“Why would they care?”
Incentivizing Energy Efficiency in the Public Sector

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OUTLINE

- What's the problem?
- Five types of solutions
  – From increased visibility ("consumption feedback") to savings retention
- What makes most sense?
  – Discussion

Heart of the Problem

"Most government agencies don't pay attention because they don't have to pay for electricity or gas. Why would they care?"

Dr. Prassert Sinsukprassert
Government of Thailand

Classic EE Problem

- "Principal-agent" conflict or "split incentive"
  - Tenant responsible for paying utility bills
  - Landlord responsible for buying energy-using equipment (for lighting, heating, cooling, etc.)
  - Typical result: Landlord buys least costly (and usually least efficient) equipment
    - BUT: tenant exhibits energy-saving behavior – e.g., turns off lights, keeps thermostat low (in heating season), etc.
- Resolving obvious conflict may yield another
  - Landlord pays utility bills – "gross" lease
  - Landlord also responsible for buying equipment
  - Typical result: Landlord buys more efficient eqpt.
    - BUT: tenant does <u>not</u> exhibit energy-saving behavior – e.g., leaves lights on, keeps thermostat high, etc.

Solving the Incentive Problem

- Raised visibility – “consumption feedback”
- “Scoring”
  - For agencies, facilities, and employees
- Recognition and awards
  - Large and small
- Cost assignment/allocation
- Savings retention

Raising Visibility

- **Are building operators aware of how much they use?**
  - **If not, it's like trying to go on a diet without a scale**
- **Simple consumption feedback can help**
  - **Studies of indirect (i.e., after-the-fact) feedback such as providing information from bill show anywhere between 1-10% savings**
  - **Best results from bills with**:
    - **comparison to same month in prior year**
    - **graphical presentation of information**

Raising Visibility

- <u>Comparative</u> feedback seems to help
  - *In situ* study of two worker teams in metallurgy co.:
    - both teams cut energy consumption after feedback, BUT:
    - team that received information about other team did better
    - savings in both teams persisted six mos. after program
  - U.S. corporation energy head distributed monthly energy use and cost of major facilities to all facility managers
    - Facility managers could view own, <u>and</u> others', usage
    - None had never seen bill information before
    - Claim: nearly 10% savings (US$3 million) in first year
- Competitive element also beneficial
  - Oberlin College: two-wk. competition among dorms
  - Average savings – 31%; w/ real-time feedback – 55%

"Scoring"

- **Beyond consumption feedback, consider rating agencies, facilities, and even employees**
  - U.S. watchdog agency grades the agencies each year: grades are green, yellow, and red
    - FEMP collects data from agencies and prepares cover letter; Office of Management and Budget assigns grades
    - Mid-year progress reports with goals also
    - For '07, 8 agencies went up (four from red to green), 1 down
  - U.S. agencies are directed by Executive Order 13123 (1999) to include successful implementation of energy goals in performance evaluations of:
    - Agency heads, heads of field offices, principal program mgrs., facility and energy managers, other members of agency energy team, and others as appropriate
    - 23 of 25 agencies have shown some compliance

Recognition and Awards

- Recognizing good performance can be very motivating
- FEMP Annual Awards:
  - ~ 25 different awards, both for groups and individuals (over 100 recipients); awards used to be financial – nice plaques now
  - High-level speakers (Secretaries, Asst. Secs.) at elegant site
  - Evening cocktail reception, awards ceremony lunch next day
  - Program sustained for over 20 years (and still going)
- NYC Housing Authority: Gold star stickers to boiler operators who saved fuel
  - Operators who met monthly performance target based on previous year's use (adjusted for weather) received seal
  - Very popular: "I stopped giving them out in 1985 for a while and they started calling me and asking, 'Hey, where's our seal?' They plaster the walls with them."

Cost Allocation

- Make energy users into energy payers
  - Meter buildings and even departments separately and assign them bill-paying responsibility
    - Latter may become too expensive and difficult to administer, but former is usually not
  - U.S. hospitality company: installed sub-metering at major facility and began allocating costs to users
    - 5% reduction goal exceeded without other interventions
- Or make buyers of equipment pay energy bills
  - Modena, Italy: Group in charge of buying energy-using equipment is also responsible for energy bills
    - large savings documented, but many other initiatives implemented at same time

Savings Retention

- Let facilities share in savings
  - i.e., do not reduce utility budgets by amount of previous year's savings
- U.S. Government: 100% is policy (EPACT-'05)
  - savings must be used for energy/water projects
  - compliance unclear
- Modena, Italy: 50/50 arrangement with several city schools
  - Savings > 15% but ESCOs have worked on most buildings simultaneously so effect hard to tell
  - surpluses beyond payment to ESCO have resulted in annual payments to schools of 200 – 10,000 Euro

What is best?

- None of five approaches are mutually exclusive
  - For example, U.S. hospitality company used consumption feedback and cost allocation
  - In fact, all five could be implemented together
- Consumption feedback to metered facilities is easy first step
- At least limited recognition of high performers is a low-cost step with good returns likely
  - Remember the gold stars
- Some savings retention (e.g., 50%) is intuitively reasonable and obviously motivating