Process Evaluation Insights for Program Implementation

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DISCLAIMER

The findings, opinions, and conclusions expressed in this presentation are those of the authors and do not represent the opinions or policies of the CPUC or CIEE

WHAT IS THIS PAPER ABOUT?

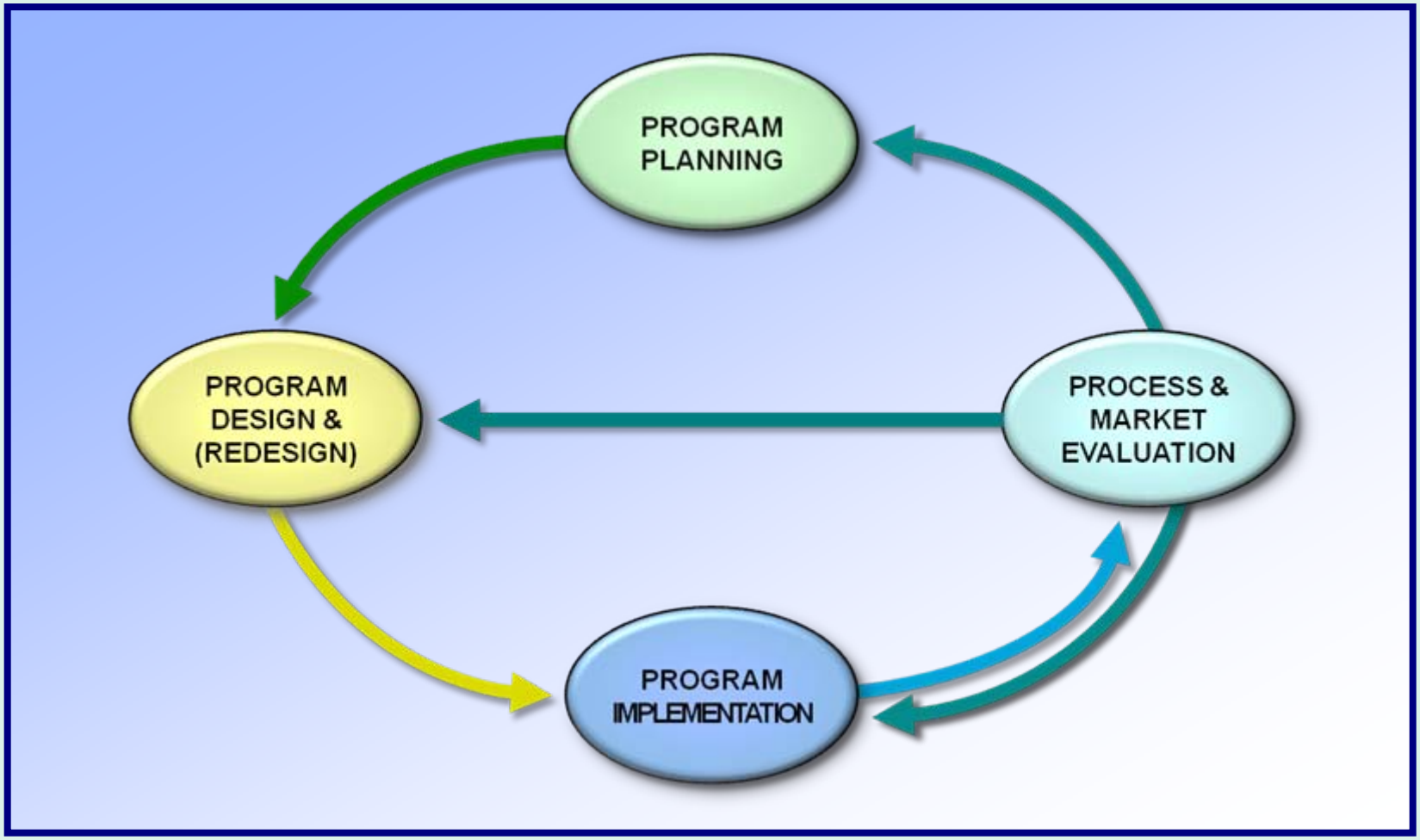
- This paper is about process and market evalution
- What we have learned about behavior and program implementation over the past 30 years
- What we should do to improve process evaluation so we keep learning

WHAT IS PROCESS EVALUATION?

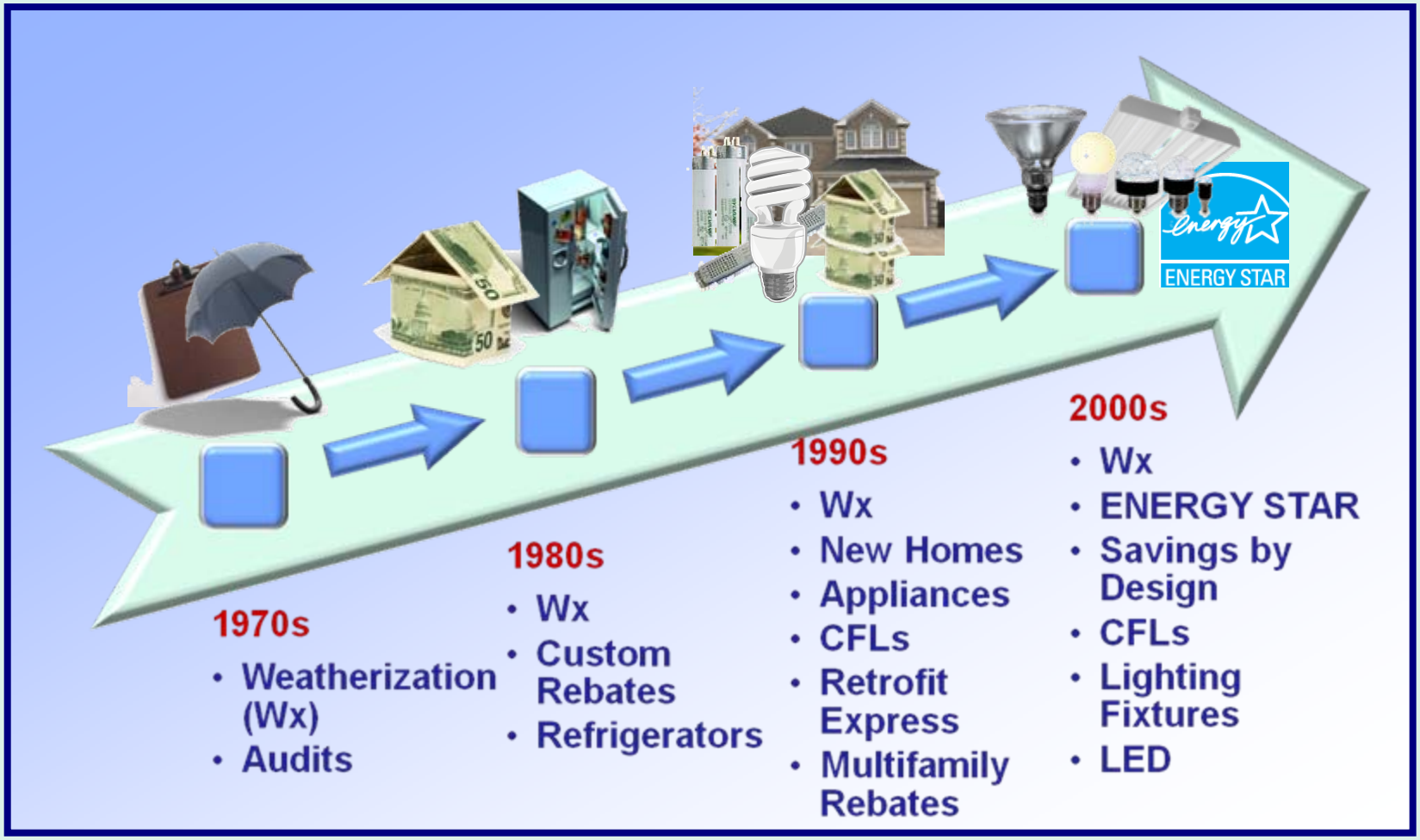
"The systematic assessment of an energy efficiency program for the purposes of documenting program operations…. and identifying and recommending improvements… to increase the program's efficiency or effectiveness… while maintaining high levels of participant satisfaction."

— California Protocols, CPUC

EVALUATION AND PROGRAM CYCLE



PROGRAM EXPANSION



BACKGROUND

**Today,
30 years since the 70s, what do we know?**

HOW DO WE KNOW WHAT WE KNOW

- We interviewed 43 people who use or manage process evaluations

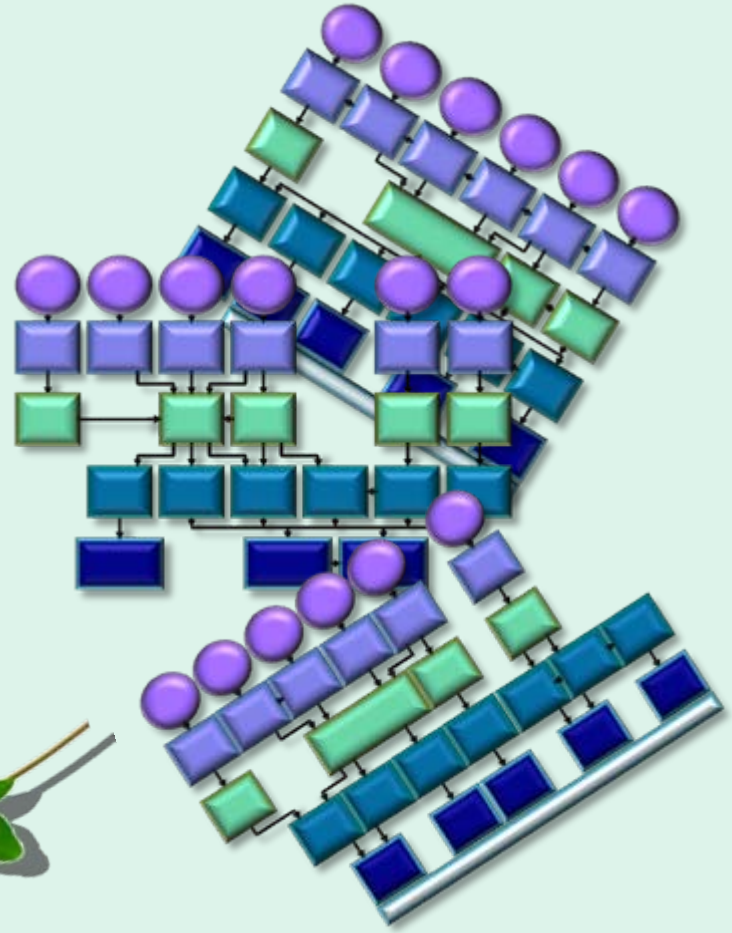
- We reviewed over 100 process and market evaluations

SIX DISCUSSION TOPICS

- Program Design
- Program Implementation
- Program Administration
- Reaching Market Actors
- Reaching Consumers
- Improving Process and Market Evaluation

SIX DISCUSSION TOPICS

PROGRAM DESIGN



PROGRAM DESIGN

- **The primary lesson learned about program design is that more understanding of the market is needed**
  - **Market research**
    - ***Customer***
    - ***Market structure***
    - ***Technology***
  - **Need to make contact with the customer**

PROGRAM DESIGN PROCESSES

- **Program design takes time**
  - **Market research to understand the market**
  - **Effective process for getting to the market**

GETTING MARKET EFFECTS

- **Need to understand the roles of the different market actors**
  - Trade allies
  - Professional service providers
  - Manufacturer
  - Retailer
- **Need to understand customer needs and motivations**

NEED TO KNOW THE TECHNOLOGY

➡ **What do these have in common?**

- **High efficiency motors**
- **T-8 lamps and electronic ballasts**
- **Compact florescent lamps**
- **Passive solar homes**

TECHNOLOGIES

- All had many reliability problems at introduction
- Many early adopters resisted later adoption due to bad experiences
- Resistance continues for some

COMPACT FLORESCENT LIGHTS

- **CFL problems are legendary**
  - Light quality
  - Start time
  - Price
  - Fit with existing fixtures
  - Variability
  - Plethora of pin types
  - Manufacturing irregularities

CLOTHES WASHERS

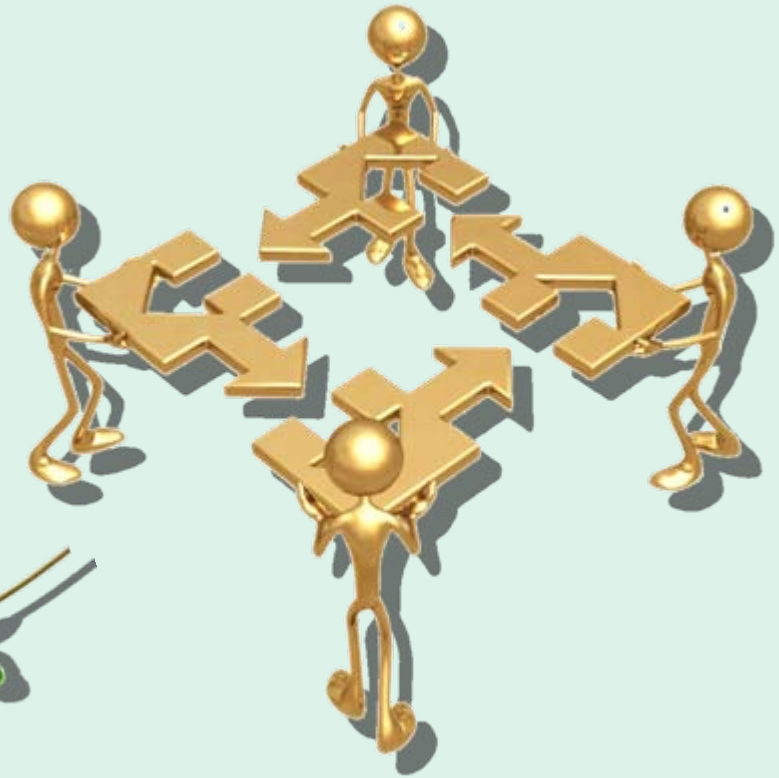
- **What was different about high efficiency clothes washers?**
  - **The High Efficiency Laundry Metering and Market Analysis project (THELMA)**
    - ***Market and process evaluation research***
    - ***Impact research***
  - **Coordination between energy efficiency advocates, utilities, state agencies, and manufacturers**
  - **Careful use of incentives, along with retailer and manufacturer support and advertising**

CLOTHES WASHERS

- The result is a product with high market acceptance and manufacturer support

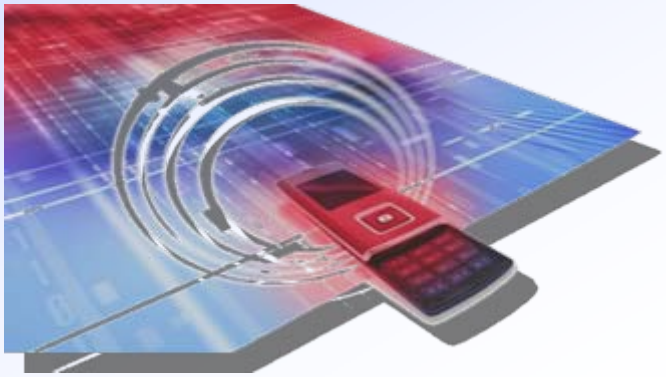
SIX DISCUSSION TOPICS

PROGRAM IMPLEMENTATION



PROGRAM IMPLEMENTATION

- **There are real barriers to adoption of energy efficiency and thus there needs to be lots of communication with the market**
  - **Targets should be very clear**
  - **Theory and logic should be well defined**
  - **Communication should be an integral part of the program**



BARRIERS TO INVESTMENTS

- **Stated paybacks often don't explain decisions**
  - **Projects meeting the payback not done**
    - ***Revenue expansion is often chosen over cost reduction, regardless of the impact on profit***
  - **Projects exceeding the payback are done**
    - ***Non-energy factors often drive energy investment decisions***
- **Consumers assume everything is efficient**

BARRIERS TO INVESTMENTS – Cont.

- ➡ **Lack of information, knowledge, and access are real for nonparticipants**
- ➡ **Split incentives are a formidable barrier**
  - **Landlords and tenants**
  - **Spec new construction**
  - **Operating and capital budgets are set independent of each other**
  - **Utility bill savings accrue to organization as a whole, not to the department or facility making the investment**

BARRIERS TO PROVIDING SERVICES

- ➡ **Architects and engineers (A&Es) face considerable challenges in the marketplace**
- ➡ **If a customer does not specify energy efficiency, then…**
  - **They are rarely willing to incur any additional costs for efficiency**
  - **A&Es must do supporting analyses at their own expense**

PROGRAM DERIVED BARRIERS

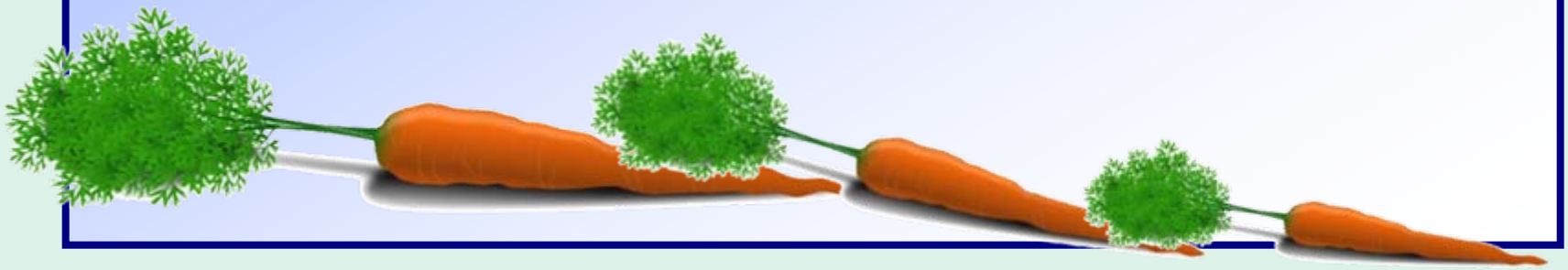
- Program timeline is unworkable
- Incentive money runs out
- Incentives and measures change with little warning
- Incentivized equipment is not readily available in sufficient quantities
- Program requirements necessitate multiple (i.e., costly) visits to customer

INCENTIVES

- **Incentives seem to be a good idea**
  - People say they want them
  - They reduce the first-cost barrier
  - They get consumers' attention
- **But incentives…**
  - Do not <u>eliminate</u> the first-cost barrier
  - Do not reduce other barriers
    - *Information*
    - *Hassles*
    - *Access and availability, etc.*

INCENTIVES CONTINUED

- ➞ **Information leads to an increased intention to install**
- ➞ **Incentives get more implementation**
  - **A small incentive is better than no incentive**
  - **A larger incentive doesn't equal more implementation**
- ➞ **Incentives should be studied more**



COMMUNICATION & RELATIONSHIPS

- **No generic message appeals to all**
  - People look to their peers for tested and trusted information
  - For consumers: localize the message
  - For business: publicize examples of success in a wide range of trade industry publications

THEORY AND LOGIC

- **A program should have a theory of change and a logical process for accomplishing the change**
  - **Process evaluators often develop the theory and logic model as part of the evaluation**

SIX DISCUSSION TOPICS

PROGRAM ADMINISTRATION

PROGRAM ADMINISTRATION

- **Program administrators' greatest challenge is to balance regulatory requirements with the need for simplification in the market**
  - **Simplify, simplify, whenever possible**
  - **Reward systems for implementers need to be clear and transparent**
  - **Stepped quality control procedures will reduce costs**

WORKING WITH THE MARKET

- **Forms are a problem for consumers**
  - The energy usage information
  - Details about what was installed and replaced

- **When a market actor receives the incentive (trade ally, architect, retailer, manufacturer)…**
  - They are more willing to complete paperwork
  - They are more willing to complete it correctly

SOLUTIONS MUST WORK WITH THE MARKET

- Avoid efforts to simplify the program for customers that interfere with market processes, for example:
  - Bulk purchasing of equipment
  - Limiting choices to certain manufacturers
  - Limiting eligible trade allies to a subset of those qualified

- The program will always be a secondary player in the market

CYCLICAL INFLUENCES

- **Business cycles**
  - Don't overlook firms that may be receptive to retooling during a recession lull in activity
- **Annual cycles**
  - Retailers need projects completed before the holiday season
  - Schools need to work during student breaks
  - Some industrial firms have an annual plant shutdown – *a good period for diagnostic metering, tune-ups, and new equipment*

CYCLICAL INFLUENCES – Cont.

➡ Purchasing cycles

- **Capital budgeting occurs annually**
  - ***Marketing, project development, justification must be done well in advance***
- **New construction and large projects may span many years**
  - ***Program funding must be stable***
  - ***Program accounting needs to accurately track funds committed over several years***
  - ***Programs need credit for projects that extend beyond the program cycle***

IMPLEMENTERS

- **There is no better or worse implementer**
  - **Third parties can fail or succeed**
  - **Utilities can fail or succeed**
  - **Public benefits organizations and government agencies can fail or succeed**
- **Implementers need the right signals to be motivated to deliver the goods**

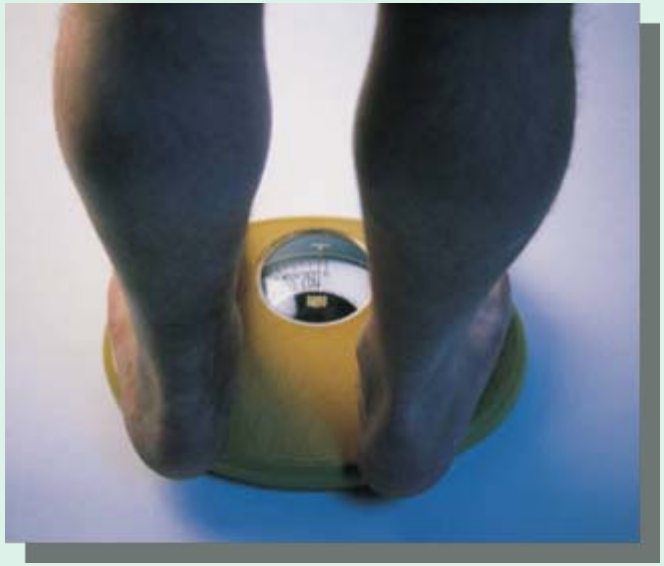
METRICS FOR PROGRAMS

- A *savings performance* metric can lead to:
  - Lots of savings, or
  - Lots of "cream skimming"
- A *quantity* metric can lead to:
  - Lots of installations, or
  - Lots of poor installations
  - What was expected, not the potential

- A <u>bounty</u> can lead to over-participation
- Team metrics can motivate or set up competition

WHY METRICS LEAD TO POOR PERFORMANCE

- What is measured will be managed so metrics are met
- Solution…
  - Metrics need to combine quantity, quality, and satisfaction with meeting the needs of regulators



QUALITY CONTROL PROCESSES

- **Inspections and quality assurance requirements are needed**
  - **Technical requirements are often new**
  - **Trade allies will try to leverage incentives**

WORKING WITH THE BUILDING AND CONSTRUCTION MARKET

- Insert the program into existing business models
- Train market actors in program rules
- Simplify program processes

WORKING WITH MARKET ACTORS

- The challenge is to insert the program into the business model of each market actor
- If the program is not working for the market actors, the *natural market decision points* are missed

BUILDING AND CONSTRUCTION

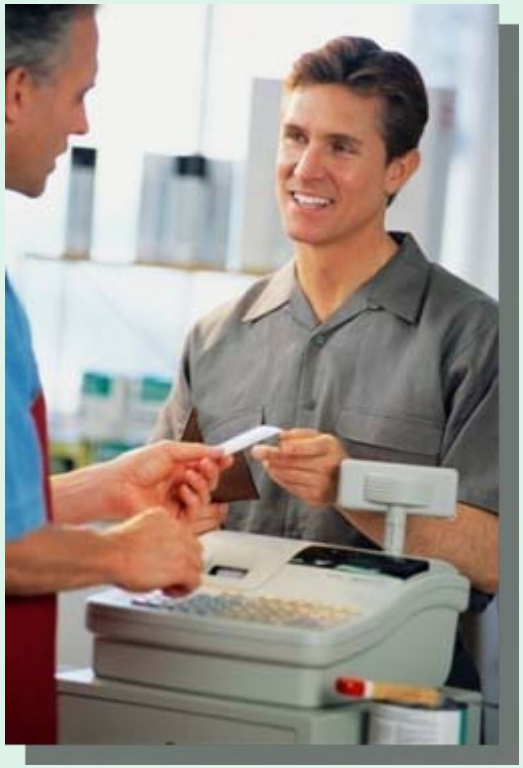
- **Changes to programs affect trade allies and professional service firms**
  - **Too frequent changes hurt the firms' ability to make commitments to their customers**
  - **If trade allies and professional service firms are uninformed about the program, they are not prepared and can't plan and order equipment**

SIX DISCUSSION TOPICS

REACHING MARKET ACTORS

WORKING WITH RETAILERS, DISTRIBUTORS & MANUFACTURERS

- **Working upstream provides a larger return for lower cost, but data need to be obtained**
  - **Require sales data**
  - **Train retailers again and again**
  - **Understand different market channels**



RETAILERS AND DISTRIBUTORS

➡ Retailers

- Regional and national chains have different models than local stores
- Staff turnover is endemic

➡ Distributors

- Just-in-time distribution dominates
- Distributor roles vary by product
- Engaging trade allies through distributors is effective

MANUFACTURERS

➡ Manufacturers

- California is big, but not big enough to do it all
- National standards are preferred to local or regional standards
- Manufacturers are not likely to recognize the role of standards in their decisions

SIX DISCUSSION TOPICS

REACHING CONSUMERS

REACHING RESIDENTIAL CUSTOMERS

- **You need leverage**
  - **Existing market relationships**
  - **Regional and national efforts**
  - **Local groups**

REACHING RESIDENTIAL CUSTOMERS

- Transaction costs are high
- Compared to the 1970s, in 2009 the savings per house may be small
- Barriers are high
  - First cost
  - Awareness, knowledge, access
- Interest is also high
  - More than 80% say energy efficiency is important

WHAT WORKS WITH RESIDENTIAL CUSTOMERS

- **Decision events = opportunities**
  - **Remodeling**
  - **Buying a home**
  - **Replacing a broken water heater or appliance**

WHAT WORKS WITH RESIDENTIAL CUSTOMERS

- ➡ **Help consumers know what is energy-efficient**
  - **Consumers think <u>everything</u> is <u>already</u> energy-efficient**
  - **Consumers don't know the benefit of choosing a SEER 23 over a SEER 13**
  - **ENERGY STAR® labeling has been a big help**

REACHING COMMERCIAL CUSTOMERS

- **The business of business is business**
  - **Understand the business case for efficiency in the market segment**
  - **Leverage existing organizational ties**

BUSINESS FOCUS IS ON THE BUSINESS

- Historically, firms were not focused on energy, at less than 5% of total costs
- Yet often profit margins are less than 5%, and energy is a high proportion of readily controlled costs
  - *Effective Message:* Energy savings of $50k = $1.5M revenue increase (at 3% profit margin)
- An effective message is not always evident

  - Relationship with customer provides insight

CONVEYING THE MESSAGE

- It is unimportant that other businesses are satisfied with a *specific program* being promoted
- It is important that other businesses *specifically like them* are satisfied with efficiency actions the program promotes

SUPPORT NEEDED BY ARCHITECTS AND ENGINEERS

- ➞ **Case studies of pertinent measures used in similar applications**
- ➞ **The "numbers" – *what the measures are likely to cost and save***
- ➞ **Assistance in the beginning**
  - **"I had kept up with the literature, but until I started designing for energy efficiency I didn't know what I didn't know."**

    – Typical remark

REACHING INDUSTRIAL CUSTOMERS

- ➡ **Industrial firms have unique needs that program administrators may not understand**
  - **Work closely with engineering consultants**
  - **Reach decision makers at multiple levels of organizations**

TECHNICAL EXPERTISE

- **Industrial staff are often skeptical an outside "expert" will understand their needs**
  - **In-house staff need to feel a program offers the bonus of additional expertise to augment their competencies**
  - **Program technical services must have truly relevant expertise and not talk up or down**

REACHING A DECISION-MAKER

- ➡ It usually takes a “champion”
- ➡ Communication barriers are common in firms
  - Due to specialization and lean staff
  - ➡ The champion makes the case repeatedly as a project goes up the decision ladder
  - Facility staff are often uncomfortable making the financial case for efficiency
  - A champion speaks the different “languages”

REACHING A DECISION MAKER

- **Champions can be hard to find**
  - **Effective programs contact people at multiple levels of the organization and establish long-term relationships – *not "deep," yet trusted***
- **The business world is relationship-based: Understanding relationships and building on them, not just providing information, will build successful results**

SIX DISCUSSION TOPICS

IMPROVING PROCESS & MARKET EVALUATION

PROCESS EVALUATIONS WORK

- Process and market evaluations are useful to improve programs and better understand the market

IMPROVING PROCESS EVALUATION

- ➡ Conduct more formative process and market evaluation using a range of methods
- ➡ Integrate social science theory into process and market evaluations
- ➡ Encourage greater connection to the general evaluation community

FORMATIVE VS. SUMMATIVE

- **Summative evaluations come after, formative occur during program implementation**
  - **Formative evaluations help shape and improve programs**
  - **Formative evaluations should be viewed as management tools not report cards**
  - **Formative evaluations can use process, market, or impact methods**

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