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# New Hampshire State Energy Program Competitive Grant – Energy Efficiency Resource Standard Study





Presentation for the

**New Hampshire House  
Science, Technology & Energy  
Committee**

December 10, 2013

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Scott Albert, GDS

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# Agenda

1. NH Energy & Economic Context – Christine
2. Why Consider an EERS for NH – Christine
3. Stakeholder Input & Design Criteria – Scott
4. EERS Recommended for NH - Scott
5. Funding Sources & Economic Impacts – Scott
6. Key Recommendations – Christine
7. Q&A and Discussion

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# 1. NH Energy & Economic Context



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# NH Energy Context

- Energy is the **lifeblood of the economy**
  - As northern NE state, **heating, cooling, electricity, & transportation** are all essential in New Hampshire
  - Reliable, affordable energy **critical** to citizens, business, and industry
  - NH households spend **10-50% of income** on energy
  - **Energy costs** affect business & industry profitability, and factor into location & expansion decisions
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# NH Economic Context

- NH 2011 Energy Bill - \$6 Billion (and rising)
- \$3.9 Billion (65%) leaves the state immediately
- Represents about 6.5% of NH annual GDP
- Efficient use of clean local, indigenous energy makes good economic and business sense for all!

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# Why Increase EE?

- **EE = good business sense**
    - Reductions in energy bills = improved “bottom line”
  - **EE often = lowest cost energy choice**
  - **EE = reduces need for new power plants and/or Transmission & Distribution (T&D) upgrades**
  - **EE = local jobs**
  - **EE = reduces environmental impacts from energy**
  - **EE = helps achieve corporate “green” goals**
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# Commercial and Industrial Savings



- Southeastern Container in Hudson, NH – Coca Cola bottle manufacturer
- Achieved ~1,000 MWh/yr EE savings over 8 years = \$1.4M savings total
- Compressed air, lighting, chilled water pumps, controls, plus more
- They now have the lowest \$/liter cost of all 10 plants in the US



# Commercial and Industrial Savings

- Loon Mountain in Lincoln, NH
- Snowmaking is a significant energy user – electric pumps and compressors
- Purchased 595 low energy snow guns over the last 2 years
- Reduced snowmaking costs by 50% on a \$ / Acre-Ft basis



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# The Assignment to VEIC & Team

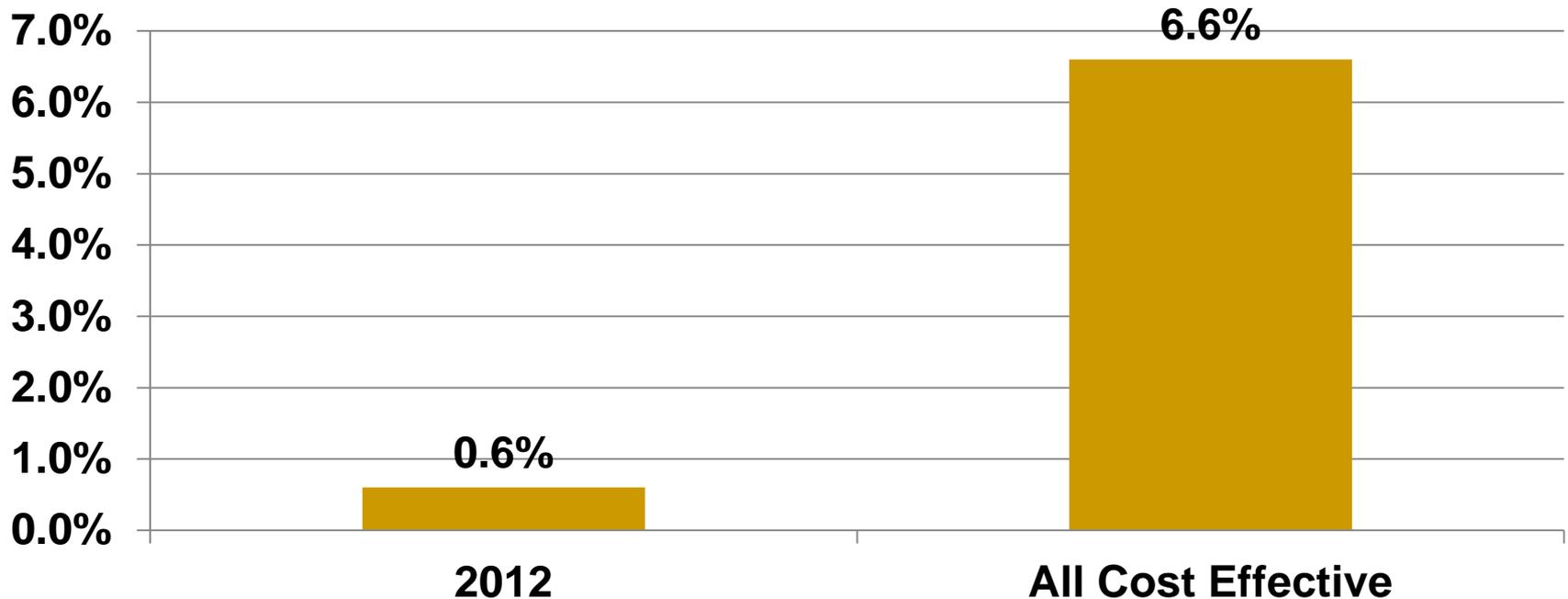
Through a **competitive solicitation**, NH OEP sought assistance to:

“Assess the economic feasibility of increasing investment in EE thru adoption of an Energy Efficiency Resource Standard (EERS) and/or other policy mechanisms.”

## 2. EE Potential in NH



# NH Cost Effective EE Potential



- All EE achievable at average lifetime cost of \$0.031/kWh
- This “cost-effective” EE = 715.4 Million kWh/year
- Which is equivalent to 6.6% of 2012 electric sales

# EE Achievements Thus Far

- US Department of Energy – Cost-effective nationwide to achieve EE = to 20-30% of energy use
- After > decade of NH EE:
  - SBC & other funding results in EE savings = 0.6% of 2012 retail sales
  - Well below what is being achieved in other states = 1-2% savings (or more)
  - Big swings in public funding (eg ARRA) result in widely varying type and scale of services & programs
  - Programs sometimes run out of funding before serving all customers
  - “Stop & start” dynamic works against effective market development

**A root cause - No single, clear, statewide goal & commitment to EE**

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# Why Not all EE being Achieved?

- **EE market not yet fully developed &** able to deliver cost effective savings & associated societal benefits on its own
- This resulted in the:
  - Need to provide **ELECTRIC EE** services to customers of regulated electric utilities
  - Progress towards providing **THERMAL EE** services to customers of regulated gas utilities
  - Increasing thought about how to offer THERMAL EE services to customers of **oil, propane, and other heating fuels**

# EERS as a Solution

- Clear, specific statewide energy savings goal(s)
- Developed via legislation and/or regulation
- Requires utilities and/or third party Program Administrators to achieve specific amount of EE
- Goal often expressed as % annual retail sales
- Is both aspirational & ***directive***
- Both establishes goal & ***delegates authority***

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# EERS Experience Nationwide

- 25 states have EERS in place
- 13 states = 100% or more of goals
- 3 states = > 90% of goals
- Average savings:
  - 77 kwh/capita for legislatively set goals
  - 86 kwh/capita for regulatory enforced goals
- NH only state in Northeast with no EERS or equivalent

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# 3. NH EERS Stakeholder Input



# Encouraged Input During Study From:

- Business & Industry
- Utility Managers & Program Administrators
- State Regulators & Regulatory Staff
- NGO's, Advocates
- Policymakers



# Input Led to “Top 7” Design Criteria

#	Design Criteria	Implication for a NH EERS
1	Make use of Best Practices	The EERS should be informed by experience and success in other jurisdictions.
2	Be Tailored to New Hampshire	The EERS should build upon and compliment New Hampshire’s existing laws and regulations.
3	Build on Existing Success	The EERS should build upon the success to date with existing programs in NH (CORE, state government leading-by-example, Building Energy Code Collaborative Project, etc.)
4	Promote Competitive Market Activity	The EERS should enable a blend of policy and regulatory initiatives that help stimulate competitive market activity and can sale up with increased private investment over time.
5	Create Sustainable Funding	The EERS should create a mechanism for sustainable investments in energy efficiency..
6	Increase Certainty	The EERS should articulate a stable and predictable set of policies and rules that endure over time.
7	Recognize and Address the Issue of Lost Revenue	The EERS should recognize deep concern about lost revenue from decreased sales by energy suppliers. EERS implementation will likely require decoupling revenue from sales for regulated utilities.

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# 4. EERS Recommended for NH



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# EERS Recommended for NH

- Short Term (Five Year) Energy Efficiency Standard

- Achieve all cost-effective EE
- Study assumed 5 year period (2013 – 2017)
  - % of Sales: 6.6% of 2012 electric energy sales
  - CORE Programs: 1.6% thru expanded & enhanced CORE programs.
  - Other Strategies: 5.0% thru combination of public & private initiatives

- Long Term Benchmarking Standard

- By 2025, NH building stock will be among most energy efficient in the nation, ranked in the top quartile as measured by kWh/sq. ft. per capita

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# Key Components for Success

- Clear statement of EE goal(s)
- Clear statement requiring “all cost effective EE”
- Clear direction to appropriate public entity for implementation & oversight
- Complimentary & supportive regulatory policies:
  - Decoupling or other approaches for addressing lost revenue issue
- “Collaborate vs litigate” approach
  - Involves key stakeholders in goal setting, planning, & budgeting prior to formal dockets
- Rigorous, independent EM&V

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# Top 6 Strategies for Achieving EERS

1. State & Local Governments Lead by Example

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4. Implement the NH Roadmap to Building Code Compliance

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# Top 6 Strategies for Achieving EERS

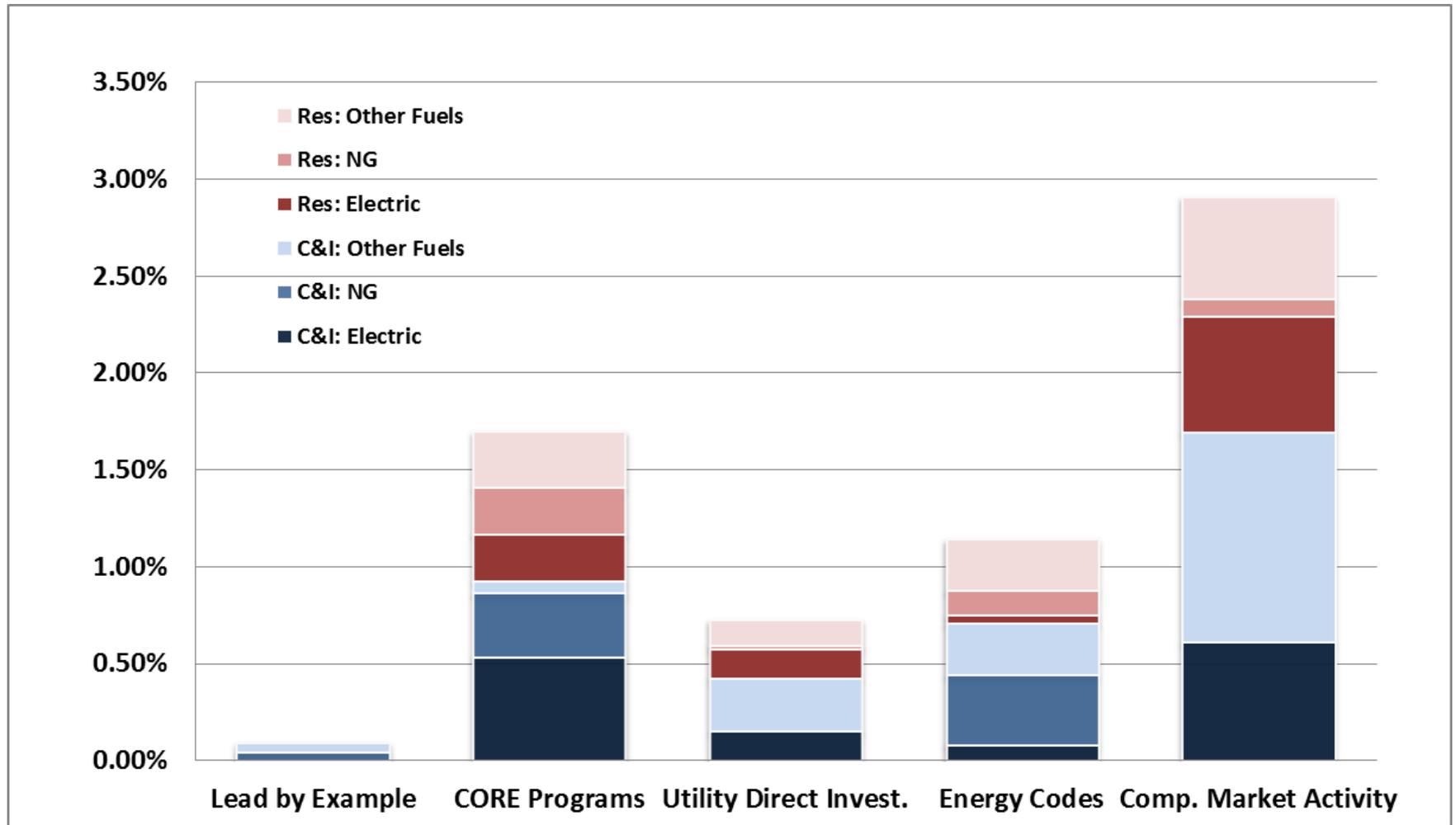
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1. State & Local Governments Lead by Example
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  4. Implement the NH Roadmap to Building Code Compliance
  5. Track, Report, Benchmark, & Promote All Results
  6. Scale Up Competitive Private Market Activity
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# 2017 Energy Savings (% of '12 Sales)



# 5. Funding & Economic Impacts



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# All Cost-Effective EE: Financial Return

- Cumulative Total Societal Cost = \$941M
  - Energy Savings = \$195M for 15 years (\$2.9B total)
- Payback Period = 4.8 Years
  - $\text{Cost} / \text{Savings} = (\$941\text{M}) / (195\text{M}) = 4.8 \text{ Years}$
- Return on Investment = 210%
  - $\text{ROI} = (\text{Return} - \text{Cost}) / (\text{Cost}) =$
  - $(\$2.9\text{B} - \$941\text{M}) / (\$941\text{M}) = 210\%$

# All Cost-Effective EE: Jobs & Income

## ■ New Jobs

### □ 2,380 Jobs

- 34% of all jobs that were created between 2010-2011.
- Change in Total Employment 2010 - 2011 = 6,996 jobs.

## ■ New Income (NH's GDP)

### □ \$160M/Yr

- 7.3% of all income that was created between 2010-2011.
- Change in GDP 2010 - 2011 = \$2,186 million.

## ■ Assumptions

- Baseline for comparison is 2013 spending levels and energy policy.
- Incremental Impacts from new spending on the 6 strategies.

# Funding Sources: Current & Potential

## ■ Current Sources

- ❑ SBC, LDAC, Customer Contributions, RGGI, FCM, Other Federal/State \$

## ■ Potential Sources

- ❑ State treasury funds
- ❑ State bonding authority, e.g. BFA tax exempt bonds
- ❑ Business tax credits, e.g. CDFIA funds
- ❑ Community Development Block Grants
- ❑ Property Assessed Clean Energy (PACE) Funds
- ❑ Energy Service Companies (ESCO) – For Profit + Public Purpose
- ❑ Private investment funds

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# System Benefits Charge (SBC)

- Current SBC = \$0.0033/kWh
  - \$0.0015/kWh for Electric Assistance Program (EAP)
  - \$0.0018/kWh for regulated EE programs (= \$18.5M)
- SBC needed to expand Core Program EE to 1.6% by 2017 = \$0.0051/kWh
  - **\$0.0036/kWh for regulated EE programs (= \$39M)**
  - \$0.0015/kWh for Electric Assistance Program (EAP)
- If doubling EE portion SBC not favored, consider allocating RGGI funds to EE rather than rebates
  - Provides better ROI (per UNH assessment)

# Bill Impacts (2017)

	Participant		Non-Participant		Average Customer	
	%	\$/Year	%	\$/Year	%	\$/Year
Res. Elec.	-1.4%	\$-18	0.8%	\$11	-0.4%	\$-5
C&I Elec.	-26%	\$-1,936	1.1%	\$79	-0.9%	\$-70
Res. Gas	-10%	\$-97	3.1%	\$30	0.7%	\$7
C&I Gas	-7.3%	\$-674	1.6%	\$150	0.1%	\$6

- \* Participating residential customers save 2.5X more than non-participating customers pay into the programs.
- \* Participating C&I customers save 14X more than non-participating customers pay into the programs.

# 6. Key Recommendations



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# Key Study Team Recommendations

1. Require all cost effective EE, with focus on true market development
2. Enhance and expand regulated EE programs to achieve EE = 1.6% of 2012 sales over 5 years
3. Directed by the NH PUC, initiate a collaborative stakeholder process for EE program planning and budget, prior to formal dockets
4. Address lost revenue issue
5. Independent, third-party EM&V and reporting

# Q&A and Discussion



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# For More Information

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