

# Basics of Market Transformation

---

Susan Coakley, NEEP  
Marc Hoffman, CEE

March 25, 2002  
ACEEE/CEE Market Transformation Symposium

Northeast Energy Efficiency Partnerships, Inc.  
5 Militia Drive  
Lexington, MA 02421  
(781) 860-9177      [www.neep.org](http://www.neep.org)

Consortium for Energy Efficiency  
1 State Street, Suite 1400  
Boston, MA 02109  
617-589-3949      [www.CEEforMT.org](http://www.CEEforMT.org)

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Overview

---

- ▶ Definition
- ▶ Elements and Examples
- ▶ Funding
- ▶ Who is Doing It, and Why?
- ▶ Review of Key “Framework” Findings
- ▶ Elements of Market Transformation, Using One Initiative as an Example
- ▶ Other Examples

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Definition: Market Transformation Initiatives

---

- ▶ Strategic interventions that attempt to cause lasting changes in the structure or function of a market or the behavior of market participants, resulting in an increase in the adoption of energy efficient products, services, or practices.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Examples of Market Transformation

---

- Residential gas furnaces -Wisconsin 1982-1996
  - Continued sales without incentives
- Commercial lighting: 1985-1998
  - T-8/electronic ballasts become standard practice
- Manufactured housing - Northwest 1988-1999
  - Virtually all manufactured housing shipped as high efficiency

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Examples of Market Transformation

- **Resource efficient clothes washers 1989-2001**
  - Proven market acceptance basis for future standard
- **Super-efficient refrigerator program 1992-2000**
  - Proof of technology leads to higher standards
- **Residential window energy ratings 1989-1999**
  - NFRC rating system adopted by large majority of window manufacturers

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Examples: Market Changes and Effects

- ↘ Increases in the quality, availability, specification, and installation of electronic ballasts and T-8 lamps
- ↘ Increases in the range of premium efficiency motor products → NEMA premium label
- ↘ Increase in retail shelf space and improvement in product quality for compact fluorescent lamps and fixtures
- ↘ Increase in contractor sales and use of best practices to install of high-efficiency HVAC systems

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Examples: Market Changes and Effects

---

- ↘ Increases in energy efficient lighting design practices among lighting designers and electrical contractors.
- ↘ Increases in manufacturer adoption of low-standby power home electronics products.
- ↘ Increases in consumer awareness, knowledge, and preferences for high efficiency products (e.g., ENERGY STAR® appliances & windows).

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Funding for Market Transformation Initiatives

---

- Nationally energy efficiency funding = approximately \$1.5 billion annually.
- Funding is concentrated in the northeast, northwest, California, and Wisconsin.
- New efforts in Midwest, Texas and Southwest.
- Funding for market transformation is probably about 10% to 35% of the total, depending on the breadth of the definition.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## MT: Who's Doing It?

- Federal – US EPA and US DOE
- Northwest Energy Efficiency Alliance (NEEA)
- Northeast Energy Efficiency Partnership (NEEP) - NYSERDA
- California - Utilities & CEC
- Consortium for Energy Efficiency (CEE)
- New efforts:
  - Midwest Energy Efficiency Alliance (MEEA)
  - Texas
  - SWEEP (Colorado)

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Northwest Energy Efficiency Alliance

- Non-profit organization w/multi stakeholder Board
- Regional focus - founded with support from NW Power Planning Council and BPA
- Budget of \$165 million over 8 years
- Utilities and BPA co-fund the NW Alliance
- NEEA staff proposes and Board selects projects
- Regional programs; usually one contractor
- Includes research and development efforts - market analyses, new products

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Northeast Energy Efficiency Partnerships - NEEP

- Regional non-profit organization
- New England, New York, Mid-Atlantic
- Annual budget -\$3 million; leverages \$40 million for program activities
- NEEP funding -grants, sponsors, project revenues
- Partners and allies - state agencies, environmental & consumer groups, business & trade associations
- Develop regional strategies; coordinate program development, implementation, and evaluation
- Regional programs - local implementation

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## New York State Energy Research & Development Authority - NYSERDA

- Existing state agency - statewide administrator except for Long Island (LIPA) and NYPA
- 5 year renewal doubling original \$124 million of energy efficiency funding
- \$75 million/year for market transformation
- Six market transformation programs
- Participates in CEE & NEEP initiatives
- Selects contractors to manage and operate programs, in response to RFPs

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## California

- PUC oversight of utility administration (four major IOUs)
- Statewide programs and program designs; also independent third-party initiatives
- Initial \$1.1 billion over four years (1998-2001)
- Much of the funding is focused on market transformation (though broadly defined)
- Legislation extends funding for 5+5 years (2002 - 2011), PUC to select administrators
- Redirecting efforts to summer peak reduction-resource acquisition to deal with reliability crisis
- Participate in national and regional initiatives (ENERGY STAR®, CEE, coordinate with NEEA)
- Also CEC and muni programs- State ramping up programs

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Midwest Energy Efficiency Alliance

- Non-profit organization w/multi stakeholder Board
- Regional network of organizations - Illinois, Ohio, Wisconsin, Minnesota, Missouri, Kentucky
- Budget - \$1 million per year
- Coordinates multi-state program facilitation and implementation as necessary
- MEEA staff proposes and designs programs with Board input
- Includes market research projects

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## National Efforts

- **Consortium for Energy Efficiency (CEE)**
  - Coordinator, facilitator, designer/strategist
  - Common eff. levels(tiers)/strategies; bulk procurement
- **ACEEE**
  - Research, assessment, coordination, advocacy
- **Federal Agencies – EPA and DOE**
  - ENERGY STAR®
  - National initiatives - PNNL and LBNL
- **Alliance to Save Energy**
  - Programs administrator + advocacy

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Motivations for Market Transformation

- Approach: “Thoughtful, more focused and integrated method of intervention that leverages market opportunities and focuses on key barriers”
- Approach or strategy: “Will lead to greater savings and more sustainable changes”
- Goal: “Won’t have to use public funds to support programs in the future”
- Goal: “Privatization -- moves things to the private market; less government interference”
- Outcome (transformed market) vs. strategy or approach

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## "A Framework for Planning and Assessing Publicly Funded Energy Efficiency" - February 2001

- Economic Rationale for Energy Efficiency Policy - Miriam Goldberg
- Role of MT in Energy Efficiency Policy? Ken Keating
- Effective Design of Energy Efficiency Interventions - Shel Feldman
- Role of Evaluation Play in MT? - Jane Peters
- Evaluating Market Effects of MT Interventions - Lisa Skumatz
- Capturing the Dynamics of MT in Assessing Market Effects? - Fred Sebold and Alan Fields
- Assessing Cost-Effectiveness of MT - Fred Sebold and Alan Fields

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Economic Rationale for Energy Efficiency

- ✎ The case for spending public funds on energy efficiency interventions is based on a mix of market failures, including externalities in energy markets as well as failures in markets for energy efficiency products.
- ✎ Even if markets for energy efficiency products and services were without failures, there would still be a case for intervention based on externalities.
- ✎ Cost-effectiveness analysis should focus on quantifying economic improvements in the markets for energy efficiency products and services, as well as valuing the avoided externalities in the energy market.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## The Role of Market Transformation in Energy Efficiency Policy

- ✎ Effective energy efficiency policy requires a balanced portfolio of intervention strategies, including infrastructure, research and development, resource acquisition, market transformation, and equity interventions.
- ✎ Market transformation may be an effective strategy if there are significant market failures in the market for energy efficiency products and services.
- ✎ The mix of the energy efficiency portfolio may vary across markets and over time.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## The Design and Economic Assessment of Market Interventions

- ✎ Design should involve the articulation of the logic of the initiative.
- ✎ Prospective cost-effectiveness analysis for resource acquisition and market transformation intervention should cover the expected levels and timing of energy savings.
- ✎ While the ultimate goal of infrastructure and research and development interventions is to reduce energy consumption, it may be difficult to isolate the impacts of these interventions.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Roles of Evaluation in Market Transformation

- ✎ A comprehensive evaluation design should integrate formative and summative approaches
- ✎ Both types of evaluations should test underlying logic of the intervention
- ✎ Summative evaluations should focus on impacts on adoptions and associated energy savings, as well as on other indicators of market effects
- ✎ Evaluation approaches should include market tracking, structure and function studies, and benefit studies

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Estimation of Market Effects

- ✎ Ultimate indicator of intervention market effects is still savings.
- ✎ Evaluation should encompass process evaluation (formative assessment), market tracking, and impact evaluation.
- ✎ Process evaluation remains important under market transformation strategies, although design may differ.
- ✎ Market tracking and performance indicators are even more important under market transformation.
- ✎ Impact evaluation has a different focus for market transformation than for resource acquisition.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## The Incorporation of Market Dynamics in the Evaluation of Cost-Effectiveness

---

- ✦ Estimation of market effects is a forecasting exercise.
- ✦ Planners/evaluators should use of formal dynamic models to represent the process through which interventions affect energy use.
- ✦ The design and implementation of reasonable dynamic models is not new, but formalizes program logic. Because it is not a traditional means of expressing program logic, it will take some time to implement.
- ✦ The dynamic model should be used as a framework for evaluating market effects as well as of redeveloping and testing alternative intervention tactics

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Key Elements of Market Transformation

---

- ▶ Address market barriers and opportunities
- ▶ Effect lasting changes
- ▶ Set long-term goals with near-term objectives
- ▶ Work with existing market channels
- ▶ Build on market trends
- ▶ Track market changes and progress
- ▶ Coordinate efforts to leverage maximum effect

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Market Barriers

There are many reasons why energy efficient products and services are not standard practice:

- ✓ Low energy prices, i.e., uneconomical or behavioral given perceptions about low prices
- ✓ Lack of product availability
- ✓ Customer confusion and lack of awareness
- ✓ Vendor and institutional practices
- ✓ Split incentives
- ✓ First cost orientation

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Set Long-Term Goals & Short-Term Objectives

- ▶ Establish multi-year goal for large, systemic change.
- ▶ Set near-term objectives tied to long-term goal (based on intervention logic and the story).
- ▶ Identify and track market indicators.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Set Long-Term Goals & Short-Term Objectives

Establish multi-year goal for large, systemic change:

Example: Residential HVAC

- ⇒ Permanently change the market to one where high quality installations (proper sizing, proper charging, proper air flow and minimization of duct leakage) of high-efficiency HVAC equipment (e.g., SEER 13+) are standard practice.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Set Long-Term Goals & Short-Term Objectives

- ▶ Set near-term objectives tied to long-term goal

Example: Residential HVAC

- ⇒ Increase consumer awareness of the benefits of high efficiency HVAC
- ⇒ Enhance HVAC contractor skills and tools
- ⇒ Enable customers to identify high quality HVAC contractors
- ⇒ Lower the incremental cost of high efficiency HVAC equipment & services

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Set Long-Term Goals & Short-Term Objectives

---

- ▶ Identify and track market indicators:

Example: Residential HVAC

- ⇒ Percent market share of program-qualified HVAC equipment.
- ⇒ Increase in consumer awareness of high efficiency HVAC equipment and services.
- ⇒ Industry supported certification program for quality, energy efficient HVAC contractors.
- ⇒ Number of qualified contractors.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Affect Lasting Change

---

- ▶ Test sustainability of the market changes.
- ▶ Seek to lock in market changes through:
  - ⇒ Industry standards and practices
  - ⇒ Building energy codes
  - ⇒ Appliance and equipment energy standards

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Work Through Existing Market Channels

---

- »»»→ Manufacturers
- »»»→ Distributors
- »»»→ Retailers
- »»»→ Contractors
- »»»→ Builders
- »»»→ Designers and Specifiers
- »»»→ Service Industries, Building Managers

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Build on Market Trends

---

- ▶ Conduct market research to identify:
  - ✓ Current status and penetration of energy efficient products, services, and practices
  - ✓ Customer values and needs
  - ✓ Product innovations
  - ✓ Market leaders

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Track Market Changes and Progress

---

- ⇒ Establish baselines of current practices and products
- ⇒ Assess the current market
- ⇒ Track indicators of market change and progress
- ⇒ Look for spillover effects
- ⇒ Update strategy and program

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Coordinate/Leverage Efforts

---

- ↘ Work with others.
- ↘ Adopt national programs (e.g., product standards, product marketing).
- ↘ Establish common goals and objectives.
- ↘ Eliminate competing programs (carefully).
- ↘ Conduct joint market research and evaluation.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Set Priorities: Pick the Winners

- ☆ Significant impacts
- ☆ Existing programs and momentum
- ☆ Opportunities in the market
- ☆ Practicality

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency

## Conclusions

- ▶ Market transformation is a strategic approach to create lasting improvements in energy efficiency.
- ▶ Focus on markets and work with market participants; identify strategic intervention points.
- ▶ Leverage your efforts and resources.
- ▶ Coordination and working together are key.
- ▶ Planning, market assessment, tracking, and evaluation are important.
- ▶ Set long-term goals and short-term objectives
- ▶ Create value for all partners and participants.
- ▶ Mix and match strategies to opportunities.

Northeast Energy Efficiency  
Partnerships, Inc. / Consortium for  
Energy Efficiency