Regional Roundup 2008

Regional Perspectives on Market Transformation and Climate Change Efforts

Marc Hoffman, CEE, Moderator

Ontario – Chuck Farmer, Ontario Power Authority

Midwest – Jay Wrobel, Midwest Energy Efficiency Alliance

California – Gene Rodrigues, Southern California Edison

Southeast – Ben Taub, Southeast Energy Efficiency Alliance

Southwest – Marc Hoffman for Howard Geller, Southwest Energy Efficiency Alliance

Northwest – Tom Eckman, Northwest Power and Conservation Council

Northeast – Sue Coakley, Northeast Energy Efficiency Partnerships

Topics of Discussion

- Status of Climate Change Efforts
- Impacts of Climate Change Policies on Energy Efficiency Programs
- Roles for Market Transformation
- Regional Prognosis: How market transformation will contribute to achieving climate change goals

ONTARIO

Perspectives on Market Transformation and Climate Change Efforts

Chuck Farmer

Ontario Power Authority

Status of Climate Change Efforts

Policies:

Go Green Ontario – June 2007

- 6%below 1990 levels by 2014, or 61 megatonnes.
- 80% below 1990 levels by 2050

Supply Mix Directive – June 2006

- Ontario target of 6300MW (25%) reduction by 2025
- 1350 by 2007, 1350 by 2010
- Expenditure of $1.25 billion – 2008 to 2010

Opportunities:

Conservation = approx 15% of short term CC target - Includes energy efficiency, demand response, self-generation & fuel switching

- Relying on all tools: incentive, information, price, regulation

Coal Phase out by 2014 = approx 50% of short term target

- Replaced by renewables, smart gas and conservation

Roles:

- OPA to plan & manage achievement of target
- Entire market is engaged in solution: government, supply chain, NGOs, customers

Status of Climate Change Efforts

Policy:

Federal ecoAction – April 2007

- Reduce 150 megatonnes by 2020

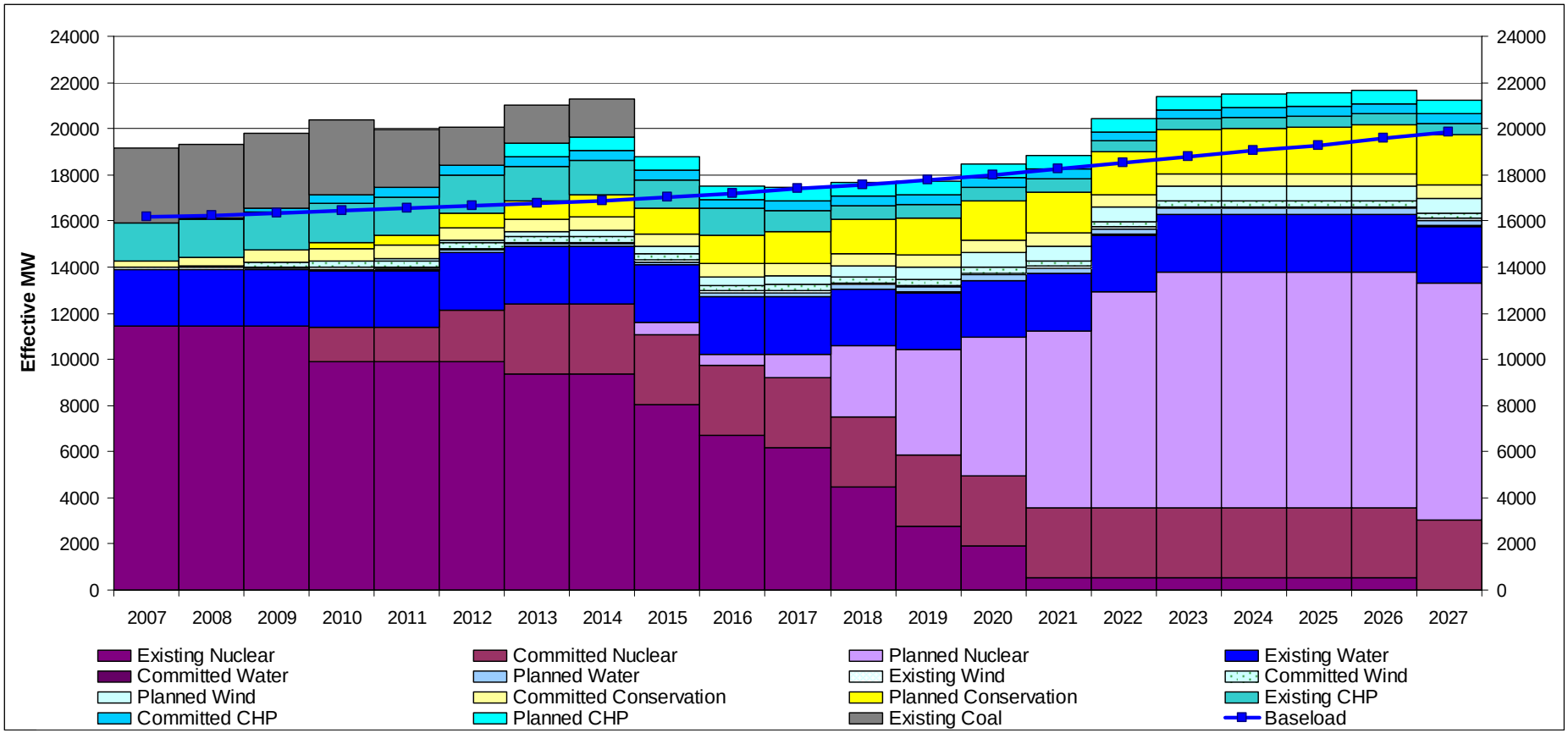
Opportunity:

- LFE Cap & Trade with offset – contribute 7% of Ontario's short term target
- Building codes and equipment standards
- Incentives & audits

Roles:

- Federal government has lead role
- Some overlap in targets and tools with provincial policy
- Efforts to coordinate federal and provincial efforts at all levels: Ministers of Energy, senior staff, and program staff

Existing Committed and Planned Baseload Resources by Type (Effective MW)



Impacts of Climate Change Policies on Energy Efficiency Programs

Ambitious conservation targets = 85% of electricity demand growth to be reduced

Creation of an institutional infrastructure to support conservation: create Ontario Power Authority; enable utilities to deliver conservation programs; and provide substantial funds for programs

Increased Ontario and Federal government willingness to use regulatory tools, especially codes & standards

Roles for Market Transformation

- MT key part of Ontario's long term electricity and climate change plan
  - Codes & standards = 40% of 2025 savings
  - Smart meters & time of use price = 6%
- OPA begins comprehensive MT Planning process in 2008
- Governments and utilities are working together to coordinate national MT strategies to achieve system reliability, climate change and other goals

My Prognosis: How market transformation will contribute to achieving climate change goals

Role of MT:

- Codes and standards will play an important role.
- If policy allows, price will be an important driver
- Also vital is creation of a Conservation Value Chain

What to do now:

- Establish market transformation objectives that are clear and easily understood
- Develop strategies to achieve these objectives
- Adopt market-oriented approaches
- Build capability to deliver conservation services, working with existing channels
- Build capability of customers to understand and adopt energy efficient practices

Midwest Roundup 2008

Midwest Perspectives on Market Transformation and Climate Change Efforts

April 1, 2008

The Source On Energy Efficiency

MEEA
Midwest Energy Efficiency Alliance

The Midwest is responsible for 5% of Global Climate Emissions

The Source On Energy Efficiency

MEEA
Midwest Energy Efficiency Alliance

Growing Carbon Emissions???

- Electricity prices continue to increase…
- Electricity demand across region continues to grow at between 1% - 2% per year
- In the Midwest, there are 42 proposed coal fired power plants!!!
  - 28,200 MW of coal generation
  - 236+ million tons of additional CO2 per year

The Source On Energy Efficiency

MEEA
Midwest Energy Efficiency Alliance

Midwestern Governors Association

- Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin as well as the Canadian Province of Manitoba
- Midwestern Regional Greenhouse Gas Reduction Accord
  - Establish greenhouse gas reduction targets and timeframes consistent with MGA member states' targets;
  - Develop a market-based and multi-sector cap-and-trade mechanism to help achieve those reduction targets

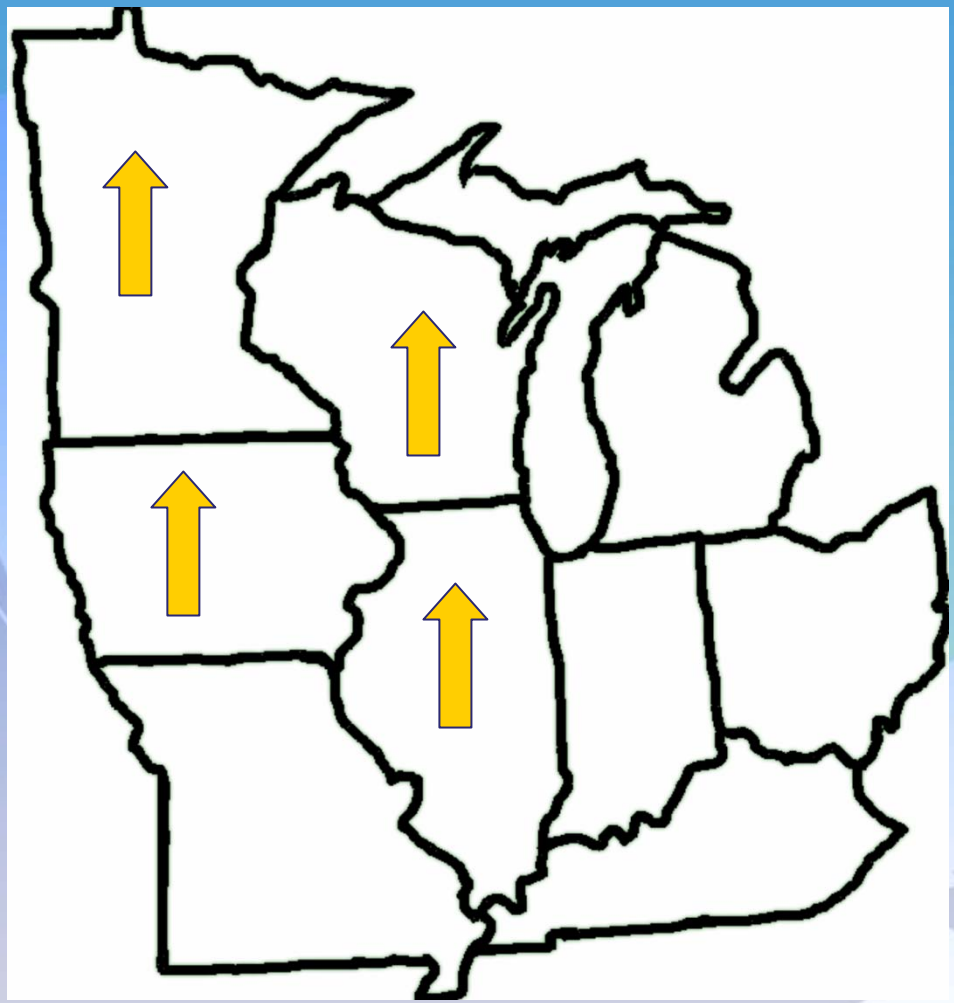
The Source On Energy Efficiency

MEEA
Midwest Energy Efficiency Alliance

MGA Built in EE Goals

- 2% of retail sales of natural gas and electricity through efficiency by 2015, and continue at 2% level thereafter
  - Policy Options
    1. Establish quantifiable state targets to reach regional objective
    2. Assess efficiency potential in states
    3. Require providers to make efficiency a priority
    4. Remove disincentives and enable cost-recovery
    5. Strengthen building codes, appliance standards, training, and enforcement
    6. Lead by example from the public sector
    7. Accelerate adoption of efficiency technologies in commercial and residential sectors, with assistance to low-income customers

Dramatic Funding Increase in EE



Current 2007 Funding

2007 – $300 Million

Projected Estimates

2008 – $460 Million

2009 – $708 Million

2010 – $860 Million

2011 – $985 Million

The Source On Energy Efficiency

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Midwest Energy Efficiency Alliance

Shift to Savings Goals

- Paradigm shift from spending goals to savings goals across the region
- EE % of Load = average of .8 – 1.4% escalating over the next 7 yrs
  - IA = 0.75% of annual electric load (0.83% gas)
  - IL = .2% up to 2%
  - MI = .75 to 1%
  - MN = 1.5%
  - WI = 1.2% of annual utility revenue

Minnesota

Next Generation Energy Plan adopted in May 2007

- Improves and restructures existing Conservation Improvement Plan (CIP)
- Previous legislation requires utilities to spend up to 2% of revenues on energy efficiency program investments
  - Estimated $98 million annual investment in 2007
- New Legislation requires 1.5% of annual gas and electric load to be met through efficiency
  - Estimated $180 million annual investment in 2008 & beyond
- 1000 new ENERGY STAR or LEED buildings by 2010
- Decoupling pilot program authorized

Illinois

Affordable Clean Energy Standards (ACES)
Bill incorporated into larger utility settlement

- EEPS – electric utilities required to meet a portion of their annual load through efficiency (0.2% in 2008 up to 2% in 2015)
  - $40 million in 2008, up to $260 million in 2011
- Administration split between utilities (75%) and state energy office (25%)
- Oversight by Illinois Commerce Commission
- Decoupling pilot okayed (Peoples Gas)

Michigan

Energy Efficient Michigan Act (proposed)

- EEPS – electric and gas utilities required to meet a portion of their annual load through efficiency (up to 1% in 2010)
- Oversight by the Michigan Public Service Commission (MPSC)

- In process with House working groups
- Politics might slow this one down…

Biggest Challenges

- Making sure the dramatic increase in funding for EE materializes into targeted savings and corresponding emission reductions
- Coordinating a regional campaign to maintain EE as a priority to meet a variety of goals
- Avoiding repeating the lessons learned of previous EE booms and instead leap-frogging over those lessons to bigger, better, more persistent savings

Thanks!

Jay Wrobel

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The Source On Energy Efficiency

MEEA

Midwest Energy Efficiency Alliance

CALIFORNIA

Regional Perspectives on Market Transformation and Climate Change Efforts

Gene Rodrigues

Director of Energy Efficiency

Southern California Edison

Status of Climate Change Efforts

- Assembly Bill 32, the **California Global Warming Solutions Act** of 2006, mandates that California reduce its greenhouse gas emissions to **1990 levels by 2020**
  - California Air Resources Board (CARB) is charged with monitoring and regulating sources of greenhouse gas emissions, including:
    - ✓ Adopting mandatory reporting regulations
    - ✓ Publishing a list of early actions
    - ✓ Developing a Scoping Plan as the vision for reaching the 2020 goal
    - ✓ Encouraging/quantifying voluntary early actions

- AB 32 requires **Scoping Plan** to be adopted by **January 1, 2009**
  - Will contain strategies California will use to maximize reductions in the greenhouse gases (GHG) that cause climate change
  - Draft Scoping Plan to be released for review and comment in June 2008
  - Will include a range of GHG reduction actions which can include:
    - Direct regulations
    - ✓ Alternative compliance mechanisms
    - ✓ Monetary and non-monetary incentives
    - ✓ Voluntary actions, and
    - ✓ Market-based mechanisms such as a cap-and-trade system

Status of Climate Change Efforts

- **CPUC Decision on GHG Regulatory Strategies** provides CARB with recommendations for policies and requirements for GHG emissions reductions from electricity and natural gas sectors
  - Electricity sector: All retail providers in California required to meet specific goals for energy efficiency & renewables
  - Electricity sector to include a multi-sector cap-and-trade system
    - ✓ Any entity that delivers electricity to the California grid should be responsible for compliance with Assembly Bill 32
  - Natural gas sector should not be included in cap-and-trade system
    - ✓ Natural gas sector GHG emission reductions should be achieved through the CPUC's current energy efficiency programs and development of new GHG reduction programs.

- These recommendations will be considered for adoption as part of CARB's 2009 scoping plan

Impacts of Climate Change Policies on Energy Efficiency Programs

- **California EE Strategic Plan**
  - "California's highest energy priority is to pursue cost-effective energy efficiency measures over both the short- and long-term."
  - "We expect that the Strategic Plan will identify … a "roadmap" of actions by the IOUs and other stakeholders needed to successfully implement the programmatic initiatives we adopt today. . ."
  - "[T]he strategic plans' scope by definition extends beyond the specific role of utility programs to include actors from other sectors (e.g., other government agencies, private building owners and industries, colleges and universities, etc.)"

- Goal = **EE is "Business as Usual"** by 2020
  - Integration – EE, DR, CSI, Low Income, and other DSM offerings
  - Innovation – Accelerate new efficient products and practices
  - Collaboration – Collaboration of energy stakeholders across the Western U.S.
  - Directional – Long-term focus on market transformation and codes & standards
  - Aspirational – Utilities will not be held responsible for attainment

Roles for Market Transformation

- **Portfolio Diversification** = Market transformation can be utilized as a long-term resource acquisition strategy

- **Behavior** = Transformation of the energy efficiency market requires changes in both energy user behaviors and the supply chain of services and products that end-users rely on to efficiently use energy.

- **Partner with Codes & Standards** = Market transformation should be a tool to ratchet up efficiencies, which are then “locked in” through aggressive codes & standards

My Prognosis: How market transformation will contribute to achieving climate change goals

- Three **"Big, Bold"** Programmatic Initiatives
  - Residential New Construction = **Zero Net Energy** by 2020
  - Commercial New Construction = **Zero Net Energy** by 2030
  - **Heating, Ventilation, and Air Conditioning** industry will be reshaped to ensure optimal equipment performance by 2020

- Three **Compelling Cases**
  - Cost
  - Certainty
  - Speed

SOUTHEAST

Regional Perspectives on Market Transformation and Climate Change Efforts

Ben Taube,

Southeast Energy Efficiency Alliance (SEEA)

Status of Climate Change Efforts

- North Carolina – 2007 REPS(12.5% renewable and efficiency portfolio standard)
- Florida – 2007 Suite of Executive Orders
  - Develop “cap and trade” rules that use markets to achieve greenhouse gas emission reductions.
  - Requires that all major emitters use The Climate Registry for purposes of emission registration and reporting.
  - Requires utilities to obtain 20 percent of their annual energy growth through efficiency and conservation measures.
- Virginia – 2007 Climate Change Commission (Executive Order 59)
  - Goal of reducing greenhouse gas emissions by 30 percent by 2025, bringing emissions back to the 2000 levels.
- Tennessee – 2008 Governor’s Energy Advisory Council
- South Carolina – 2007 Climate, Energy and Commerce Advisory Committee
  - Review technological advances relating to buildings, infrastructure, and energy sources that may create economic opportunities and enhance energy efficiency and independence.
- Local Cities – >138 Cities/Counties
- GA Forestry Commission

seea

Impacts of Climate Change Policies on Energy Efficiency Programs

- Florida –
  - Utility sponsored EE and RE Assessment Study
  - FPL – wind producer
- NC –Senate Bill 3 (REPS): Reduce energy consumption through the implementation of an energy efficiency measure and may meet up to twenty-five percent (25%) of the requirements through savings due to implementation of energy efficiency measures. Beginning in calendar year 2021 and each year thereafter, an electric public utility may meet up to forty percent (40%) of the requirements through savings due to implementation of energy efficiency measures.
  - Program such as Duke Save-A-Watt

seea

My Prognosis: How market transformation will contribute to achieving climate change goals

- EE will have to be a huge component for SE climate programs.
- Aggressive deployment of MT activities and technologies are vital to the SE.
- Climate programs and economic return on EE investments have to be paired.

seea

Report from the Southwest: Energy Efficiency and Climate Change Action as of 2008

Howard Geller

Presentation at 2008 Market Transformation Symposium

Washington, DC

April 1, 2008

Electric Utility DSM Funding in the Southwest Continues to Grow

State	DSM program budget (million $ per year)					
	2002	2004	2005	2006	2007 (est)	2008 (est)
AZ	4	4	10	19	32	42
CO	11	21	24	18	25	32
NV	3	11	14	30	38	54
NM	1	1	1	1	4	9
UT	9	16	20	25	30	33
WY	~0	~0	~0	~0	~0	1
Region	**29**	**54**	**70**	**93**	**129**	**171**

Source: SWEEP data

Energy Savings Are Growing Too

- Xcel Energy (CO) reducing electricity use by ~0.5% per year, planning to save 0.75% per year (from programs each yr)
- Rocky Mountain Power (UT) reducing electricity use by ~0.7% per year
- Nevada Power Co. (southern NV) reducing electricity use by ~0.8% per year
- Sierra Pacific Power Co. (northern NV) planning to reduce electricity use by ~0.9% per year starting in 2008
- All much greater than savings 2-3 yrs ago

Energy Efficiency and State Climate Change Strategies

- AZ, CO, and NM have state climate action plans and all assume more aggressive utility energy efficiency programs saving at least 1% per year
- But this has had limited influence on efficiency programs “on the ground” so far
- DSM programs still must be approved by PUCs and they are not necessarily bought into their Governor’s climate plan
- Xcel Energy (CO) is the only major utility that has proposed DSM expansion in context of helping meet state CO2 goals

Energy Efficiency and State Climate Strategies (cont.)

- Western Climate Initiative (WCI) developing a regional cap and trade program but implementation is years away
- Economic arguments and benefits still dominate in DSM policy debates
- Energy efficiency standards (energy savings requirements) and shareholder incentives are also important drivers
- Still no coordinated market transformation programs in the Southwest
- But EE progress in the region is strong!

Summary and Prognosis

- Projected load growth is still relatively high in the southwest region -- ~4%/yr in AZ, 2.7%/yr in UT, and 2.2%/yr in NV
- Building conventional coal plants is already difficult and getting more so
- Energy efficiency is the least-cost resource and is getting more attention and emphasis in utility resource plans due in part to climate change concerns
- Utility energy efficiency programs will continue to grow over the next few years

SWEEP:

Dedicated to More Efficient Energy Use in the Southwest

Resources available online at:

www.swenergy.org

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PACIFIC NORTHWEST

Regional Perspectives on Market Transformation and Climate Change Efforts

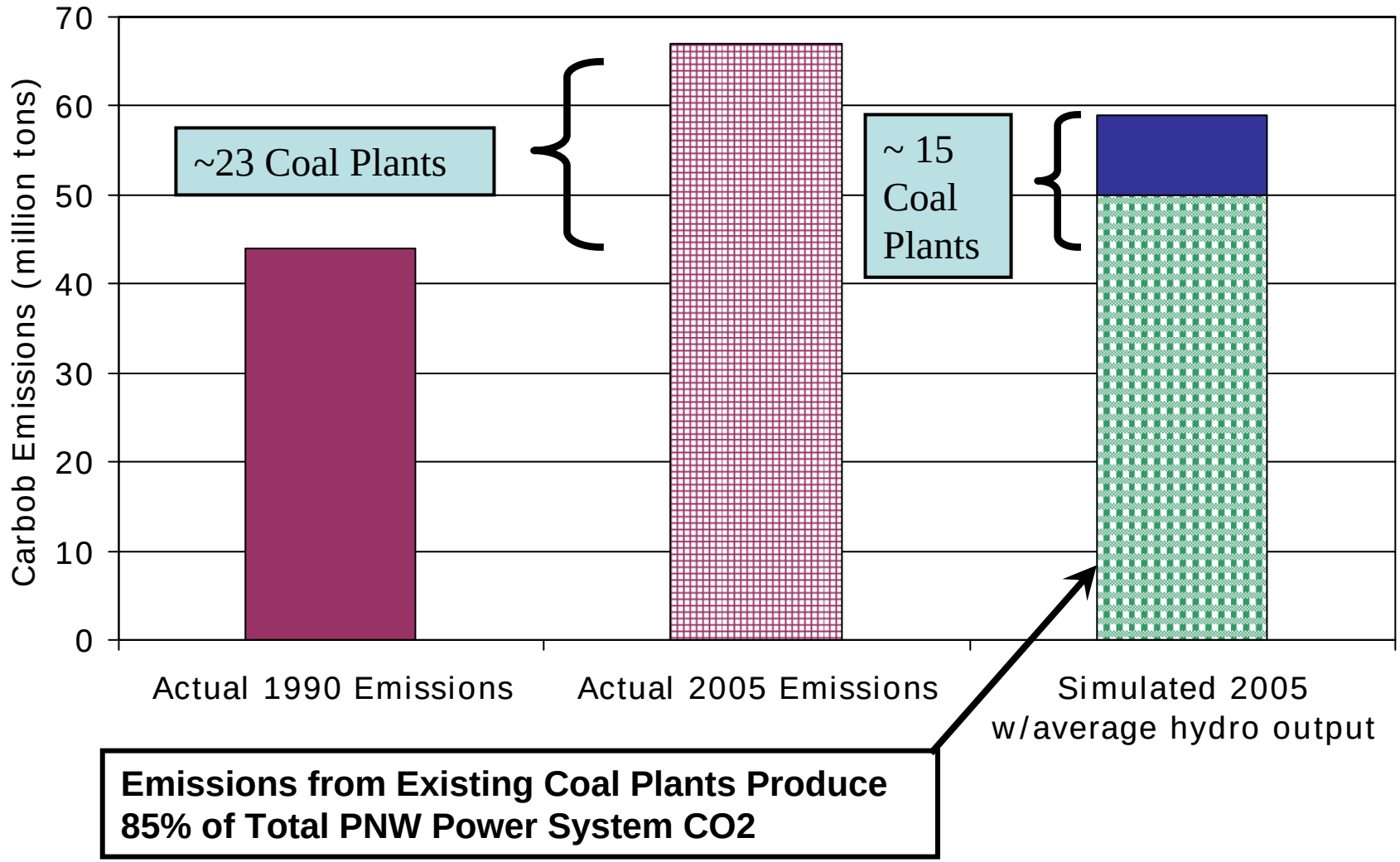
Tom Eckman,
Northwest Power and Conservation Council

Status of Climate Change Efforts

Western Climate Initiative (7 States, 2 Canadian Provinces)

- Policy Goal: Reduce carbon emissions 15% below 2005 levels by 2020
  - Establish “cap and trade” system
- OR/WA State Developing Climate Action Plans
- OR
  - Adopted RPS – 25% by 2025
  - Reauthorized SBC through 2020
  - Authorized IOUs to add to SBC if additional they find additional cost-effective efficiency potential available
- WA
  - Adopted RPS – 15% by 2020
  - Adopted Maximum carbon content/MWH
  - Requires utilities w/25,000 customers to acquire all cost-effective conservation over “rolling” 10-year period
- MT
  - Adopted RPS – 15% by 2015
- ID
  - Not member of WCI, Several communities (e.g.,Boise, Sandpoint) have climate action plans

Total PNW Power System Carbon Emissions Have Grown Significantly Since 1990



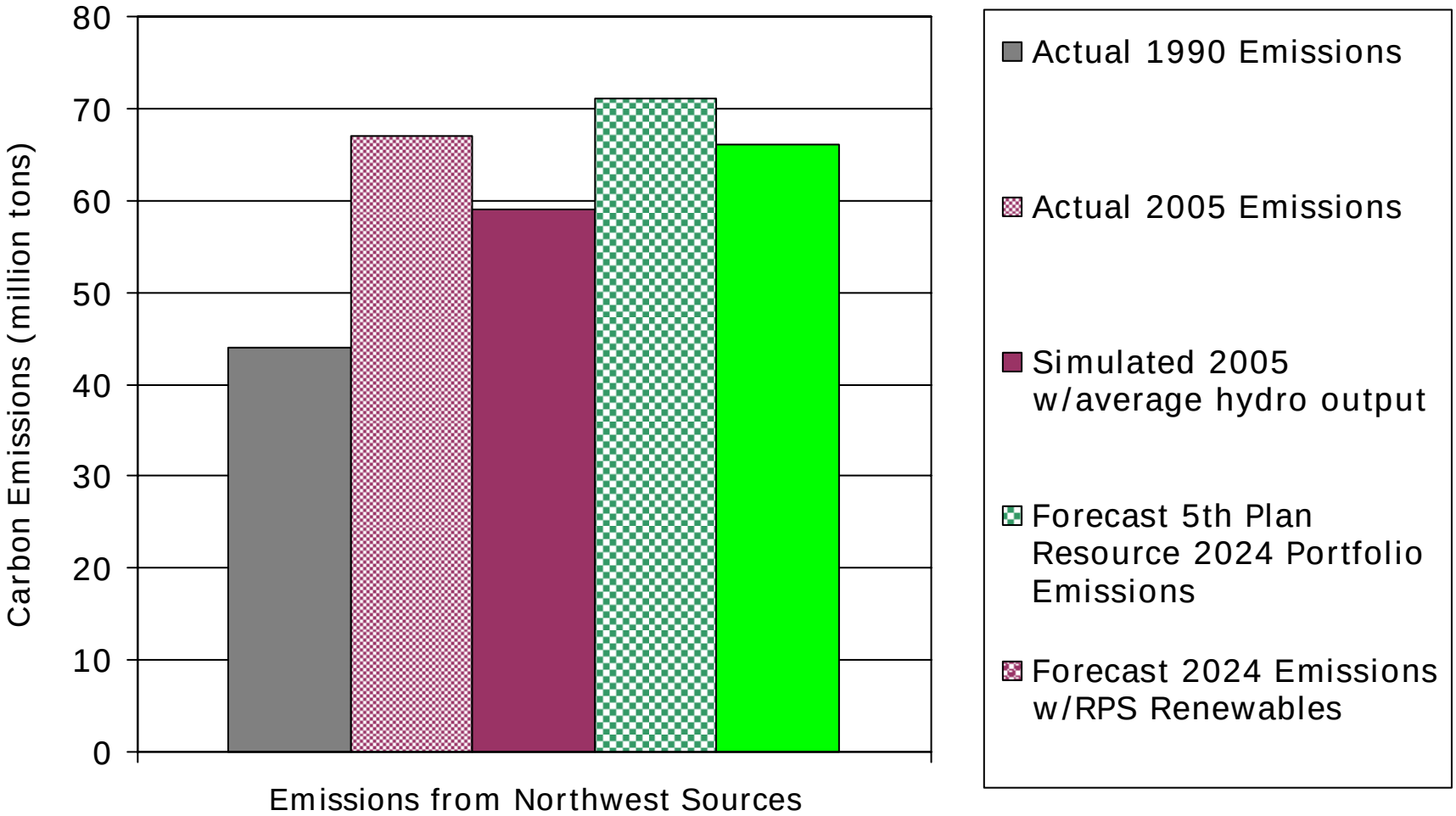
Impacts of Climate Change Policies on Energy Efficiency Programs

To Be Honest –

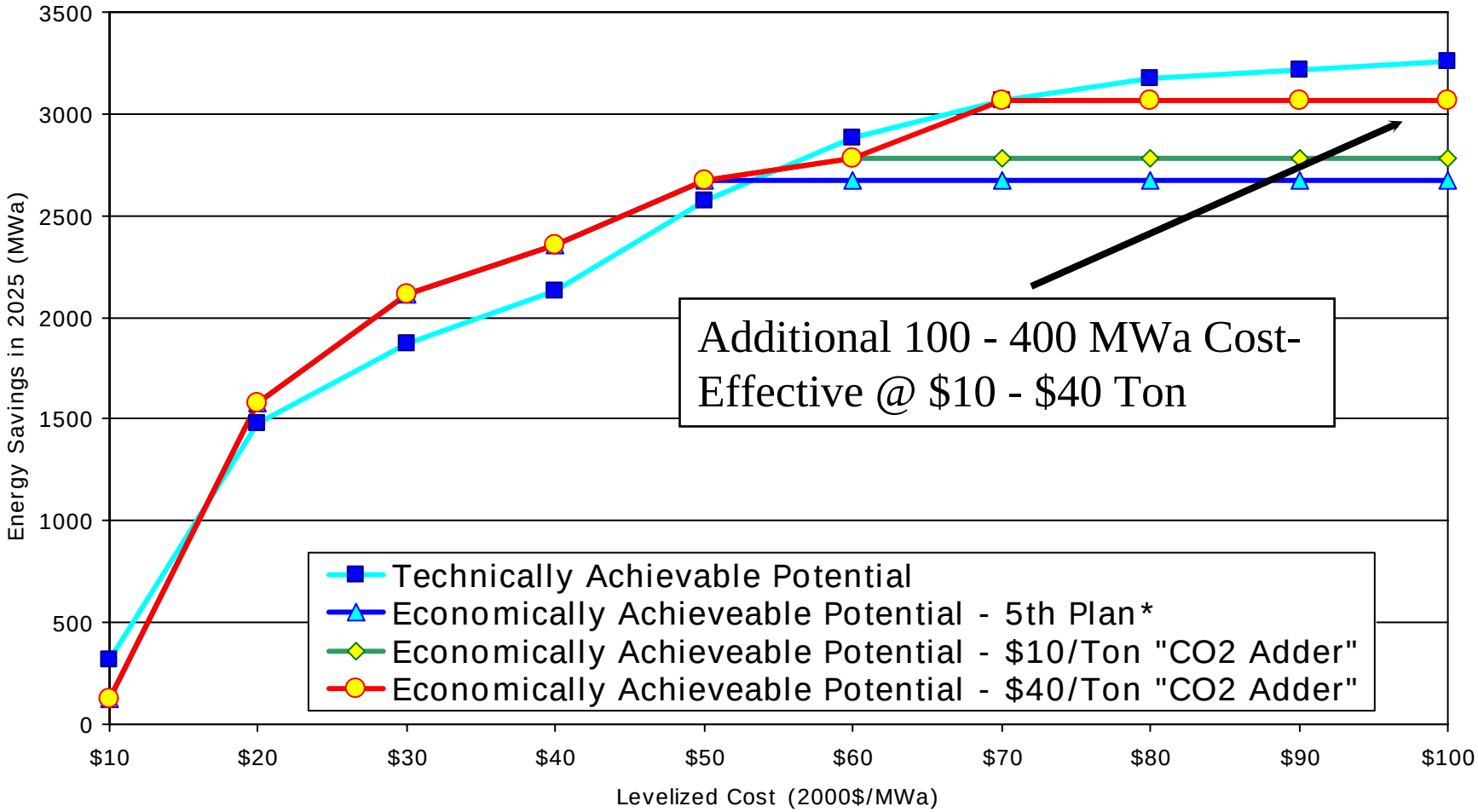
Climate Change Policies aren't driving PNW efficiency programs

But they sure are driving investments in renewable resources

Alternative Future PNW Power System Carbon Emissions



Carbon Control Might Make 4% to 15% More Conservation "Cost-Effective"



*Without "Certain" Carbon Control

Roles for Market Transformation

Businesses are beginning to recognized that carbon control is:

- Another *risk*
- A potential source of *revenue*

MT targeting, strategies and implementation must reflect both *motivations*

My Prognosis

The PNW will build on NEEA's past MT successes by focusing less on widgets and more on guiding business practices to reflect both the potential cost and the potential for profit created by climate action policies.

- Betterbricks: "Integrated building design" meets developers needs to cost-effectively/profitably "go green"
- Business practices: In addition to direct energy savings, incorporating energy efficiency's value as a *hedge* against "carbon cost risk" into business investment decisions increases its financial attractiveness

NORTHEAST

Perspective on Market Transformation and Climate Change Efforts

By Susan Coakley

Northeast Energy Efficiency Partnerships (NEEP)

Northeast Energy Efficiency Partnerships

Northeast Climate Change Efforts

The Regional Greenhouse Gas Initiative (RGGI)

- Regional Effort - 10 Northeast states – New England, NY, NJ, MD, DE
- Goal: Reduce CO_2 emissions using multi-state cap-and-trade program
- Mechanism:
  - ➔Require electric power plants to reduce CO_2 emissions to state-specific targets
  - ➔Employ market-based emissions trading system to start in 2009 – issue allowances

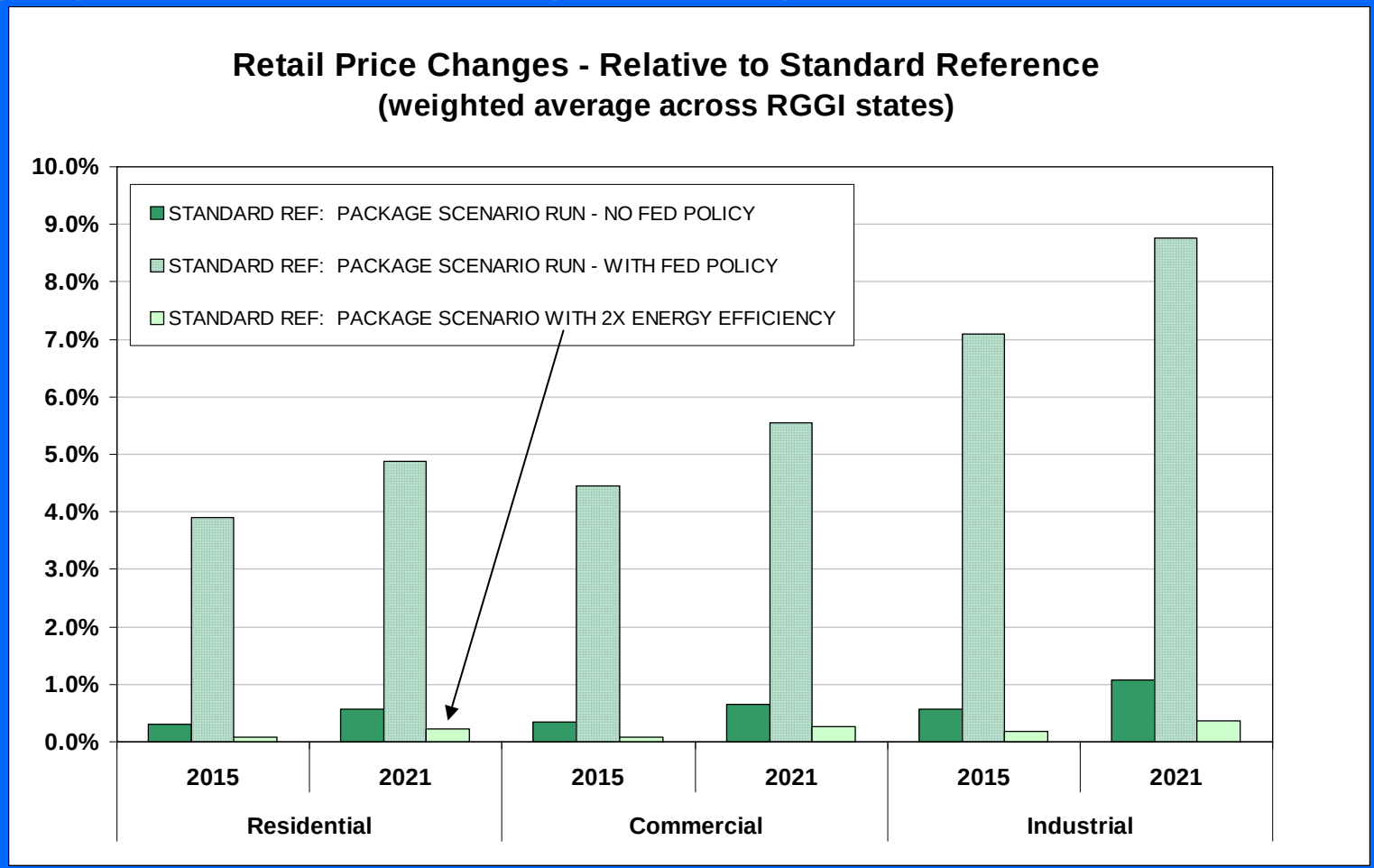
Increased Role and Funding for Energy Efficiency:

- ☆ Adopted with understanding that energy efficiency is cheapest strategy
- ☆ State MOUs ➔ CO_2 allowances fund **most** cost-effective measures, i.e., EE
- ☆ CT, ME, NJ, NY, RI, VT ➔allocated 100% of CO_2 allowance auction proceeds to consumer purposes, includes EE funding
- ☆ MA and NH likely to allocate 100% to consumers/EE (pending legislation)
- ☆ States not yet committed to exactly how much EE funding will be increased through RGGI auction proceeds
- ☆ Newly passed MD law ➔ allocates 2/3 of the initial auction proceeds to state and utility EE programs
- ☆ Initial auction price for allowances set at $1.89/ton of CO_2

Northeast Regional Greenhouse Gas Initiative

Energy Efficiency Rules the Day in RGGI Modeling:

REMI Modeling Results: RGGI auction proceeds that double EE programs $$ lowers retail price change + decreases customer bills.



From Petraglia and Breger, REMI Impacts for RGGI Policies, Nov 17, 2005.

Additional Northeast State GHG Goals

- **All Northeast states** (including MD, DE, and PA):
  - ✓ **Climate Change Action Plans** with goals to reduce GHG Emissions
  - ✓ **Rely on building energy efficiency as a primary strategy to meet GHG goals**
- Most state goals follow NEGC/ECP GHG goal – achieve:
  - ☆ **1990 emissions levels by 2010**
  - ☆ **10 percent below 1990 levels by 2020**
- Vermont has more aggressive goal - reduce GHG emissions to:
  - ☆ **25 percent below 1990 levels by 2012**
  - ☆ **50 percent below 1990 levels by 2028**
  - ☆ **75 percent below 1990 levels by 2050** if practical.
- MA, MD, NJ, NY, and VT have Executive Orders to reduce GHG emissions in state government
- Massachusetts Executive Order - state agencies to reduce their emissions by:
  - ☆ **25 percent by 2012**
  - ☆ **40 percent by 2020**
  - ☆ **80 percent by 2050**

Using EE to Reach GHG Reduction Goals

- **Northeast states recognize energy efficiency as an key strategy to achieve climate change action plan and greenhouse gas reduction goals**

- **Top Emissions Reducing Policies and Programs:**
  - High Performance building design guidelines for state facilities
  - Mandated residential and commercial building code upgrades
  - Progressive building code adoption
  - State agency procurement of energy efficiency goods and services
  - Expansion of energy efficiency programs to oil and natural gas sectors
  - Energy Conservation Loan Programs
  - Increasing distributed generation
  - Encourage residential energy efficient appliance upgrades or replacement

Climate Change Policies Are Not Lone Drivers for Additional Energy Efficiency

Additional energy efficiency policies and programs to *integrate and coordinate with GHG policies*:

- Mandates that DISCos procure all cost effective energy efficiency
- Building energy codes and appliance standards
- State and municipal procurement policies
- ISO New England Forward Capacity Market
- NO_x Emission reductions

Many different government entities involved:

- State energy offices
- Public utility commissions
- FERC/Regional transmission organizations (RTOs)
- Environmental protection agencies
- Facilities and capital management – focus on state facilities
- Legislatures – setting requirements for state building energy design and performance, procurement mandates, etc.
- State building code offices
- Municipalities

Multiple Policy Drivers and Funding Streams for Energy Efficiency

New England, New York, New Jersey, Maryland, Delaware	Highly Likely by 2010 46% increase	Possible by 2010 300%+ increase
Current Ratepayer Funding – Gas + Electric	**$735 million**	**$735 million**
Potential RGGI auction proceeds	**$300 million**	**$500 million**
Potential FCM proceeds (New England only)	**$2 million**	**$400 million**
New Electric Efficiency Ratepayer Funding	**$30 million**	**$800 million**
New Gas Efficiency Ratepayer Funding	**$10 million**	**$100 million**
Private Capital Sources	**??**	**??**
Total	**$1,077 million**	**$2,535 million**

Impacts of Climate Change Policies on Energy Efficiency Programs

Five Key Themes – *still emerging*:

- Shift to **Resource Acquisition Strategies**:
  - ❑ Achieve maximum impact ➔ lost opportunity programs (new construction and replacement markets)
  - ❑ Addition of discretionary retrofit – all sectors
  - ❑ Target high value areas – e.g., T&D constraints
- Emerging focus on **thermal efficiency measures** including oil-heated homes (an issue of particular import to the Northeast)
- Increased attention to **building energy code and appliance standards** to lock in market gains from program activity
- Interest in **emerging technologies and practices** ➔ still lacking funding for R&D other than NYSERDA
- **Community Partnerships** to engage broader participation in efficiency programs and reduce municipal energy costs

Roles for Market Transformation

- **Coordinate market transformation goals with regulatory policies to lock in market gains ➔set new baselines:**
  - ✓ **Progressive building energy code policy** – use "stretch code" appendix to set bar for ratepayer funded programs and state-funded construction
  - ✓ **State procurement and new building requirements** - align with ratepayer funded programs to increase market pull and transformation
  - ✓ **Appliance Standards** - build the market for new high-E technologies
  - ✓ **Time-of-sale energy performance requirements** – build market availability
- **Use retrofit strategies as market transformation driver:**
  - ✓ **Align technology-focused MT objectives with retrofit program design**
  - ✓ **Create new markets and new building trades** (e.g., Home Performance Contracting, building energy rating)
  - ✓ **Establish design and installation practices** as market transformation targets
  - ✓ **Widen the "net" of building trades** that push high-E products and practices (e.g., Smart Home, Smart Business).

How Market Transformation Will Contribute to Achieving Climate Change Goals: More – Better – Faster – Sooner!!

- Expanding MT focus **from technology-focused programs to whole building strategies** to address retrofit opportunities
- Focusing MT strategies to promote consistent **standard building efficiency requirements** (e.g., High Performance Schools, etc.)
- Employing **community partnerships** to build market participation
- Inviting more **strategic partnering with upstream market actors**
- Coordinating high-EE technology and best practices **with merchant ESCos** retrofit investment
- Using regionally **consistent evaluation, measurement and verification**
- Coupling Clean Tech workforce development with requirements for **certification to build capacities to deliver high-E solutions**
- Increasing funding for and focus on product **innovation, research and development**