



**VERMONT ENERGY**  
INVESTMENT CORPORATION

# **Promoting Efficiency in PA: Lessons from Leading States**

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# **Presentation Overview**

- I. Spending Levels of Leading States/Provinces**
- II. Steps to Constructing a DSM Portfolio**
- III. Keys to Good Efficiency Programs**
- IV. Suggested Priority Programs**

# I. DSM Spending Levels

- **Leaders spending 2% to 5% of electric revenues**
  - ~ 10 states/provinces close to or above 2%
  - VT, CA and Manitoba at 3% or higher
  - Others considering significant increase
  - 2% for PA would be \$200 to \$250 million/year
- **Leading gas DSM efforts at 1.5% to 2% of revenues**

## **II. Ideal Steps to Constructing a DSM Portfolio**

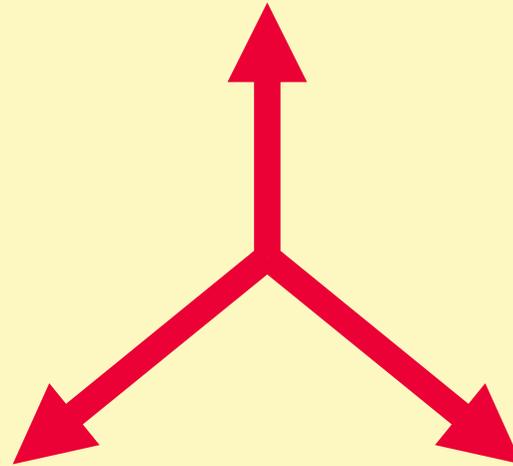
- 1. Develop policy objectives**
- 2. Segment markets for analysis**
- 3. Assess local efficiency potential by market**
- 4. Prioritize markets/programs**
- 5. Develop programs**

## **Suggested DSM Policy Objectives**

- **Maximize economic benefits**
- **Balance**
  - “resource acquisition vs. “market transformation”
  - Energy vs. peak demand savings
- **Equity – something for everyone**
  - Geographic
  - Customer classes
  - Hard-to-reach customers (e.g. low income)
  - “Underserved markets” (e.g. small commercial)
- **Minimize “lost opportunities”**

## Policy Objectives Can Pull in Different Directions

**More Market Transformation**



**More Resource  
Acquisition**

**More Participation &  
Equity**

## **III. Keys to Good Programs**

- 1. Clarity on objectives**
- 2. Ambitious performance goals**
- 3. Comprehensive approaches**
- 4. “Markets approach” (to be defined shortly)**
- 5. Leveraging other efforts**
- 6. Investment in QA/QC/evaluation**

# 1. Clarifying Objectives

- **What is primary role of program in DSM portfolio?**
  - RNC – longer-term market transformation?
  - HVAC – resource acquisition at peak?
  - Lighting – resource acquisition with energy focus?
  - Home Performance – mix of MT, equity?
  - Low Income – all about equity?
- **Best programs address multiple objectives**

## 2. Setting Aggressive Goals

- **Understanding your local market**
  - What is current baseline?
  - What are key barriers?
- **What have leaders accomplished in other places?**
  - Is your local market different in any important ways?
- **Examples of leading program results**
  - **Energy Star Homes:** market share of 15-20% w/in 3-5 years
  - **CFL Retail Sales:** average of 1.0 per household per year
  - **Low Income:** average per participant savings of at least 15%

### 3. Comprehensive Treatment of Measures (A)

- **Most easy, big, “widget” savings already captured**
  - **Heating**: efficient furnaces only provide 10-15% savings
  - **Cooling**: new SEER 13 std leaves little headroom
  - **DHW**: new fed standards leave little headroom
    - Heat pump water heaters, tankless gas units could change this
  - **Appliances**: tight minimum fed stds for fridges, washers
  - **Lighting**: the one big “widget” opportunity left
- **Major savings opportunities left in systems**
  - **HVAC**: sizing, installation, distribution systems
  - **Thermal envelope**: including interactions w/HVAC system
  - **DHW**: major losses from poor distribution system design

### 3. Comprehensive Treatment of Measures (B)

- **System approaches have added advantages**
  - Ensure component measures (esp. “widgets”) actually save energy
  - Provide non-energy benefits often more important to consumers
    - Good duct design and installation improves comfort
    - Sealing thermal by-passes eliminates ice dams, mold, etc.
    - Good DHW design reduces wait for hot water

**Word of caution:** although focus on systems and comprehensiveness is important, *don't let perfect become enemy of the good*

## **4. A “Markets Approach”**

- **Success is all about understanding the market**
  - Who are key market actors?
  - What barriers do they face to investing in efficiency?
  - What are their business models and needs?
  - What is the underlying value proposition?
- **Portfolio of strategies mapped to market barriers**
- **Building strong relationships with trade allies is critical**
- **Ability to articulate the value in technical, human and business terms**
  - Yes, it’s about selling!

## Mapping Strategies to Barriers: RNC

<b>Strategy</b>	<b>Impact on Market Barriers</b>
Technical Assistance	<ul style="list-style-type: none"> <li>• Builders learn benefits of efficiency so they can market it</li> <li>• Builders acquire skills necessary to build efficient homes</li> <li>• Builders see program staff as a resource, not a burden</li> </ul>
Inspections & Certification	<ul style="list-style-type: none"> <li>• Opportunity to further educate builders on site</li> <li>• Quality builders can differentiate themselves in the market</li> <li>• Third-party endorsement gives consumers confidence there is value</li> </ul>
Builder Rebates	<ul style="list-style-type: none"> <li>• Reduces builders' perceived risk of trying something different</li> <li>• Incentives for builders to invest in technical training</li> <li>• Helps overcome split incentives</li> </ul>
Outreach to Builders & Key Suppliers	<ul style="list-style-type: none"> <li>• Builders and suppliers learn benefits of efficiency</li> <li>• Builders and suppliers see potential market for efficiency</li> </ul>

## Mapping Strategies to Barriers: CFL Sales

Strategy	Impact on Market Barriers
Promote ENERGY STAR Brand	<ul style="list-style-type: none"> <li>• Enables consumers to identify higher quality products</li> <li>• Raises consumer awareness</li> </ul>
Retail Rebates	<ul style="list-style-type: none"> <li>• Encourages retailers to stock and sell products</li> <li>• Reduces risk to consumers to try “different” product</li> </ul>
Manufacturer/Retailer Rebates	<ul style="list-style-type: none"> <li>• Targeted incentives can help convince manufacturers to introduce new products (requires regional/national coordination)</li> <li>• Alternative for retail stores who don’t like retail rebates</li> <li>• Co-op advertising helps retailers educate consumers</li> </ul>
Support PEARL Testing	<ul style="list-style-type: none"> <li>• Identifies inferior products and “delist” them from Energy Star</li> </ul>
Outreach to Retailers	<ul style="list-style-type: none"> <li>• Helps persuade retailers to stock products</li> <li>• Provides retailers with training on how to sell products</li> </ul>
Promotions/Marketing	<ul style="list-style-type: none"> <li>• Raises public profile of products</li> <li>• Third-party endorsement helps overcome consumer risk-aversion</li> </ul>



# Traditional Model of Markets:

Everything fits into neat administrative boxes...

	Commercial & Industrial	Residential
New Buildings	<b>C&amp;I NC</b>	<b>RNC</b>
Existing Buildings	<b>C&amp;I Products</b> <b>C&amp;I Retrofit</b>	<b>Products</b> <b>HVAC</b> <b>Low Income</b>

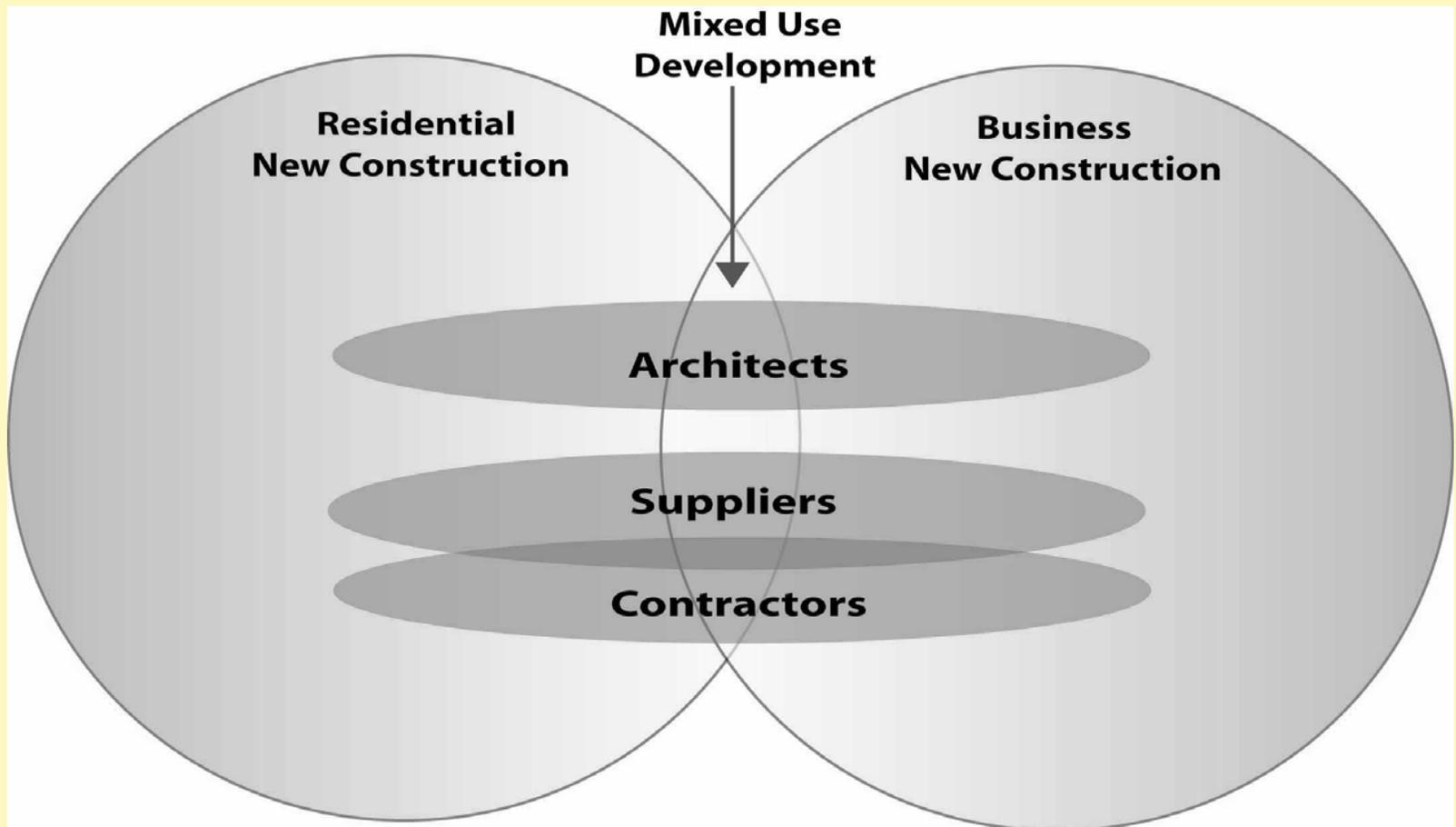


## ...but Reality is that Markets are Messy

	Commercial & Industrial	Residential
New Buildings		
Existing Buildings	<p>C&amp;I Retrofit</p>	<p>RNC C&amp;I HVAC C&amp;I Products Low Income</p>



# Messy Markets Example: Mixed Use Devt.



## Another Messy Markets Example: HVAC

- **HVAC contractors addressed by many programs:**
  - Residential new construction
  - Residential HVAC
  - Home Performance w/Energy Star
  - Small Commercial programs
  - Low Income
  - Federal energy efficiency tax credits
- **Program silos create major problems**
  - Conflicting performance standards
  - Redundant contacts (high transaction costs for trade ally)
  - Numerous forms to keep track of (again, high transaction costs)
  - Program inefficiencies

## Answers to “Messy Markets”

- **Flexibility**
  - Be prepared to adapt to customers’ specific needs
- **Make it easy for market actors to work with you**
  - Single point of contact for all their needs
  - Common forms, training, etc.
  - Don’t let internal reporting or other needs dictate interactions
- **Joint initiatives with industry when possible**
- **Capture synergies across programs**
  - Including across residential and C&I sectors
  - Including between efficiency and renewables initiatives

**Bottom-line: *put yourself in your customers’ shoes***

## **5. Leveraging Other Efforts**

- **Energy Star**
- **Industry initiatives**
- **The other fuel**
  - gas if you're an electric utility...and vice versa
- **Neighboring utilities/states**
- **Tax credits**

## 6. Investing in QA/QC/Evaluation

- **Build it into your program plans from the start**
  - Ensure you'll collect the data you need
  - Ensure you've allocated resources necessary
- **Don't wait for evaluators to come**
  - Create regular internal feedback loops
- **IT is wasted if used for just regulatory tracking & reporting**
  - Use it as a management tool
  - Should be part of regular feedback loops
- **Invest in research if you can**
  - It's where some of the best ideas for future programs come from

## **IV. Recommended Program Priorities**

- **Residential**
  - Energy Star Homes (new construction)
  - HVAC – efficient equipment, quality installation, ducts
  - Retail lighting
  - Home Performance with Energy Star
  - Low Income – comprehensive treatment
- **Commercial/Industrial**
  - New construction
  - Prescriptive rebates
  - Custom treatment for those who want (particularly large)
  - Building operator certification

## **Residential Models**

- **Energy Star Homes (new construction)**
  - Efficiency Vermont and Vermont Gas
  - New Jersey electric & gas utilities
  - Northwest Energy Efficiency Alliance
- **Energy Star Lighting**
  - Efficiency Vermont
  - Other Northeastern Program Administrators
  - Wisconsin
- **Central A/C**
  - New Jersey
  - Other Northeast states
  - California quality installation pilot

## Residential Models (continued)

- Home Performance w/Energy Star
  - NYSERDA
  - Others in the Northeast

*Note: Examples given above are but a modest subset of good programs addressing my recommended target markets across North America.*

## **Commercial/Industrial Recommendations**

- **New Construction**
- **Prescriptive Equipment Replacement**
  - Lighting
  - HVAC
  - Motors
  - Refrigeration
  - Transformers
  - Computer Power Supplies
- **Large Customers – Custom Treatment**
- **Building Operator Certification**

## **Commercial/Industrial Models**

- **Efficiency Vermont**
- **National Grid (MA, RI)**
- **Long Island Power Authority**
- **Northwest Energy Efficiency Alliance**
- **Northeast Energy Efficiency Partnerships**
  - For building operator certification
- **Ecos Consulting**
  - For computer power supply initiative

*Note: Distinctions between markets is much more blurry in the commercial/industrial sector. Thus, this list is primarily of DSM administrators who could serve as models across all C&I markets.*

## For more info...

- **Contact me:**

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- **Other resources:**

- ACEEE exemplary DSM program studies
- California best practices report