



# Getting to Best Practice with SEM

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# NEEP is one of the “REEOs” – *regional organizations*



## Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

## Vision

That the region embraces next generation energy efficiency as a core strategy to meet energy needs in a carbon-constrained world

## Approach

Overcome barriers and transform markets through *Collaboration, Education, and Enterprise*



**Mission Driven, here to connect the dots and  
advance the region**

# Putting the Strategy into Strategic Energy Management involves mind and culture shifts



- From measure-specific installation to whole facility, continuous improvement, whole chain of command customer engagement.



- This presentation considers the Northeast regional perspective and Evaluation, Measurement and Verification (EM&V) challenges and opportunities

# There Is A Continuum of SEM Programs



## Strategic Energy Management Continuum



- Verifies measured results – internal credibility
  - Rigorous third-party measurement and verification
  - External stakeholder recognition of achievement
  - **Marginal effort beyond ISO 50001**
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- ISO standard for Energy Management Systems - EnMS
  - Similar framework to ISO 9001 and ISO 14001
  - Certifiable EnMS, SEM program
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- Transition from project to systematic approach
  - Many utility SEM programs operate at this level
  - 50001 Ready – Self attestation to the ISO 50001 EnMS with DOE recognition; on-ramp to upper levels

# Emergence of Utility SEM Programs: Program Administrator Engagement is Still Tentative in the Northeast



- 2007 Xcel
- 2009 ETO; BPA
- 2010 SCE
- 2011 Idaho
- 2012 BC Hydro
- 2013 Pacificorps
- 2014 ComEd; Nicor Gas; Nova Scotia Hydro; FOE
- 2015 Ameren; Efficiency Vermont Pilot
- 2016 NYSERDA Pilot
- 2017 Efficiency Vermont Program and CEI-Lite

- **After 2014/15 – 6 facilities studied:**
  - First year savings of 3% across 6 facilities
  - Cost-effectiveness expected to grow from .5 to 1.3 in year 3
  - Measure life (persistence) not yet determined
- **Organizational and Cultural impacts**
  - Executive management engaged
  - More tracking
  - Peer to peer exchange
  - Challenges remain: Employee motivation and temps
  - Opportunity: synergies with sustainability

# Beer and Skiing Matter to the Vermont Economy: SEM helps



Vermont's brewing industry operations and investments... generates \$199 million in total economic activity and includes the direct effect of operations and investment of \$141 million and 1,138 jobs.

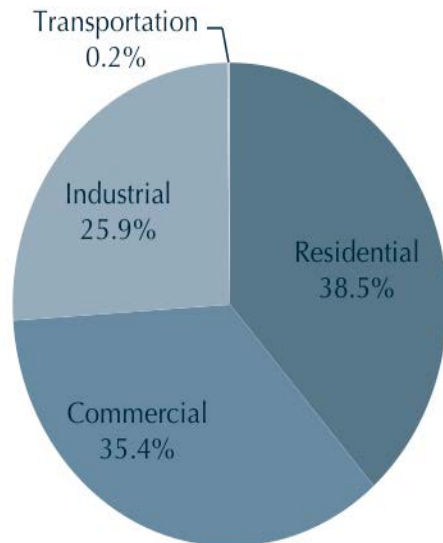


We're saving a huge amount of money each year, and we've simplified the process for staff. This is one of the best investments we've ever made."

# Efficiency Vermont's Program is Continuously Improving



- **2016 Expansion: 3 cohorts plus expanding program design to embrace smaller C&I customers and also scaling up marketing and online learning**





# Review of EM&V Perspective on SEM Takeaways from NEEP Study – Challenges



- Lack of consistent reporting on results
- Cost-effectiveness especially in first year
- Non-energy impacts not quantified
- Treatment and understanding of negative savings
- Determining measure life
- Role of net impacts

# Takeaways from NEEP Study – Opportunities

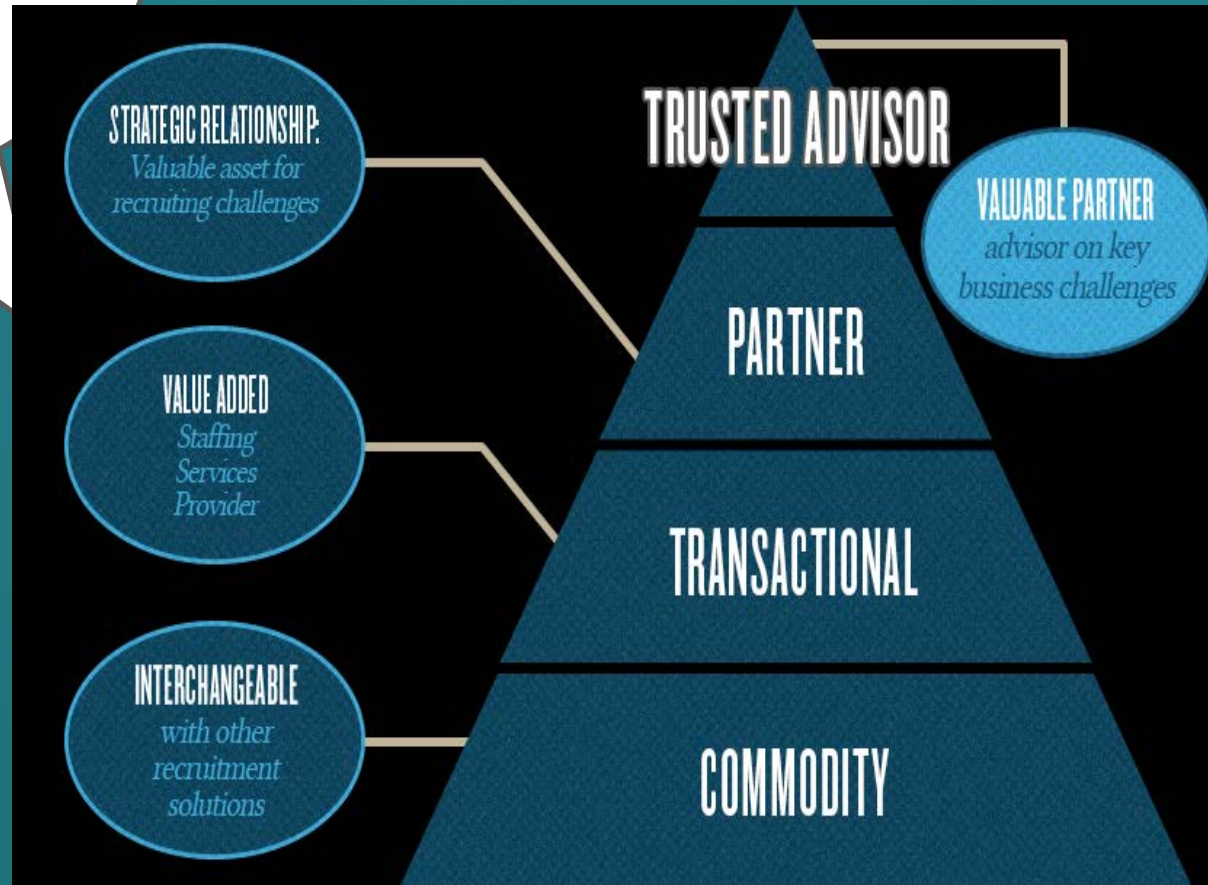


- M&V2.0 research and guidance can advance SEM evaluation protocols (non-routine adjustments)
- More tracking will help inform energy and other impacts
- Need to measure and understand multiyear impacts and drivers of persistence
- Simple model specifications can work
- Scaling up participation and strategic cohort design can reduce costs
- Consult National Standard Practice Manual on Cost-Effectiveness
- Protocols for non-energy impacts?
  
- *P.s*
  - *Link to report: <http://neep.org/emv-best-practices-recommendations-industrial-sem-programs>*
  - *And Agenda for Nov 8 SEM workshop in NYC: [www.neep.org/events](http://www.neep.org/events)*

# Relationships can change behavior



“AEP Ohio was transformed from a faceless provider of a commodity to the role of trusted energy advisor and viewed as a company that was genuinely interested in helping customers control costs in their businesses.”

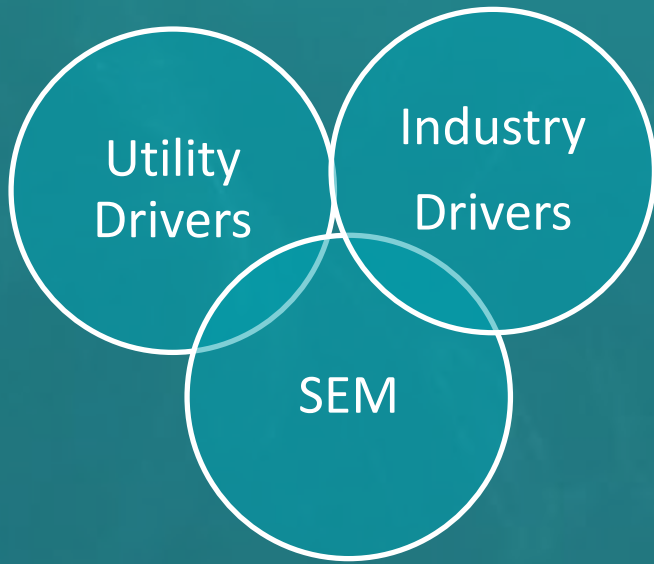


# Qualitative and anecdotal results contribute to energy management changes

“..**visualization of non-energy** benefits increases the probability that company decision-makers will implement energy efficiency projects”



# Parting Thoughts



UTILITY  
Annual kWh  
Project Pipeline  
Retain Custs

INDUSTRY  
Costs  
Sustainability goals  
Business stability  
Product Quality

Currently utility EM&V practices are not fully aligned with the diverse drivers of the program



Could tweaks to the program focus and EMV potentially move both utilities and industrial/commercial organizations beyond behavior change to culture change? ...i.e.

Longterm impacts, comprehensive benefits, partnerships