Affordable Heat: Lowering Vermont’s Fuel Bills -- and Greenhouse Emissions

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Website:
http://www.raponline.org
Two Themes Today

1. Vermont’s “all-fuels/whole buildings” program for thermal efficiency (S.209, 2008)
   - Statewide goals, may triple Vermont Gas EE programs, extend WAP and electric EE programs
   - New funding for liquid fuel efficiency: from RGGI & ISO-NE Forward Capacity Market revenues –
   - BUT: New revenue not adequate to meet adopted goals – no new tax $$
   - Comprehensive, not low income alone

2. Efficiency and Climate Strategy
   - Top-down, price-driven GHG reduction is the expensive way to go !
   - NOT “Cap and Give” or “Cap and Dividend”
   - BETTER : “Cap and Invest”
Affordable Heat: The Challenge

Fossil Fuel Bill: $\sim 800M per year
up $340M in 4 years
Fossil fuels for buildings are VT’s second-largest source of GHG emissions
Future risks of price increases and carbon policy costs
Fuel dollars quickly leave Vermont
Framing: The High Cost of Importing Carbon

Wholesale Fossil Fuel Expenditures

Total New England Fossil Fuel Expenditures in 2004 = $21 Billion

Source: EIA data
Framing: Affordable heat is a cost-effective investment opportunity

Report recommended:
20% of housing stock treated 2017 60,000
In treated HH, lower fuel bills by average 25%
Fuel savings would exceed $1.5 Billion from measures installed over 10 years
Reduce Vermont’s annual fuel use by 6% by 2017

Save $100 million per year
Goal: 60,000+ Buildings

- Low income Weatherization
- Res and Comm Building Efficiency
- New Construction
- Vermont Gas
- Plus effect of building energy codes
- Total cost: $400 million over ten years

Phase in: **2300** buildings in 2008; **9600** buildings in 2017

Benefit/Cost: 2.64 Considering Public and Private Costs
Proposed: Double the low-income weatherization program

- **Need**: 50,000 eligible low-income HH
- **WAP today serves**: ~1450 units/year
- **Average fuel savings**: 21% plus health, comfort, life safety, reduced public assistance & bad debt. $2 to $5 saved for each dollar invested
- **Average cost/unit**: ~$5300
- **Goal**: ramp up to 3050 units/year by 2016
- **10-year goal =** 23,875 units total
Funding Affordable Heat--
Where would $400 million come from?

- ~50% Private capital leveraged with loans and incentives
- Existing sources: Gross Receipts Tax, VGS and existing Efficiency Vermont: ~25%
- RGGI and FCM revenues: 10%
- New public revenues needed (GRT increase or General Fund, etc.) 15%
Vermont Energy Efficiency and Affordability Act (S.209, 2008)

- Sets thermal efficiency goals (units and %s)
- Tightens building codes
- Creates Fuel Efficiency Fund, administered by DPS and PSB, funded by RGGI allowance proceeds
- Adds FCM $ to Efficiency Vermont revenue pool for “whole buildings” EE
- Encourages PSB and Vermont Gas to expand natural gas DSM
- Studies (only) increase in Energy GR Tax
- (Also: net metering, green pricing, renewables)
Resisting temptation

We're running out of oil.
What do we do?

Give everyone $100.

U.S. Treasury

How's the idea supply looking? — [Cartoonist's Name]
Theme 2: Reworking Climate Strategy

- “Top down” cap and trade relying on price alone is more expensive, less likely to succeed than a portfolio-based policy menu (plus a cap);
- Carbon allocation can accelerate cap/trade success, lower program costs – build EE into national programs;
- State policies (EE, codes, portfolio mgt, RPS, etc.) are crucial to success;
- Low-income EE can serve both climate and equity goals.
Why carbon taxes and auctions create “high cost tons”

- Carbon price must be very high to save many tons (for gas to displace coal, etc.)
- Fossil units almost always set the clearing price
- Short-term clearing price provides the benchmark for longer-term and bilateral contracts
- SO: Carbon penalty on sellers raises prices generally
- Inframarginal rent a/k/a “windfall gains” to generators paid for by consumers
Problem #1: Carbon taxes and auctions to sources can increase wholesale power prices with little effect on dispatch or emissions.

Americans need help when it comes to energy efficiency

Gas prices go down

Yet another reason to avoid conservation.

Gas prices go up

Yet another reason to drill in national wildlife areas.

...keeps him on his toes.
Efficiency programs can save 7 times more carbon per consumer $ than carbon taxes.
Response #1: Efficiency is the low-cost “carbon scrubber”
Lots of Low-hanging fruit: Efficiency Vermont Savings Yield Rates (MWh per $10,000 invested)

2006-2008 values are estimates
Lessons for national legislation -- Carbon credit allocation can mobilize efficiency

- **Key point:** A carbon program that directly mobilizes end use efficiency **will cost less and achieve more** than one that focuses only on smokestacks.
  - Lower cost attainment – that’s the whole point of cap and trade in the first place

- **Cap/trade techniques can tap the carbon value of efficiency:**
  - Consumer allocation (RGGI region)
  - Load-side caps – carbon budgets for utility companies, akin to Renewable Portfolio Standards
  - National Efficiency Allocation (RAP & ACEEE proposal)
National Efficiency Allocation*

- Proposal: Allocate a pool of carbon allowances to states or LSEs to promote end-use efficiency
- Allocation should be performance-based:
  - Reward actual EE success, not expenditures or particular policy approaches
- How to measure EE success?
  - Key feature: % improvement compared to a baseline
  - Each state (or LSE) has its own baseline
  - Indiana compared to Indiana, not Indiana compared to California
  - Sets up a “virtuous circle” of competition among entities – those who improve faster earn a bigger fraction of the pool.

*As proposed by R Cowart (RAP) and S Nadel (ACEEE) March 2008 – comments and improvements are welcome
Is allocation just “distributional”? DC version: allocation for 60 votes
For more information…

• “Affordable Heat: A Whole-Buildings Efficiency Service for Vermont Families and Businesses”  
  (RAP study for Vermont Legislature January 2008)

• “Carbon Caps and Energy Efficiency: The Marriage of Need and Potential”  
  (Energy Efficiency Finance Forum April 2007)

• “Power System Carbon Caps: Portfolio-based Carbon Management”  
  (NREL Carbon Analysis Forum November 2007)

  (March 2005)

• “Another Option for Power Sector Carbon Cap and Trade Systems – Allocating to Load”  
  (May 2004)

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