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Energy Savings Opportunities for Home Electronics: Insights from a Minnesota Field Study

Scott Pigg

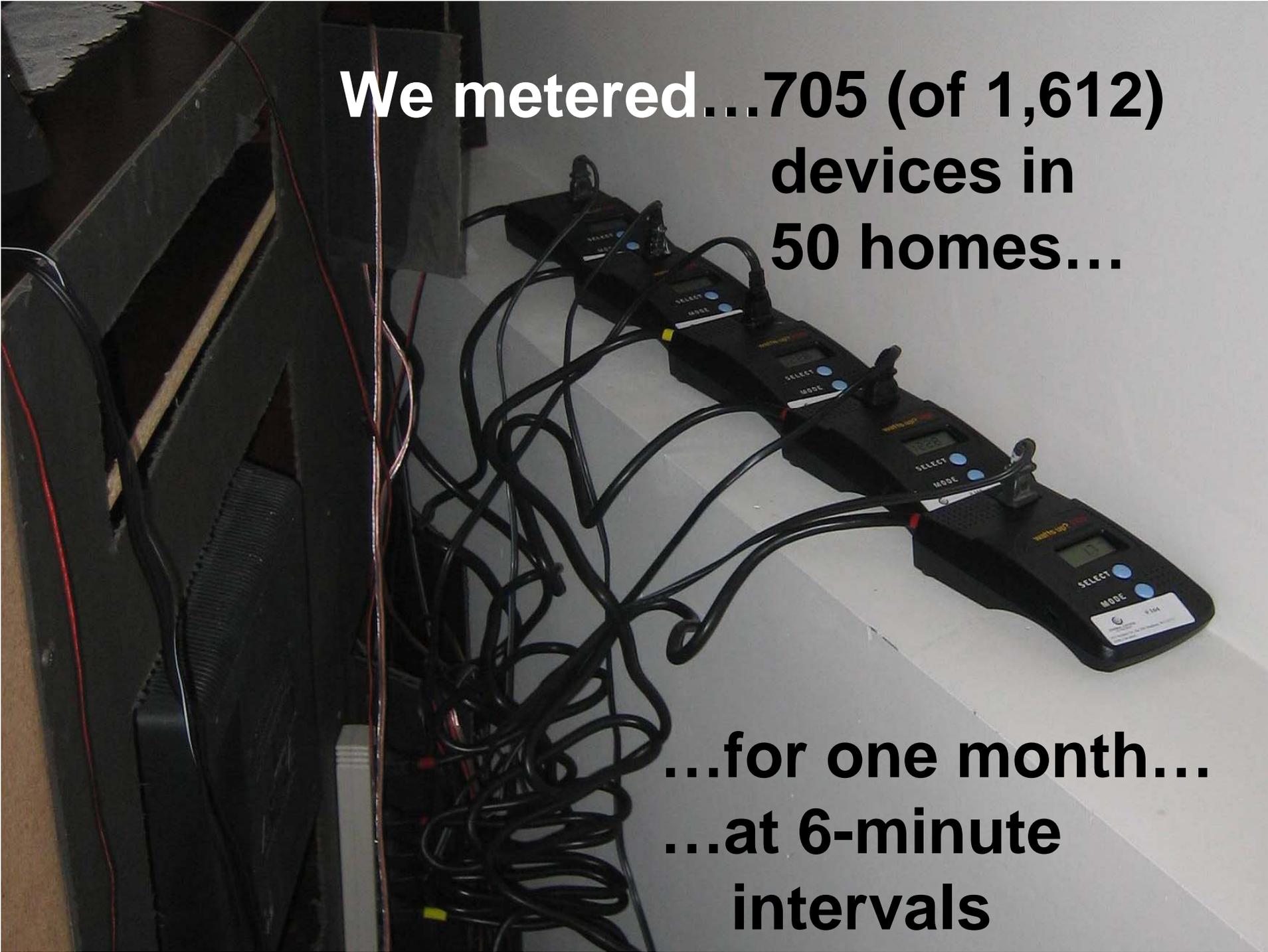
Energy Center of Wisconsin

Energy Star Partners Meeting, Denver Colorado

October, 2010

SEEK • LEARN • ACT

What does metering a bunch of old electronics in homes tell us about future directions for Energy Star?



**We metered...705 (of 1,612)
devices in
50 homes...**

**...for one month...
...at 6-minute
intervals**

2,300 ± 700 kWh/yr

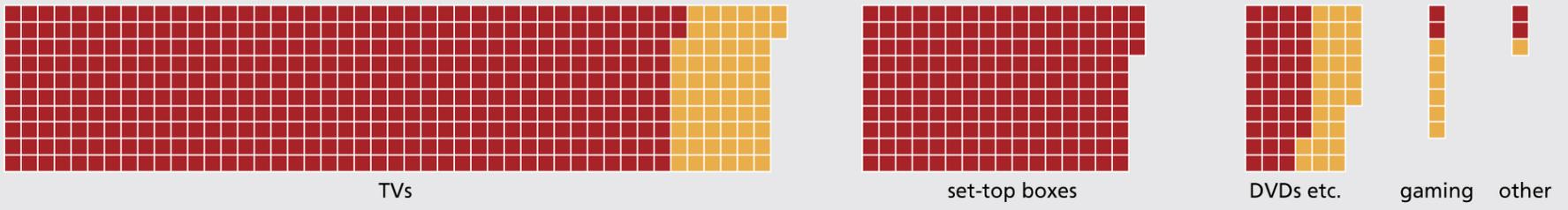
1,300 ± 400 kWh/yr



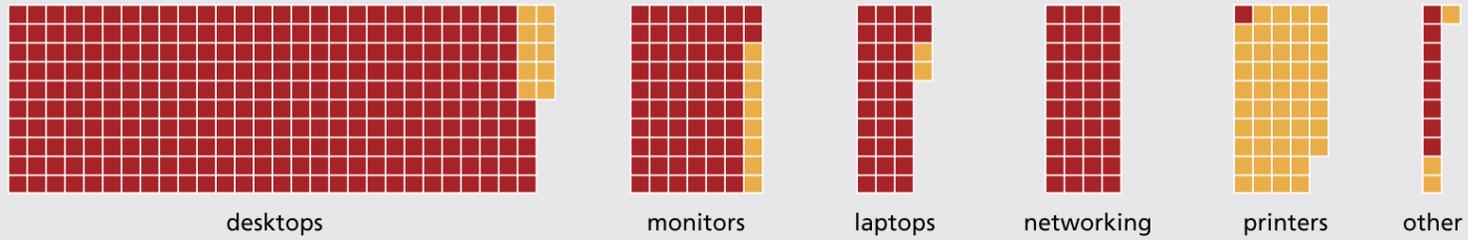
□ = 1 kWh / year / home

■ active mode ■ standby mode

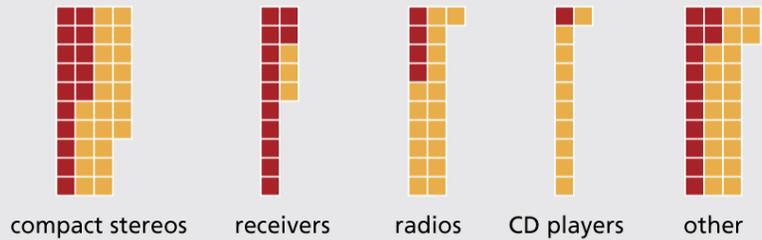
TV-RELATED



COMPUTER-RELATED



AUDIO



□ = 1 kWh/year/home

DEVICE CATEGORY:

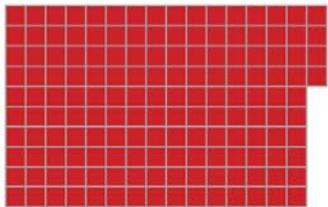
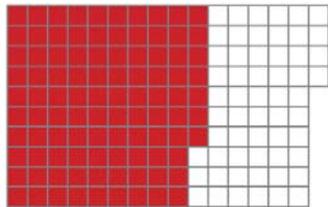
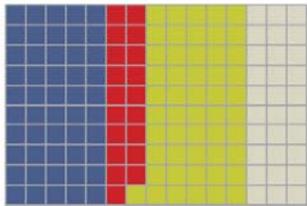
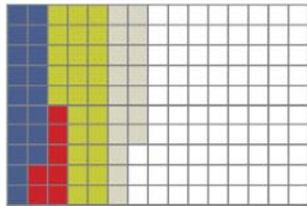
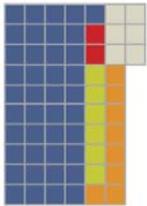
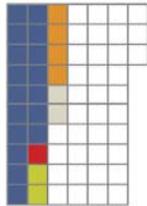
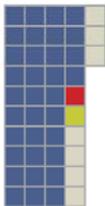
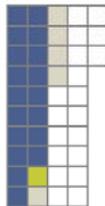
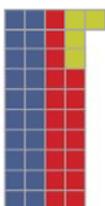
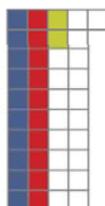
■ TV and peripherals

■ computer and peripherals

■ audio

■ HVAC

■ other

| TECHNICAL SAVINGS (kWh/year/home) | STRATEGY | BEHAVIORALLY-ADJUSTED SAVINGS (kWh/year/home) |
|---|----------------------------------|---|
|  | enable computer power management |  |
|  | manually unplug |  |
|  | turn off when not in use |  |
|  | use a timer |  |
|  | use a smart power strip |  |

75% of desktop computer electricity use occurs when no one is in front of it



Site 24

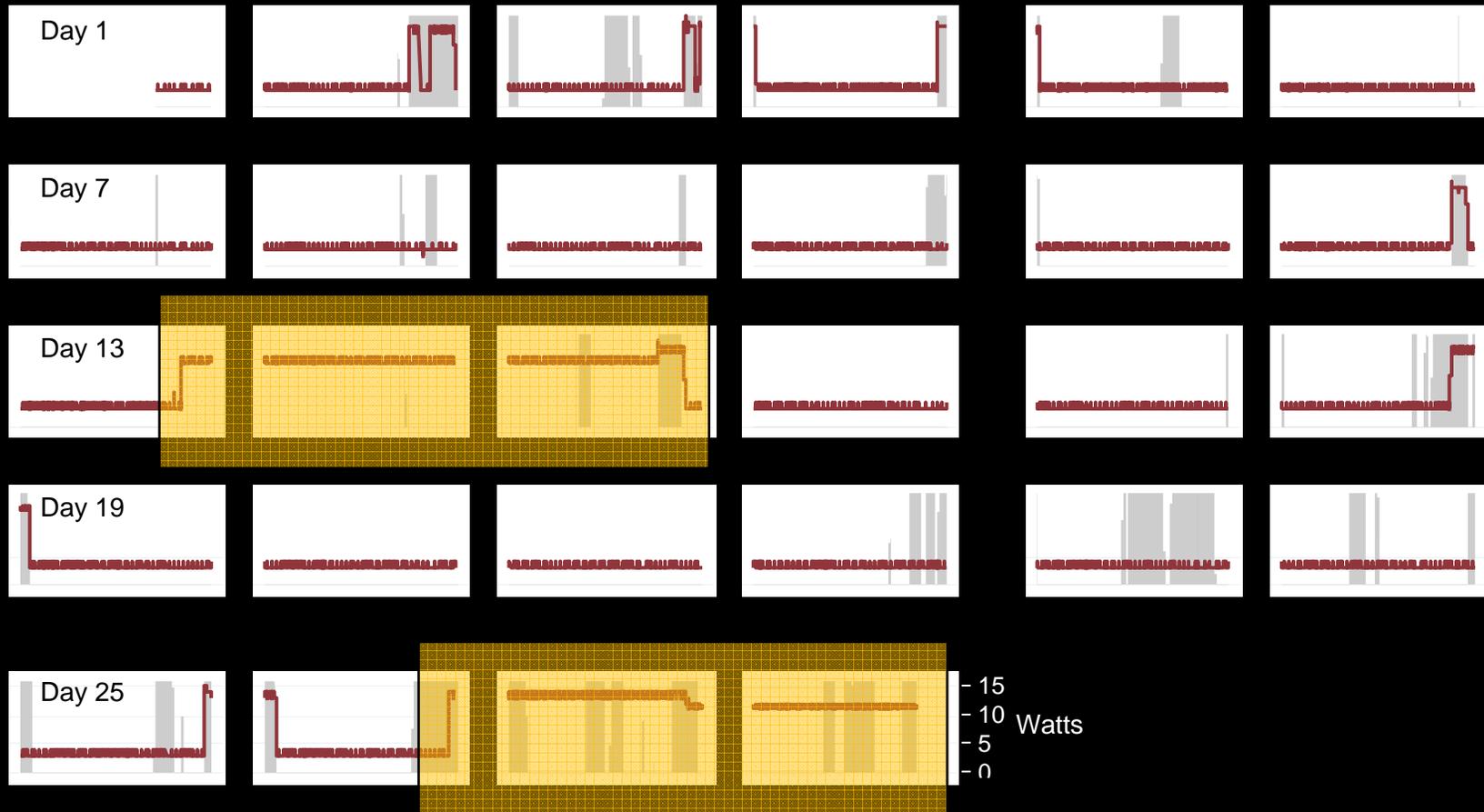
Sat/Cable Set-top Boxes

- 200 kWh/yr per box on average
- 85% are satellite
- Little potential for household-driven savings
 - fear of messing w/ box
 - don't want to hassle with recovery delays
 - recording at odd hours
- Need a manufacturing solution!



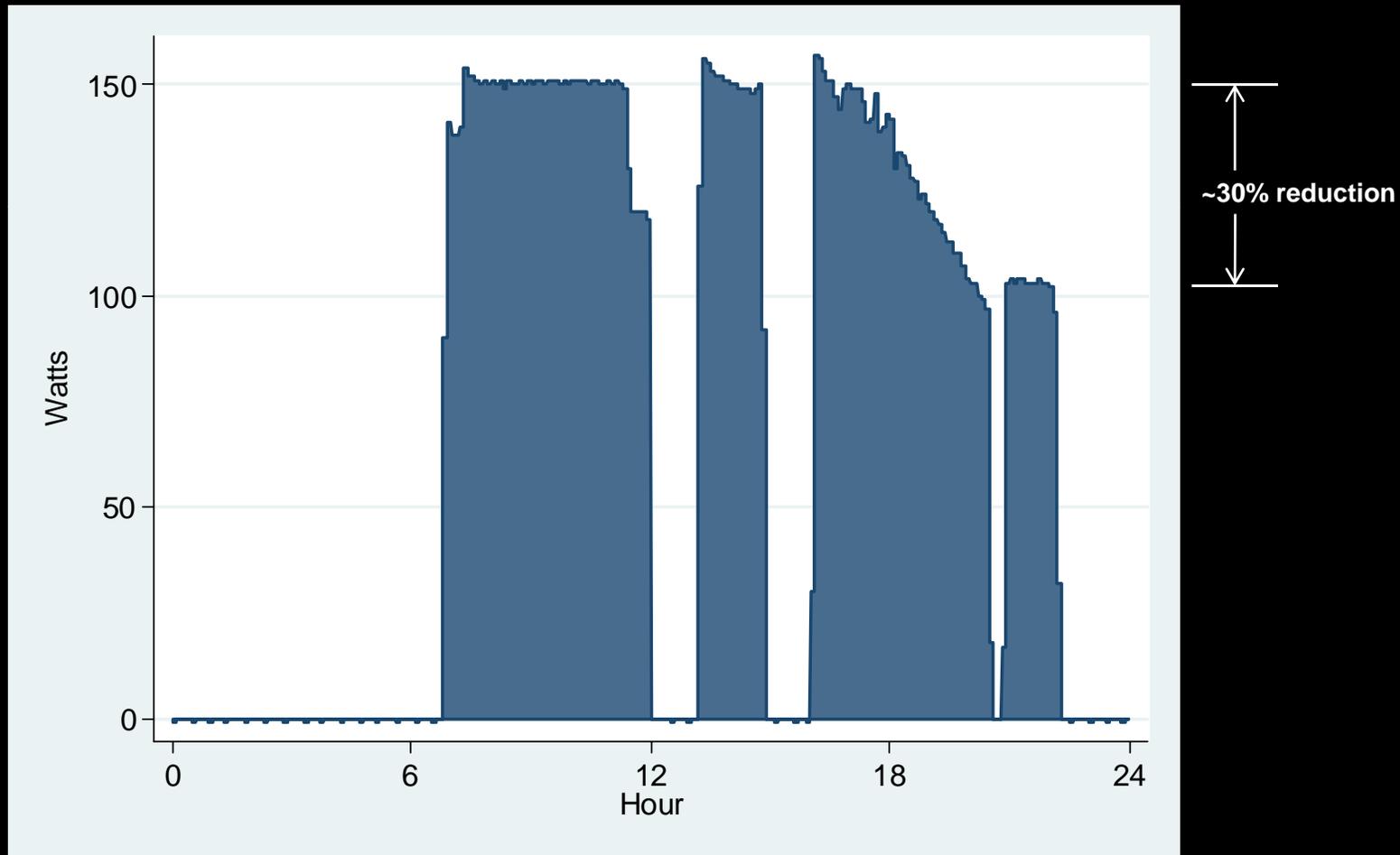
Auto Power-Down --- When electronics are left on, it's often for days...

DVD/VCR (Site 20)



TV on/off Status DVD/VCR watts

Promise from TV automatic brightness control?



Summary

- **Computer power management is a significant savings opportunity**
 - continue to work to ensure that it is user-friendly and enabled by default
- **Set-top boxes need a manufacturing solution!**
- **Auto power-down specifications will help**
 - a long APD delay may be better if people are less likely to disable it, and it still prevents most wasted use.
- **Field data for 2 TVs suggests some promise for automatic brightness control**

Thank You!

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Project website: www.ecw.org/mnenergystudy

(Public-Use data sets available)