by Broadband and Information Technologies**

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*** In the spirit and tradition of Nobel Laureate and former Caltech physicist Richard Feynman, in his 1959 visionary talk, "There's Plenty of Room at the Bottom." See, http://www.its.caltech.edu/~feynman/plenty.html.**

Working Definition: Energy Efficiency Investments

- The cost-effective investment in the energy we don't use to produce our goods and services.
- Examples include:
  - *The conventional:* new electronic ballasts and lamps, sensors, building and piping insulation, and heat recovery systems installed to primarily save energy;
  - *The supply side:* Combined heat and power (CHP) and recycled energy systems with efficiencies of 70-90 percent;
  - *The unexpected:* Broadband and Information and communication technologies (ICT) whose secondary value can positively increase overall energy productivity; and
  - *Infrastructure:* Investments in the more innovative, high value-added infrastructure improvements, industries and services that power structural change, but do so in ways that also lower our overall energy-intensity.
- The common denominator? Productive investments and informed behavior – increasingly enabled by semiconductor devices, broadband, and ICT.

Semiconductor Technologies: The Potential to Revolutionize US Energy Productivity

John A. "Skip" Laitner, Chris Poland Knight, Vanessa L. McKinney, and Karen Ehrhardt-Martinez

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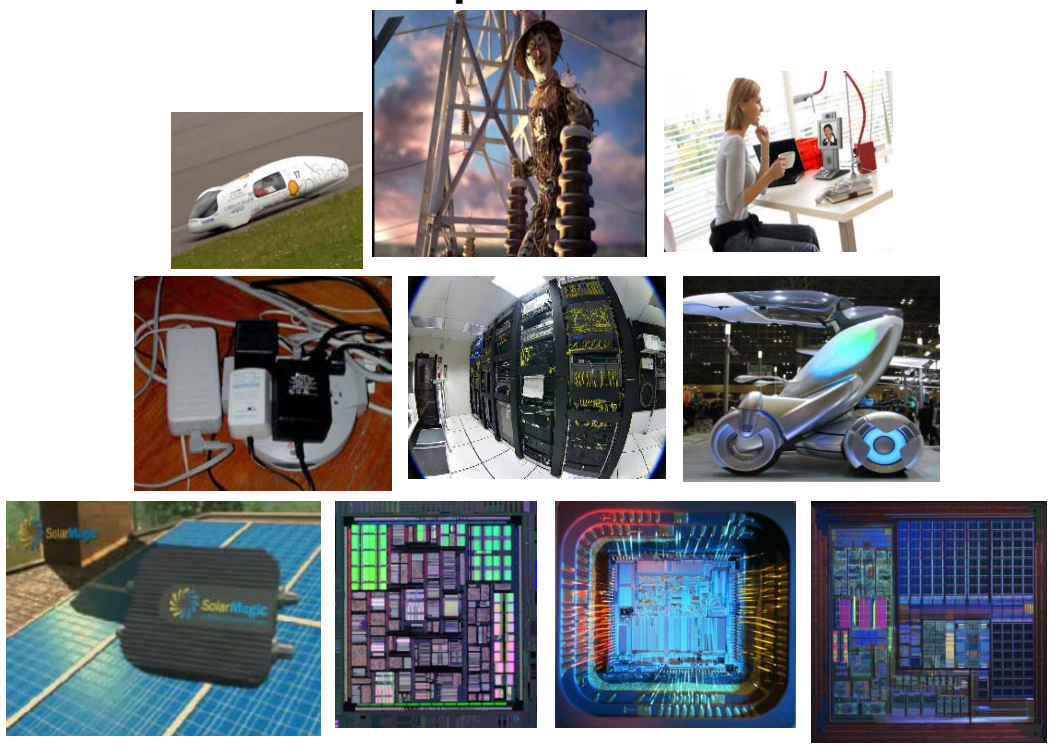
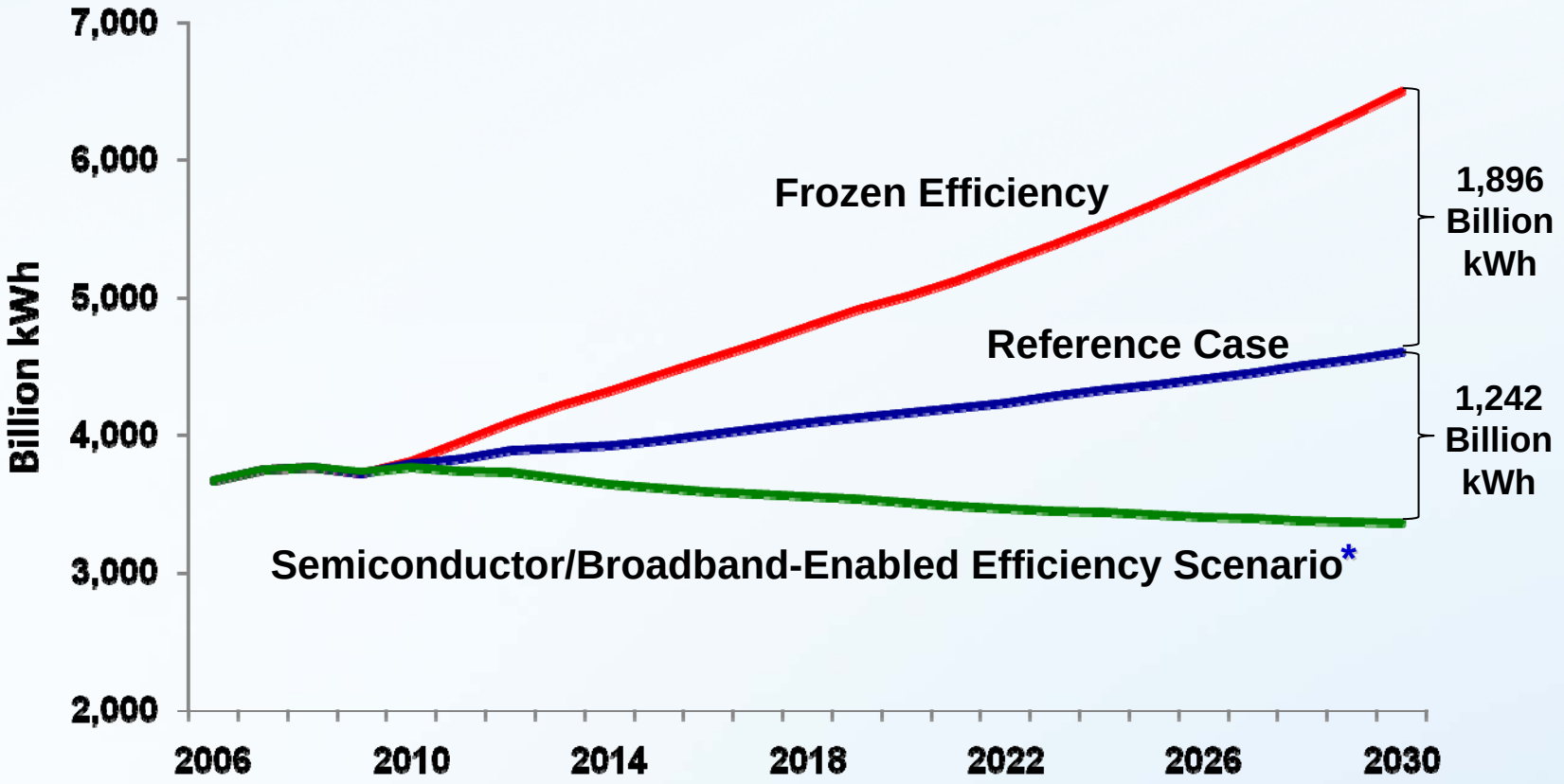


Exploring Future Efficiency Gains



*Accelerated investments in semiconductor-related technologies stimulated by smart policies (from the May 2009 ACEEE assessment on the impact of the semiconductor industry)

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Exploring Future Efficiency Gains

- Under a semiconductor-enabled efficiency scenario, the market would require new productive investment on the order of $500 billion by 2030.
- The savings to consumers and businesses would likely grow to nearly $1.3 trillion over that period of time.
- Our estimates indicate that this higher level of energy productivity would stimulate a net average annual increase of 500,000 jobs.
- Carbon dioxide emissions would decrease by an average of ~400 million metric tons.
- ***Yet these returns are available only if we choose to develop and invest in this resource opportunity.***

The difficulty lies not with the new ideas, but in escaping the old ones. . . .

John Maynard Keynes

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