“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
“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
• “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 not 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

• Comparative 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, and 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%
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