

# Delivering Comprehensive Energy Efficiency on a Large Scale: Challenges and Lessons Learned

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## *The Regulatory Assistance Project*

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China ♦ India ♦ European Union ♦ Latin America ♦ United States



# The Regulatory Assistance Project (RAP)

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- Non-profit organization providing technical and policy assistance to government officials on energy and environmental issues
- Principals are all former regulators or energy officials with deep experience in energy efficiency and other clean energy alternatives
- Funded by several foundations, US DOE & EPA and international agencies.
- We have advised governments in over 18 nations and 40 US states
- European office in Brussels. Currently working closely with DECC on HES and related energy efficiency policies.



# What's Needed for a Strong Buildings EE Program? -- North American Experience

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- High level, enduring **policy commitment**
- **“Whole buildings”** approach
- **Customer focus**
- **Sufficient & stable funding**
- Motivated and capable **“Efficiency Portfolio Manager” (EPM)** with a performance obligation
- Tap and expand **competitive markets** for product and service delivery



# Nature of the problem

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## Market barriers

Lack of information

Upfront costs

Payback periods - high implicit discount rate

Consumer inertia: Hassle factor, timing mismatches

Split incentives – eg,  
Builder/buyer  
Tenant/landlord

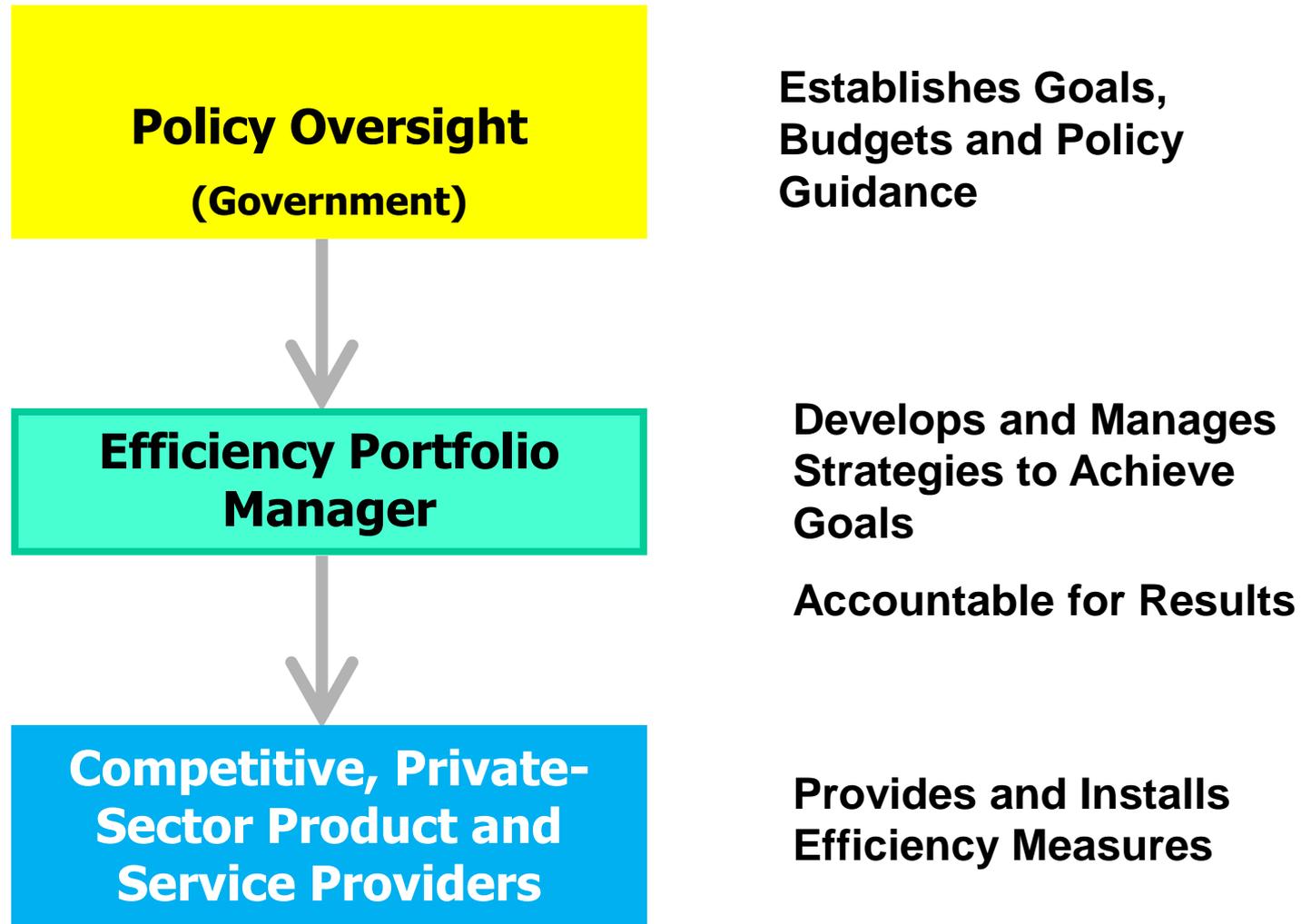
Unpriced external costs

Uncompensated benefits –eg, system reliability

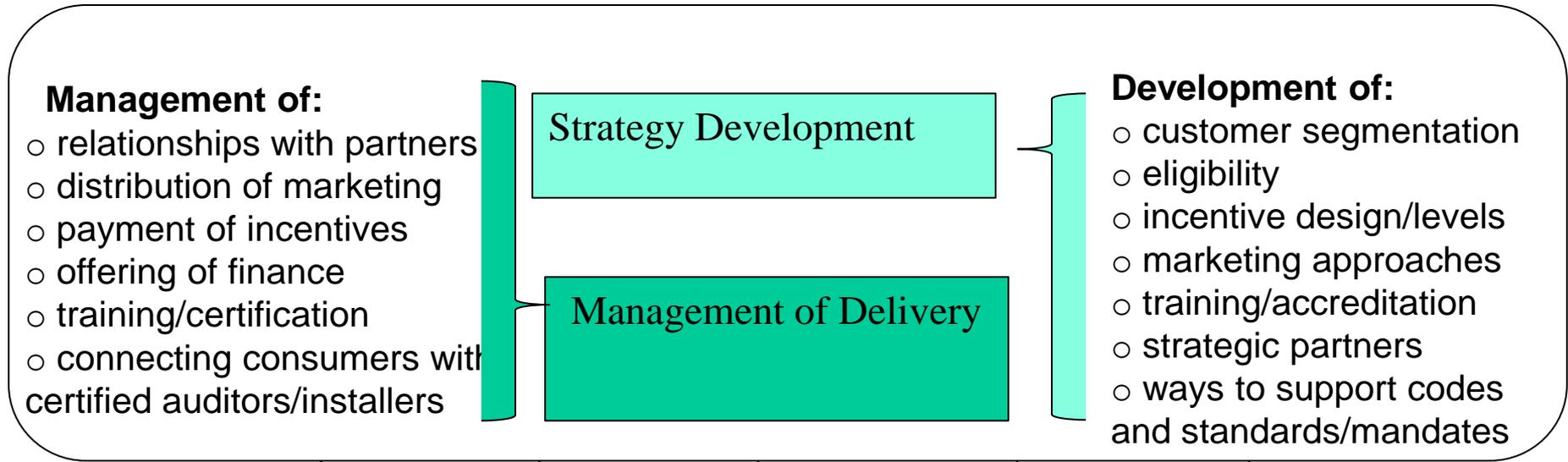
## Lessons:

- The barriers are the same in both traditional utility systems and in restructured, liberalized markets (US has both)
- Single-barrier attempts don't work (audits alone, financing alone, etc.)
- Cheap measures now, more later creates lost opportunities
- Utility-system charges, not taxes to leverage private capital

# THE BIG PICTURE



# ***The Efficiency Portfolio Manager is Accountable for RESULTS***



***who coordinates relationships with many entities in the delivery chain...***

Energy Auditors  
and Installers

Manufacturers  
and Retailers

Lending  
Institutions

Local Govts/  
and Agencies

Post-Work  
Inspectors

***...but each consumer interfaces with a single, certified “Energy Solutions Provider”***

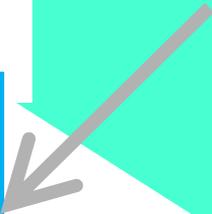
The customer interface is simplified....

**Customer**



**Efficiency Portfolio Manager**  
(a single point of contact for efficiency help)

**Competitive, Private-Sector Audit, Product and Service Providers**



- Program Design**
- Customer Marketing & Recruitment**
- Qualification and Intake**
- Provision of General Efficiency Information**
- Technical Assistance**
- Financial Incentives (Rebates)**
- Arranging Audits and Financing**
- Quality Assurance**
- Contractor Training and Certification**
- Data Tracking**

# Who Should be the Portfolio Manager(s)?

## Answer Depends on Specific Circumstances

<b>State</b>	<b>Efficiency Portfolio Manager Structure of Top 10 (ACEEE)</b>
<b>California</b>	<b>Regulated Utility (e.g., DNO)</b>
<b>Massachusetts</b>	<b>Regulated Utility (e.g., DNO)</b>
<b>Connecticut</b>	<b>Regulated Utility (e.g., DNO)</b>
<b>Vermont</b>	<b>Contracted Private Entity</b>
<b>Wisconsin</b>	<b>Contracted Private Entity</b>
<b>New York</b>	<b>Government Agency</b>
<b>Oregon</b>	<b>New, Sole-Purpose Public Corporation</b>
<b>Minnesota</b>	<b>Regulated Utility (e.g., DNO)</b>
<b>New Jersey</b>	<b>Contracted Private Entity</b>
<b>Washington</b>	<b>Regulated Utility (e.g., DNO)</b>



- Entrepreneurial NGO founded in 1986
  - **170+ employees**
  - **~\$40 million annual budget**
- Mission: “Reduce the Economic and Environmental Costs of Energy”
- Best Known as Efficiency Portfolio Manager for “Efficiency Vermont”
  - **Vermont’s Statewide “Energy Efficiency Utility”**
  - **Achieving Deepest Efficiency Savings in North America (incremental 2.5% of electric requirements in 2008)**
  - **Highest Level of Investment in US (over \$60 per capita)**



## *Consultants in*

- **Market Analysis**
- **Program Design**
- **Cost-Effectiveness Screening**
- **Regulatory Policy**

## *Range of Clients*

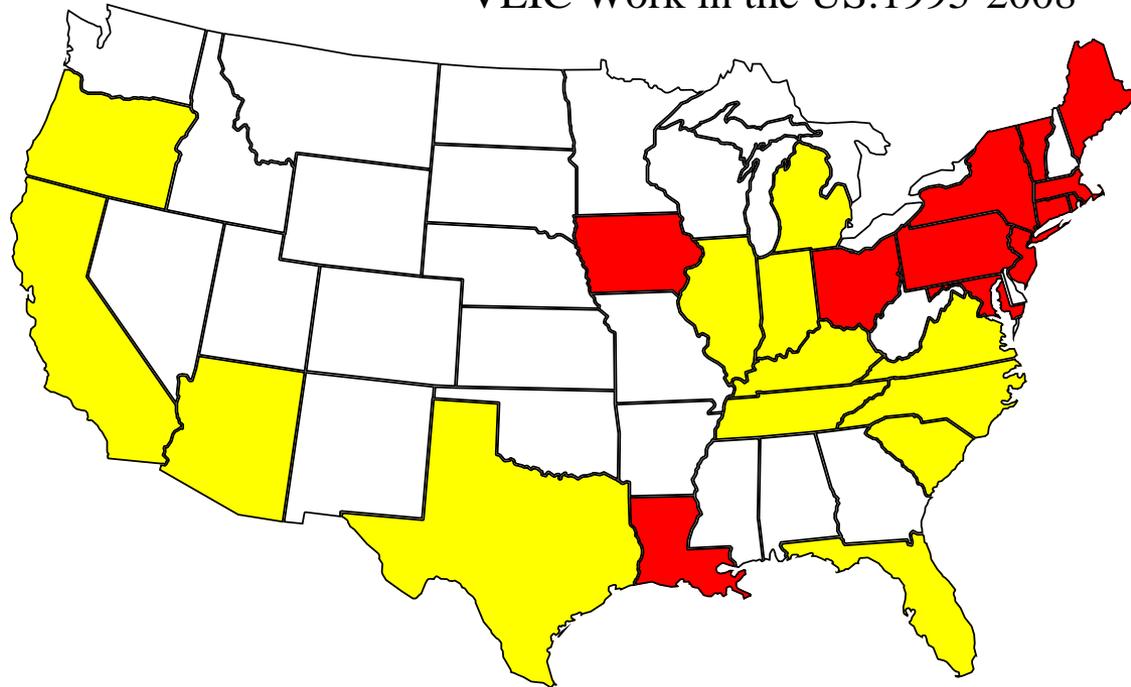
- **Regulators**
- **Govt. Agencies**
- **Advocates**
- **Utilities**

## *Range of Jurisdictions*

- **25 states, 6 Canadian provinces**
- **China, Viet Nam, Mexico, others**



VEIC Work in the US:1995-2008



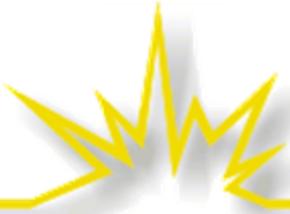
*Current client locations in red*

# A Seamless Process

## “Through The Customer’s Eyes”

*Example: Efficiency Vermont Residential Retrofit*

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- **Multiple points of project initiation** (“I want some work on my house”)
    - Directly calls certified contractor (word of mouth, ads, etc.)
    - Calls Efficiency Vermont’s customer service, gets referrals
    - Looks at Efficiency Vermont website, gets referrals
  - **Arranges audit by certified contractor (only certified can provide)**
    - Customer pays \$100 to \$250
  - **Receives recommendations, bid price, financing offer/analysis**
    - Contractor offers “good”, “better”, “best” job package
    - Effectively sold on at least at “better” level
  - **Work is completed**
  - **May receive Efficiency Vermont QC inspection** (sampling protocol)
  - **Customer makes final payment to certified contractor**
    - Includes rebate, refund of audit cost
  - **Customer makes monthly finance payment**



# Creation of New, Competitive Business Opportunities

*Example: Efficiency Vermont Residential Retrofit*

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## Any certified product or service provider can:

- Be included on the **referral list** made available to customers by the Portfolio Managers customer call centers and website,
- **Brand** with the Portfolio Manager
- **Offer all of the available incentives/financing packages** to consumers
- Take advantage of available training and marketing services provided to certified businesses

# What Does the Experience of Efficiency Portfolio Managers Suggest as Key Factors for Success?

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- **Clear performance expectations/standards** - much more effective than prescriptive program designs
  - **Motivation to meet aggressive performance expectations/goals**
  - **Portfolio Manager flexibility to meet goals** - as both strategy developer and implementation manager
    - Modifying strategies and implementation as needed
    - ...along with a broad portfolio of responsibilities
      - All fuels, All customers, Efficiency, micro-generation, etc.
      - Take advantage of synergies instead of confusing the market with fragmented programs and multiple implementers
    - ...with clear penalties/rewards aligned with goals
  - **Performance (e.g., carbon reductions) independently measured and verified**



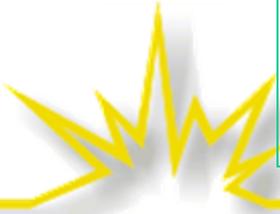
# Experience with Portfolio Management Approach to Energy Efficiency Delivery

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*North American experience suggests portfolio management enables much deeper savings. For example:*

- Vermont has turned electric load growth negative
- Massachusetts on path to achieving 2-3% savings per year
  - also turning load growth negative
- California saw annual energy savings triple in 4 years

*These and other similar experiences followed periods of much more fragmented approaches to the market that were much less successful.*



# Funding options and lessons

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- Challenge: how to finance EE programs that are now much larger and across fuel types?
- Adequate and stable – not annual appropriations
- Revenue collection and program administration can be different (e.g, “wires and pipes” charges).
- Can fund via market costs ( provider obligation), explicit charge, or rolled into distribution rates.
- Funding through “wires and pipes” charges in North America is considered part of providing safe and reliable energy services
- Regulator authorizes collections for service -- not public Treasury receipts.



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# For More Information On “Best Practices”

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National Energy Efficiency Best Practices Study  
<http://www.eebestpractices.com>

**“Offer one bundle that may consist of energy efficiency, renewables and financing measures from several different organizations but are seamless to the customer.”**



# Discussion

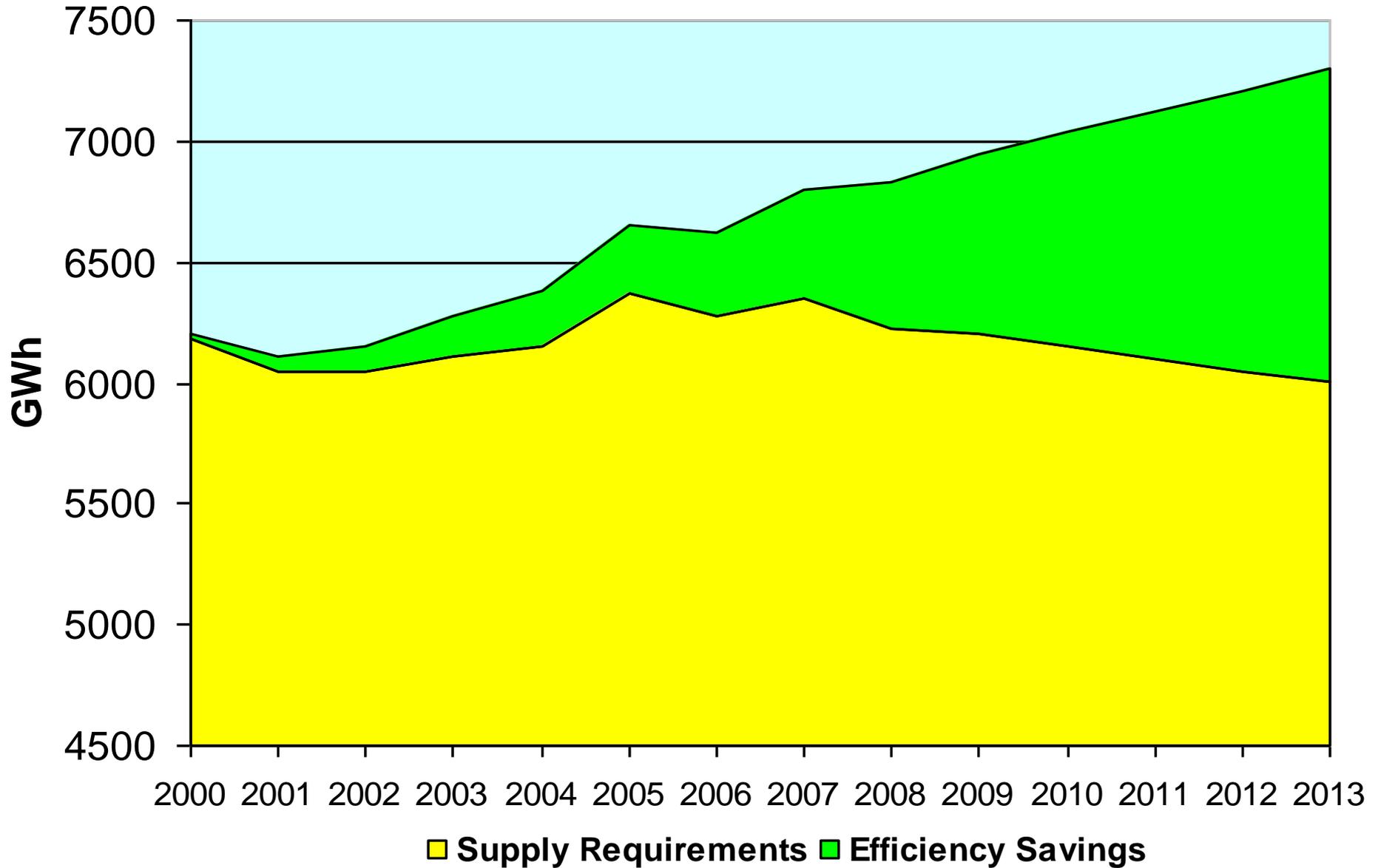
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- If the supplier obligation were removed, would you want to be in the efficiency business?
- Could you see your business in the EPM role? Or in the actual delivery role under this approach?
- Sources of stable and sufficient funding to retrofit 7 million homes by 2020?

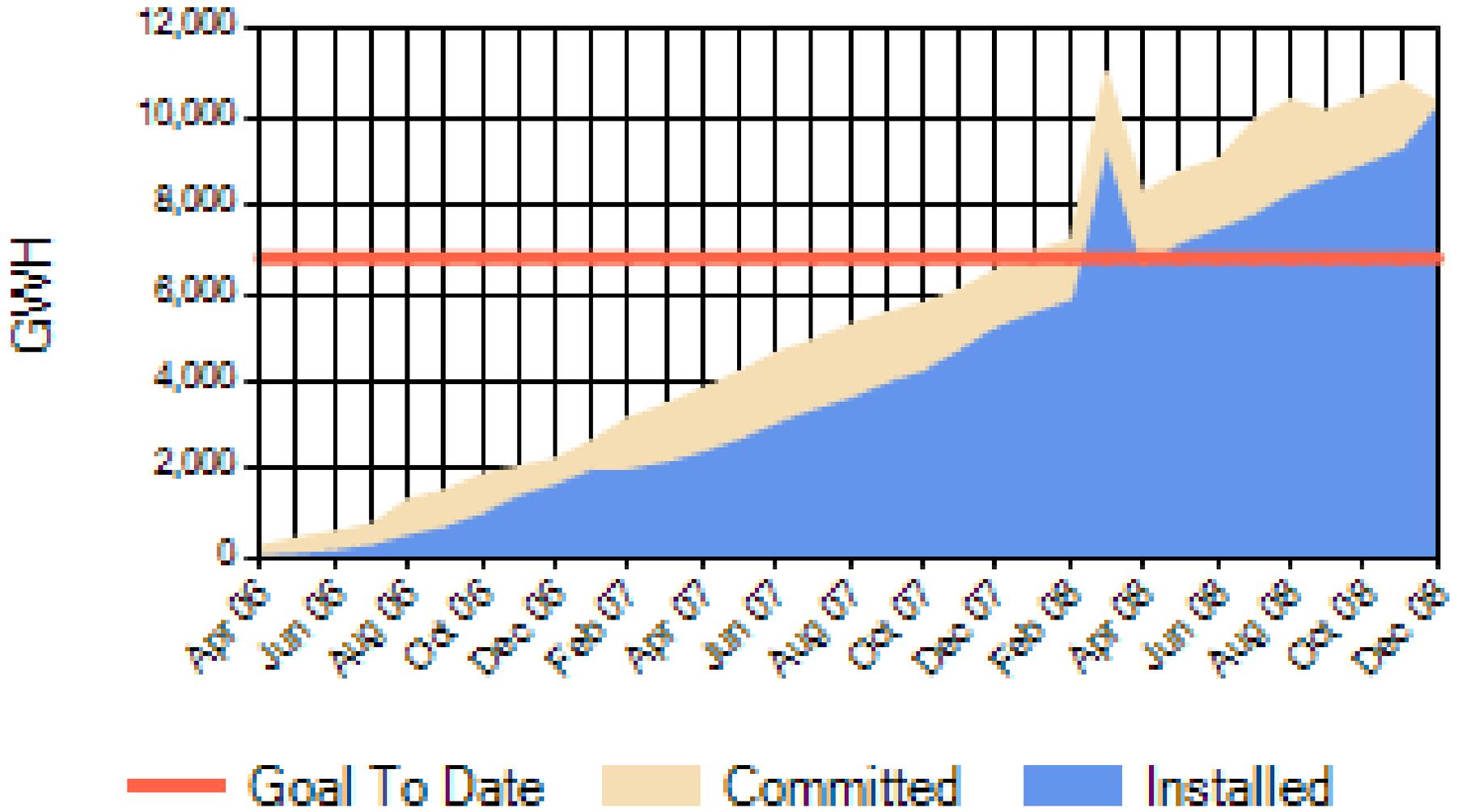


# ADDITIONAL SLIDES

# Cumulative Impact of Efficiency on Growth in Vermont's Statewide Annual Electric Supply Requirements



# All Utilities - GWH Installed and Committed Savings

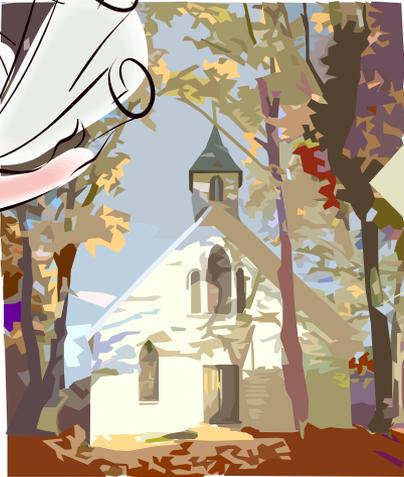
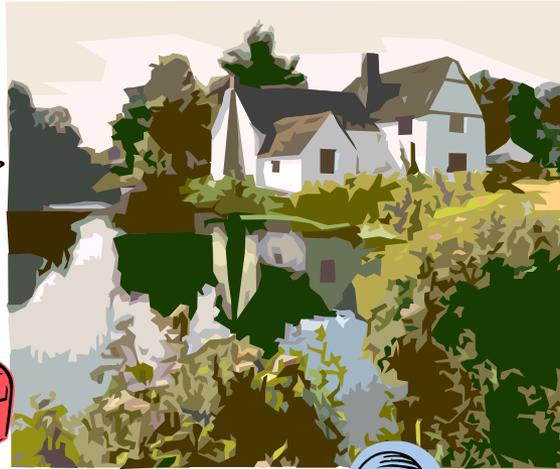




# LOGOS--BRANDING

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# Customers Don't Necessarily Fit in Program Boxes



# Mom's House



Top floor:

**Mom's apartment**

Third floor:

**Market-rate apartment**

Second floor:

**Low-income apartment**

First floor:

**Retail Business**

# Programs Model

**One Customer with One Project (Mixed-Use Development)**

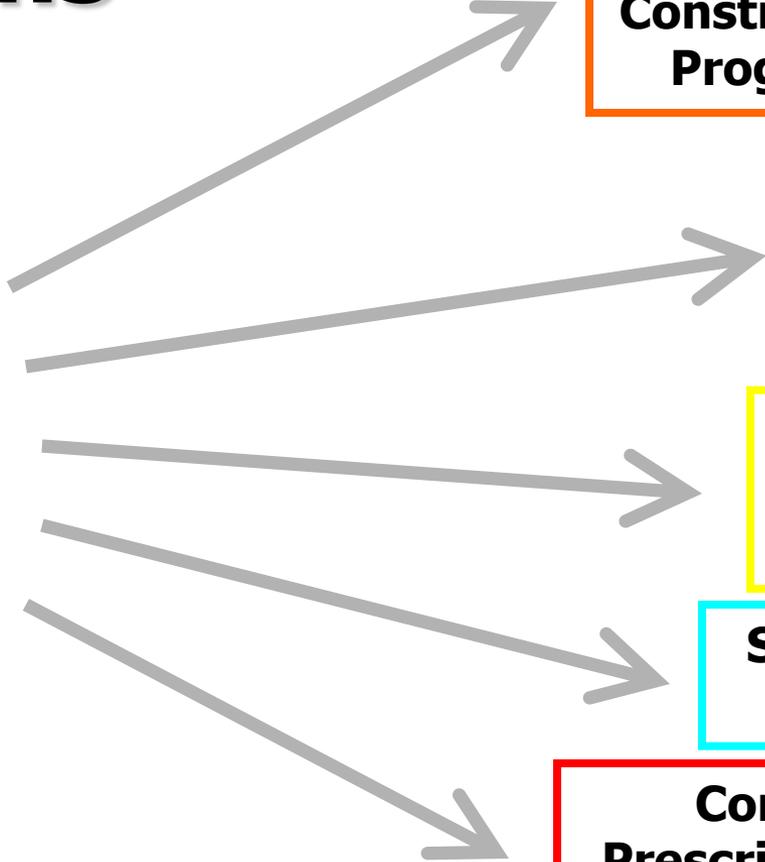
**Residential New Construction Program**

**Commercial New Construction Program**

**Multifamily Low Income Program**

**Street Lighting Program**

**Commercial Prescriptive Rebate Program(s)**



# Markets Model

