



***Energy Efficiency Resource  
Standards:  
A Straw Proposal for New  
Hampshire***

Prepared by NHPUC Staff

October 2014

# EERS Straw Proposal: The Problem

- Lazard Frère's study
  - Current Core progress
  - Neighboring states
  - Conclusion: Need EERS to ramp up goals
- 

# EERS Straw Proposal: The Process

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graph LR; A[1. Data gathering, identification of paradigms] --> B[2. Preparation of internal staff PUC report]; B --> C[3. Preparation of questionnaire & Interviews with stakeholders]; C --> D[4. Preparation of PUC Staff Straw Proposal];
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1. Data gathering, identification of paradigms

2. Preparation of internal staff PUC report

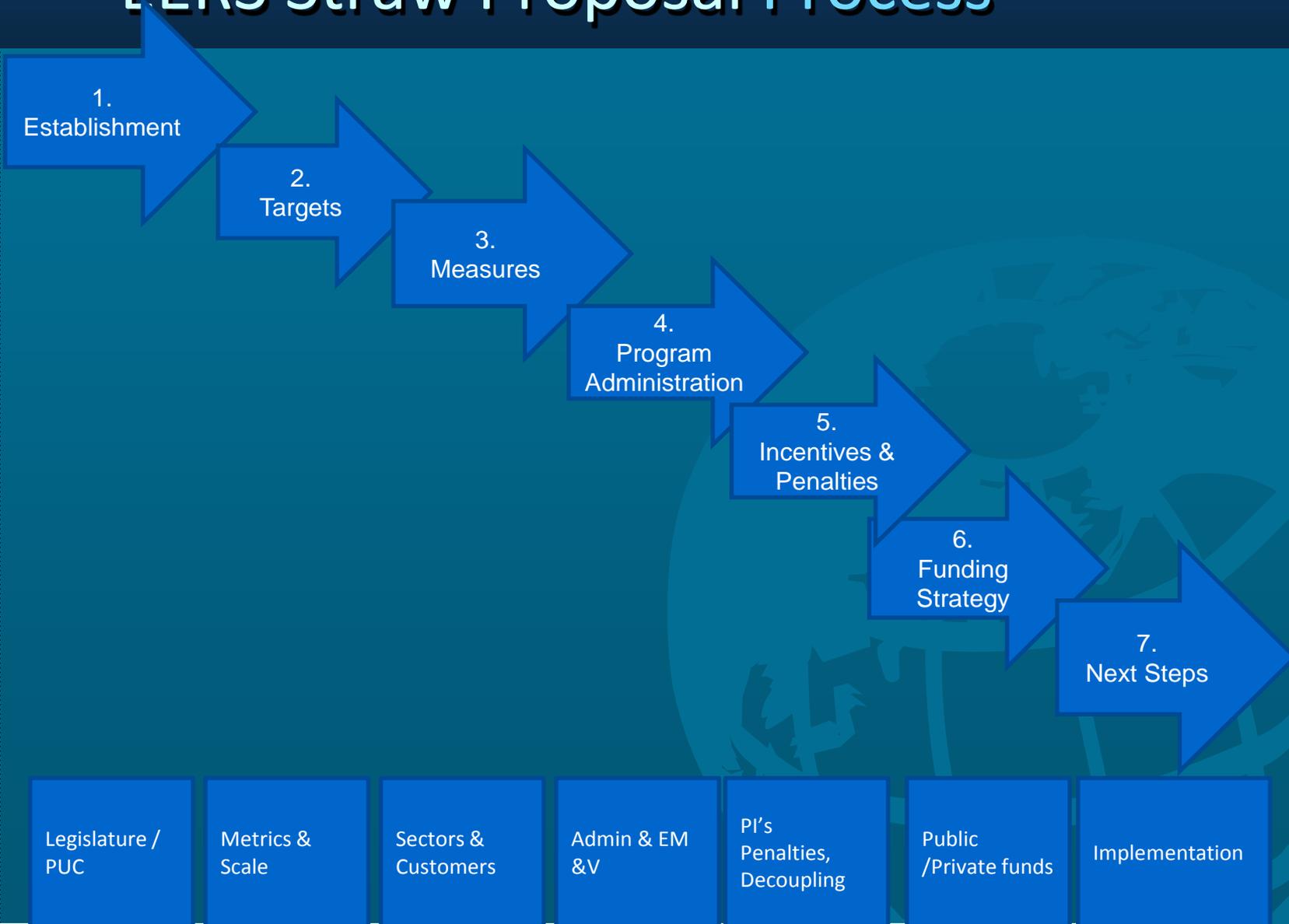
3. Preparation of questionnaire & Interviews with stakeholders

4. Preparation of PUC Staff Straw Proposal

# EERS Straw Proposal: The solution



# EERS Straw Proposal Process



# EERS Straw Proposal: Establishment

1.  
Definition &  
Establishment



Legislature /  
PUC

*Received wisdom:*

- Definition: “Specific long term target for energy savings that utilities or non utility PA’s meet via customer energy efficiency programs”
- Voluntary standards
- Numerous EERS definitions: ACEEE define as clear L-T targets, mandatory, funded
- 15-26 states possess EERS depending on definition
- Established by state legislation or PUC
- NE neighboring states adopted “all cost effective efficiency principles”

# EERS Straw Proposal: Establishment

*Stakeholder positions on establishment:*

1. Definition &  
Establishment

“PUC should act boldly and unilaterally”

“PUC possesses more stability, expertise and longer view”  
“The existing CORE program should be leveraged at outset”

“EERS should embrace more than just utilities”

“Only legislative process would precipitate a review of existing CORE programs and advisability of utility administered activity”

“Legislative mandate best guarantee for stability and permanence”

“EERS should be part of official state energy policy”  
“Legislature define overall direction, PUC focus on implementation”

Legislature /  
PUC

# EERS Straw Proposal: Establishment

1. Definition & Establishment



Legislature / PUC

## *Staff recommendations:*

- Establish clear definable targets for S-T(2 year) and L-T(10 year)
- Disaggregate targets by sector and customer group
- Establish clear indication of source of funding
- PUC establish EERS under own authority (e.g. just and reasonable rates)
- PUC assist legislature in promoting EERS
- First EERS should comprise 10 year cycle
- Initial two year stage to be concurrent with existing Core program for 2015-2016

# EERS Straw Proposal: **Targets(1)**

## 2. Targets

### Metrics & Scale

*Received wisdom on EERS Targets:*

- Defined Short and Long term targets are vital for EERS
- Typical annual incremental electric savings targets in 26 EERS states vary from 0.1%(TX) to 2.6%(MA), gas savings vary from 0.2%(CO) to 1.5%(MN)
- 2013 NH VEIC/GDS study found cost effective energy and thermal savings could reach 6.6% of statewide electricity use in 2017
- In 2013 NH CORE EE activities resulted in 0.72% estimated savings in retail electric kWh usage, 0.68% estimated MMBTU's in natural gas usage

# EERS Straw Proposal: **Targets(2)**

*Received wisdom on EERS metrics:*

3.  
Targets



Metrics &  
Scale

- Various target metrics employed, most common:  
percentage of cumulative sales forgone  
incremental vs cumulative savings differentiated
- Units typically expressed in:  
absolute values (X GWh. / yr.)  
or relative terms: e.g. savings equivalent to Y%  
of 2012 electricity consumption

# EERS Straw Proposal: **Targets(3)**

## 3. Targets

## Metrics & Scale

### *Stakeholder positions:*

- “Targets should be a function of financing available”
- “Targets subject to adjustment following first two years of experience”
- “Commence with a 0.75% electric target and increase over time”
- As targets become more aggressive, utilities more likely will focus on larger clients”
- “The MA goal of 2.0% of retail sales should be attainable in three years with a 10% target within 10 years”
- “Improving the distribution system will clearly be more cost effective than focusing on customer facilities”
- “Targets should be focused only on end user efficiency”

# EERS Straw Proposal: **Targets(4)**



3.  
Targets



Metrics &  
Scale

## *Staff recommendations:*

- Establish S-T,(2 year) and L-T (10 year) EERS target
- 2025 NH EERS target should achieve cumulative savings of 9.76% in electric and 7.63% in gas( see next slide)
- Short run targets to be implemented by utilities; going forward consider efficacy of a third party administrator model
- Adopt incremental savings metric to aid simplicity from year to year, and cumulative savings for period of EERS planning cycle
- Track lifetime savings to better screen programs for cost effectiveness

# Staff proposed EERS **target** schedule( relative to 2012 usage)

Year	Electrical incremental kWh equivalent savings target%	Electrical cumulative kWh equivalent savings target%	Gas incremental savings target%	Gas cumulative savings target%
2013	0.72	n/a	0.68	n/a
2014	0.68	n/a	0.62	n/a
2015	0.65	0.65	0.68	0.68
2016	0.59	1.24	0.70	1.38
2017	0.65	1.89	0.70	2.07
2018	0.71	2.60	0.70	2.77
2019	0.77	3.37	0.70	3.46
2020	0.84	4.22	0.70	4.16
2021	0.92	5.14	0.70	4.85
2022	1.01	6.15	0.70	5.55
2023	1.10	7.25	0.70	6.24
2024	1.20	8.45	0.70	6.94
2025	1.31	9.76	0.70	7.63

- For 2015 & 2016 it is intended that planned CORE and EERS targets will be in common
- 2013, numbers are estimated /actual, 2014 numbers are based on budget
- Financial model used 2014 costs from approved budget, available at the time

# EERS Straw Proposal: Efficiency Measures(1)

3.  
Measures

*Received wisdom on EERS measures:*

- Traditional energy efficiency measures include the following:
  - rebate programs for EE appliances,
  - home weatherization,
  - lighting replacement

with established implementation frameworks and methodologies for EM&V

Sectors and  
Customers

- Advanced EERS program measures include:
  - market transformations efforts
  - behavior based programs
  - changes to building codes and compliance
  - supply side efficiency improvements, demand response and CHP

Broadening the definition of eligible savings permits greater program ambition, more flexibility in compliance

# EERS Straw Proposal: Efficiency Measures(2)

3.  
Measures

*Received wisdom on EERS measures:*

- For better scaled up capture of EE, need multiple combinations of market approaches
- Evaluations of the energy efficiency potential of various customer groups indicates a need for a more segmented approach to the market
- McKinsey Study

Sectors and  
Customers



# EERS Straw Proposal: Efficiency Measures(3)

3.  
Measures

*Stakeholder positions:*

“Too early to embrace a broader scope for the EERS targets”

“Distributed generation does not belong in EERS”

“Building code compliance must first be resolved at the political level”

Sectors and  
Customers

“Is demand reduction compatible with EE standards”

“EE Dollars should only be spent on cost effective end use efficiency and are not justified for smart grid infrastructure”

“One NH utility has taken steps to begin to segment the EE market and is developing customized programs for various markets”

# EERS Straw Proposal: Efficiency Measures(4)

3.  
Measures

*Staff recommendations concerning EERS measures:*

Use S-T, preliminary EERS to intensify traditional EE measures

Prepare ground to include distribution efficiencies in medium term agenda

Encourage more widespread adoption of customer segmentation strategies by utilities

Consider development of dedicated programs for those on fixed incomes (above poverty guidelines) and small business owners

Sectors and  
Customers

# EERS Straw Proposal: Administration(1)



*Received wisdom on management of EERS programs:*

Typically administered by state PUC's + optional stakeholder boards

Compliance /admin responsibility typically rests either with utility, 3<sup>rd</sup> party organization or government body

Utilities prefer control over EE programs since close tie to customers, but face disincentives without compensatory payments

3<sup>rd</sup> Party organizations dedicated to EE goals, have no conflicting business objectives

Utility administration of EE programs permits retention of existing infrastructure & staff expertise

Some states use hybrid models with division of responsibility

# EERS Straw Proposal: Administration(2)

## Stakeholder positions:

4.  
Administration

“Utilities have a long and trustworthy relationship with their customers so are best able to pursue the EERS program”

“Four NH IOU’s manage the existing Core program well and have a track record of collaboration”

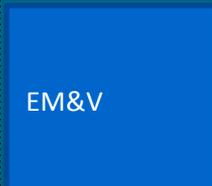
“Third party non-profits should run the program, anything but the utilities”

EM&V

“VEIC model is better than utility PA’s (since cannot rely on utility claims) with the PUC adopting a coordinating role is the most effective”

“Utilities to administer existing end user EE measures but there may be a case for a NYSERDA look alike promoting other infrastructure development programs”

# EERS Straw Proposal: Administration(3)



## *Staff recommendations:*

- Build on CORE utility centered administration model
- Appoint stakeholders representing all EE interests to advise PUC on EERS strategy
- PUC to provide oversight of the EERS
- Evaluate introduction of 3<sup>rd</sup> Party virtual utility

# EERS Straw Proposal: Administration(4)-EM&V



*Received wisdom:*

Critical part of administering the EERS is performing evaluation, measurement and verification activities

EM&V confirms energy savings, verification of cost effectiveness, feedback to improve performance

States lack uniformity when evaluating costs and energy savings from efficiency programs



Utility PA's combine direct program costs and PI's to determine total costs of EE

When establishing an EM&V budget, need to balance cost, time and effort to plan and compete evaluations

# EERS Straw Proposal: Administration(5)-EM&V



## *Stakeholder positions:*

- Due to complexity, many respondents unclear on form and content of EM&V
- Many outside the utility community believe evaluations should not be performed by utilities but third parties selected by and reporting to PUC

# EERS Straw Proposal: Administration(6)-EM&V

4.  
Administration

## *Staff recommendations:*

- Robust EM&V is critical to determining which EE programs are truly cost effective and to what degree
- Cooperate closely with NEEP, leverage prior experience of other states, rapidly approve already developed and tested EE programs, limit pilots where possible, and adopt standardized methodologies and reporting guidelines
- The costs of possible decoupling need to be identified
- Plan to confine EM&V funding needs to 5% of the program budget

# EERS Straw Proposal: Administration(7)-PI's & Decoupling

## 5. Incentives & Penalties



## PI's, Penalties, Decoupling

### •*Received wisdom:*

- Performance Incentives are ubiquitous in states implementing EE programs
- Out of 26 states examined, PI's were in place in 18 states for electric and 12 states for gas
- PI's may be accompanied by Penalties
- Penalties are in place in 5 states for electric utilities and in 2 states on the gas side.
- States have designed penalties such that a penalty fee is paid if the target is not met and the utility must make up the shortfall in subsequent years

# EERS Straw Proposal: Administration(8)-PI's & Decoupling

5.  
Administration

• *Received wisdom:*

• Traditionally utility revenues are proportional to sales of electricity and natural gas

• Programs that improve EE for utility customers, reduce sales, have a negative effect on utility profits creating a barrier to effective EE programs



Decoupling

• Decoupling refers to policies designed to decouple utility profits from total electric and gas sales so that utilities have less incentive to sell more energy

• Decoupling rate adjustments seek to compensate the utility for loss of commodity sales through a rate increase

• How frequently should adjustments occur? Should revenues used in decoupling mechanism correct for sales effects of weather? Any limits on size of adjustment?

# EERS Straw Proposal: Administration(9)-PI's & Decoupling

## 5. Administration

EM&V, PI's,  
Penalties,  
Decoupling

### • *Stakeholder positions:*

- Respondents relatively silent on the issue of PI's and penalties, although an number believed that absent PI's the utilities would have limited incentives to participate in EE programs
- “There is a need to choose between penalties vs setting targets for innovative projects”
- “For EERS to be successful, there must be an enforcement mechanism”
- Respondents in favor of a decoupling mechanism for utilities promoting EE
- “Decoupling is oversold as a utility solution with considerable potential for abuse especially during warm winters”

# EERS Straw Proposal: Administration(10)-PI's & Decoupling

## 5. Administration

EM&V, PI's,  
Penalties,  
Decoupling

### • *Staff recommendations:*

- Staff believes that PI's should continue to encourage EE target attainment in the short run
- Staff should examine the case for adoption of penalties
- Consider a partial or limited utility decoupling in the context of an EERS
- Any discussion of decoupling should be accompanied by consideration of PI's and ROE
- In an era of EE targets, utilities need to find an alternative business model than one based on commodity sales

# EERS Straw Proposal: **Funding**(1)

## 6. Funding Strategy



Public  
/Private  
Funds

- *Received wisdom:*
- Multiple funding mechanisms typically support EERS
- NH Core EE heavily reliant on SBC, LDAC charges and RGGI funds to augment customer resources
- Significant barrier to EE adoption remains the high initial investment cost since the savings are typically recouped over the lifetime of installed measures
- Aggressive EE targets cannot be met by utility ratepayer funding alone
- Challenge for many states is how to protect dedicated funds
- If implementation of the CAA's (111d) requires ramping up still further EERS targets, there will be a severe funding challenge

# EERS Straw Proposal: Funding(2)

6.  
Funding

Public  
/Private  
Funds

## *Stakeholder positions:*

- “Need to move away from reliance on public funds”
- “EERS should anticipate the sunset of public funding to be replaced over time fully by private funding”
- “Utilities should focus their attention on administering EE programs while banks should devote their energy to making available and approving low interest loans to fund the program”
- “Increasing public benefit funds will be a political hornets nest “

# EERS Straw Proposal: **Funding**(3)

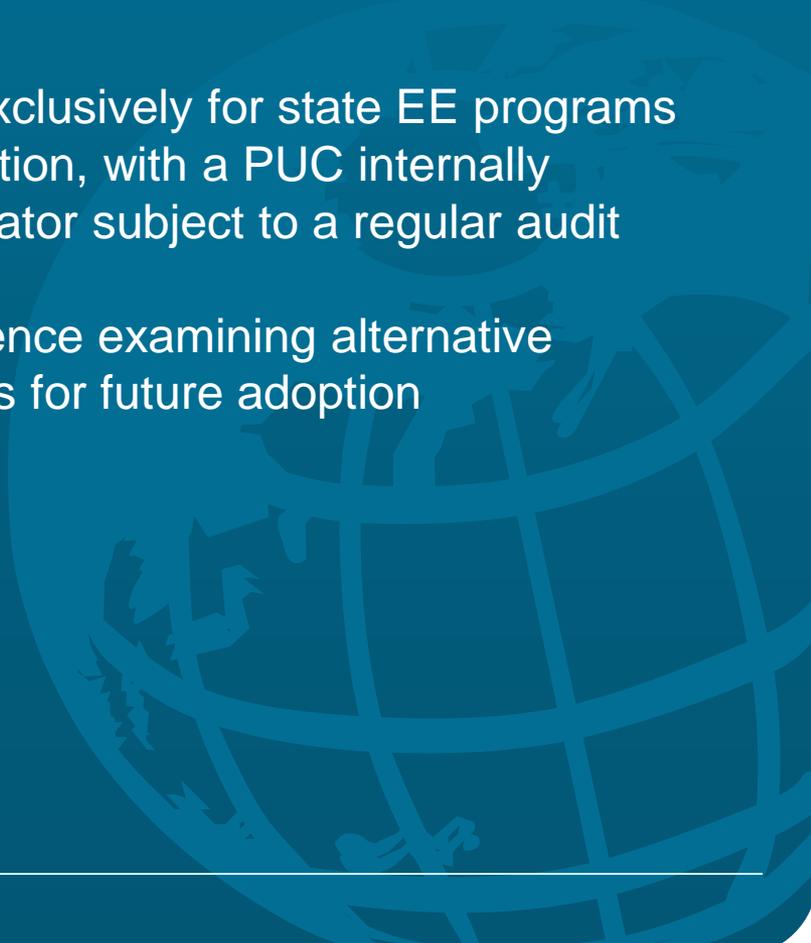
6.  
Funding



Public  
/Private  
Funds



Staff recommendations:

- Use existing Core funding mechanism in S-T to establish the EERS
  - Funds to be used exclusively for state EE programs and their administration, with a PUC internally appointed administrator subject to a regular audit
  - Immediately commence examining alternative funding mechanisms for future adoption
- 

# EERS Straw Proposal: Funding(4)

## 6. Funding

Public /  
Private Funds

*Received wisdom on alternative funding:*

- Aggressive EE savings targets, require substantial cost contributions by participating consumers in order to stretch the impact of limited utility bill payer funds
- 2011 ACEEE Study found that no residential EE program in the country had yet achieved a truly broad scale with only two of the programs having participation rates of 3% or more
- Successful states relieve the burden on utility ratepayers, making greater use of primary and secondary capital markets to fund their EERS program
- LBNL found that the leverage potential of a 25% rebate incentive might be 4:1; while a 5% loan loss reserve may stimulate up to a 20:1 leverage potential

# EERS Straw Proposal: Funding(5)

6.  
Funding



Public  
/Private  
Funds

## *Stakeholder positions:*

- Few clear recommendations from stakeholders concerning alternative funding mechanisms
- “Use of secondary market would be useful if the administrative costs and eventual interest rates achieved on the secondary market are reasonable”
- “Traditional financing through local banks and credit unions has permitted the deployment of more than \$90 million in private financing capital in the last two years alone via the Mass Save residential HEAT loans, such that lenders should focus on lending while utilities should drive the demand for EE “

# EERS Straw Proposal: Funding(6)

## 6. Funding

Public vs  
Private Funds

### *Staff recommendations:*

- Current Core budgets too small to meet the more ambitious EERS targets
- S-T, leverage existing financing mechanisms within Core program to promote the EERS with continued use of On Bill Financing, Commercial PACE, credit enhancements etc. to address the problem of unattractive interest rates or lack of customer credit access
- Recognize that given limited amount of primary capital , need to access secondary market to provide a better capital source
- Implement a funding program that is scalable, leveraged on private funding, avoiding buy downs where possible, possessing a backup fund for credit default. e.g. Warehouse for Energy Efficiency Loans ( WHEEL)

# EERS Straw Proposal: Next Steps

7.  
Other Issues

1. Present findings to EESE Board members and solicit feedback
2. Consolidate EERS recommendations into final report
3. Report to be filed with the Public Utilities Commission

Next steps



# EERS Straw Proposal: Summary of Staff recommendations

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## Funding

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