

Connecticut's Energy Plan for Mitigating Transmission and Distribution Congestion and Pricey Power --- Energy Efficiency Programs

**NAESCO Sept. 19 Presentation
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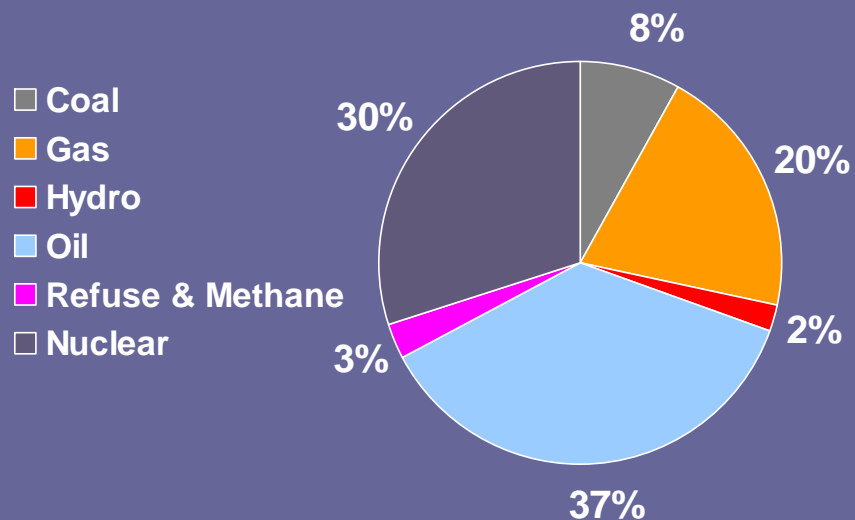
Connecticut's Energy Problem

- Significant increases in electric generation prices
- Primary Drivers:
 - Fuel price escalation
 - Strong correlation to natural gas prices
 - Inefficiency of the state's generation and transmission infrastructure
 - Inadequate transmission system limits the import of cheaper generation
 - Constraints exist that limit the flow of power from external sources
 - Resulted in Reliability Must Run Contracts with inefficient in-state generators
 - ISO-NE GAP program
 - Degrading load factor and increasing peak load growth (1.9%)
 - States electricity infrastructure needs to be upgraded to keep pace

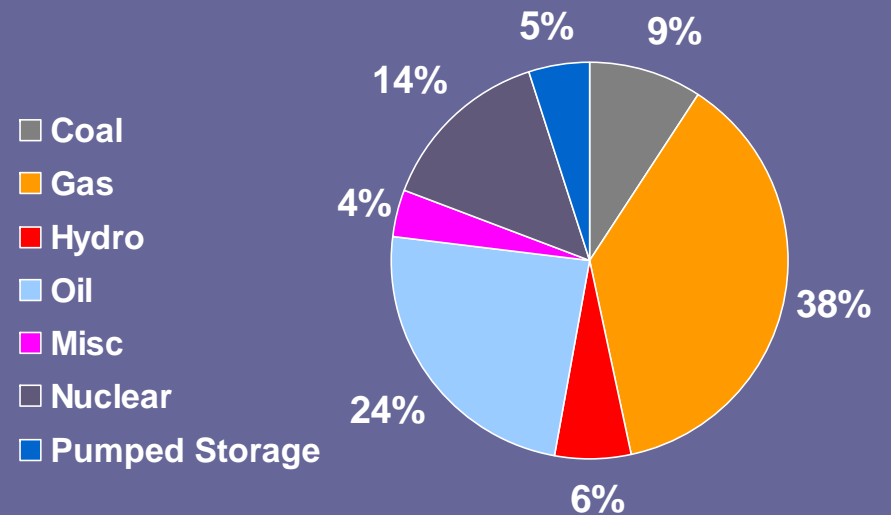


Connecticut's Generation Infrastructure

Connecticut Generation Fuel Mix



New England Fuel Mix



- New England's fuel mix is even more dependant on natural gas
- Connecticut faces potential retirement of older generating plants; new plants have not been built
- Connecticut has 912 MW of 40-year old oil-fired capacity; projected to reach 1,602 MW by 2011
- Generation vulnerable to long-term nuclear outages/disruption to natural gas supply



Connecticut's Energy Plan

- Transmission Projects
 - 2003 Bethel-Norwalk Transmission Line Certified by CT Siting Council (July)
 - 2005 Middletown-Norwalk Transmission Project Approved by CT Siting Council (April)
- Energy Legislation
 - 2005 PA 05-01 Act Concerning Energy Independence
 - 2007 PA 07-272 Act Concerning Electricity and Energy Efficiency
- Energy Efficiency Programs
 - (2002) CT DPUC directed CT utilities to focus on Energy Efficiency and Load Response efforts in Southwest Connecticut to reduce transmission constraints
 - 54 Towns w/increased marketing/enhanced incentives



Connecticut's Transmission Projects

COMPLETE

Bethel-Norwalk
345-kV underground
& overhead
\$350 Million

- 21 miles 345-kV (56% underground)
- 10 miles 115-kV (100% underground)
- **Completed October 2006 at a cost of \$340 million**

Glenbrook Cables
115-kV underground
\$183 Million

- 9 miles 115-kV underground
- Projected in-service date: 2008
- **Under contract – construction under way, 36% complete at 6/30/07**

50% of CT Load

Long Island Cable
138-kV cross-sound
\$72 Million (NU share)

- 11 miles 138-kV submarine cable
- Joint project with LIPA
- Projected in-service date: 2008
- **41% complete at 6/30/07**

Middletown-Norwalk 345-kV
underground & overhead
\$1,047 Million (NU share)

- 69 miles 345-kV (35% underground)
- 57 miles 115-kV (1% underground)
- Joint project with United Illuminating
- Projected in-service date: 2009
- **38% complete at 6/30/07**



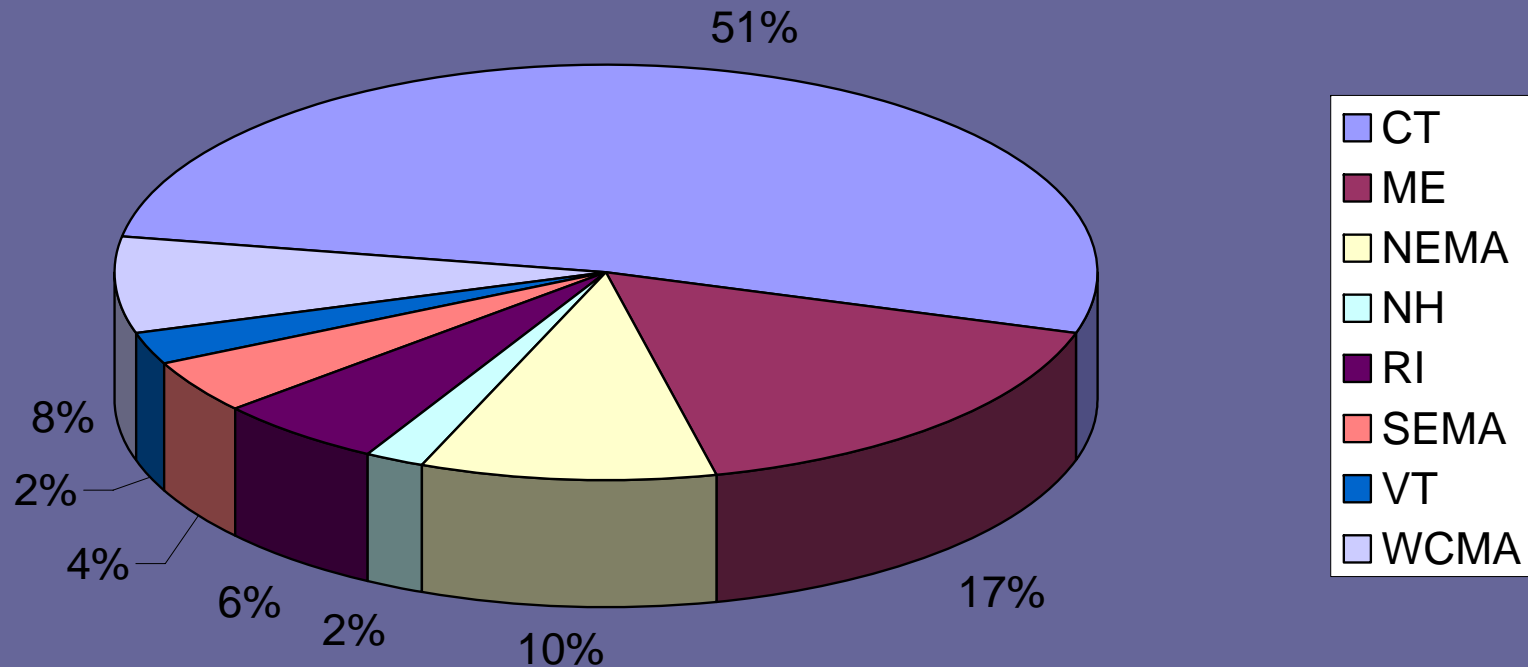
Connecticut Energy Legislation

- 2005 Energy Independence Act
 - Connecticut was first state to pass legislation on reducing Federally Mandated Congestion Charges (FMCCs) exacerbated by Locational Installed Capacity (LICAP) expectations
 - CT DPUC responsible to reduce FMCCs
 - Estimated \$0.5-\$1 billion/year for Connecticut customers
 - CT DPUC regulatory dockets addressed peak demand through
 - Additional energy-efficiency and load management programs
 - Customer incentives to install generation or reduce demand
 - Long-term financing for distributed resources
 - Distributed Resource Portfolio Standard (Class III)



Legislation Results

- More than 120% increase in Load Response capacity since September 2005 *

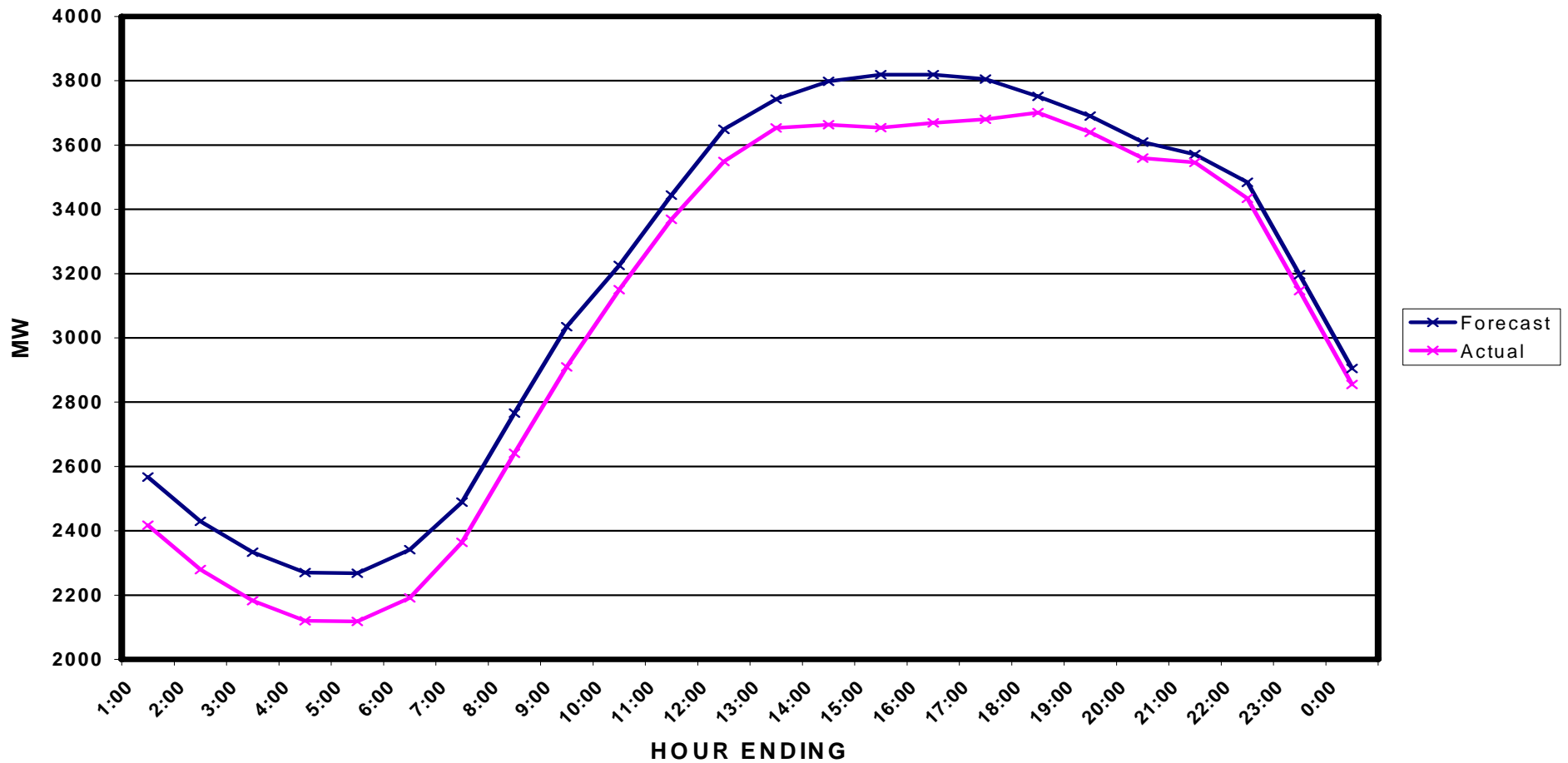


* As of August 31, 2007



Legislation Results

SOUTHWEST CT LOADS
August 2, 2006





Connecticut Energy Legislation

- 2007 Act Concerning Electricity and Energy Efficiency
 - Established initiatives/programs to reduce Connecticut's electric and power supply costs:
 - Energy efficiency
 - New generation
 - Renewable energy
 - Develop integrated resource plan—all cost-effective conservation
 - Restored full funding to Connecticut energy funds
 - ECMB & DPUC to review and approve technologies for a Electric Energy Efficiency Partnership program



Energy Efficiency

- Cornerstone of Connecticut energy policy
- State created Connecticut Energy Efficiency Fund in 1998 to provide cost-effective energy efficiency and load management programs
- CT DPUC responsible for approval of all CEEF programs
- ACEEE issued 2006 State Scorecard ranking all 50 states on energy efficiency programs
 - Connecticut was ranked NO. 1 (tie with California and Vermont)

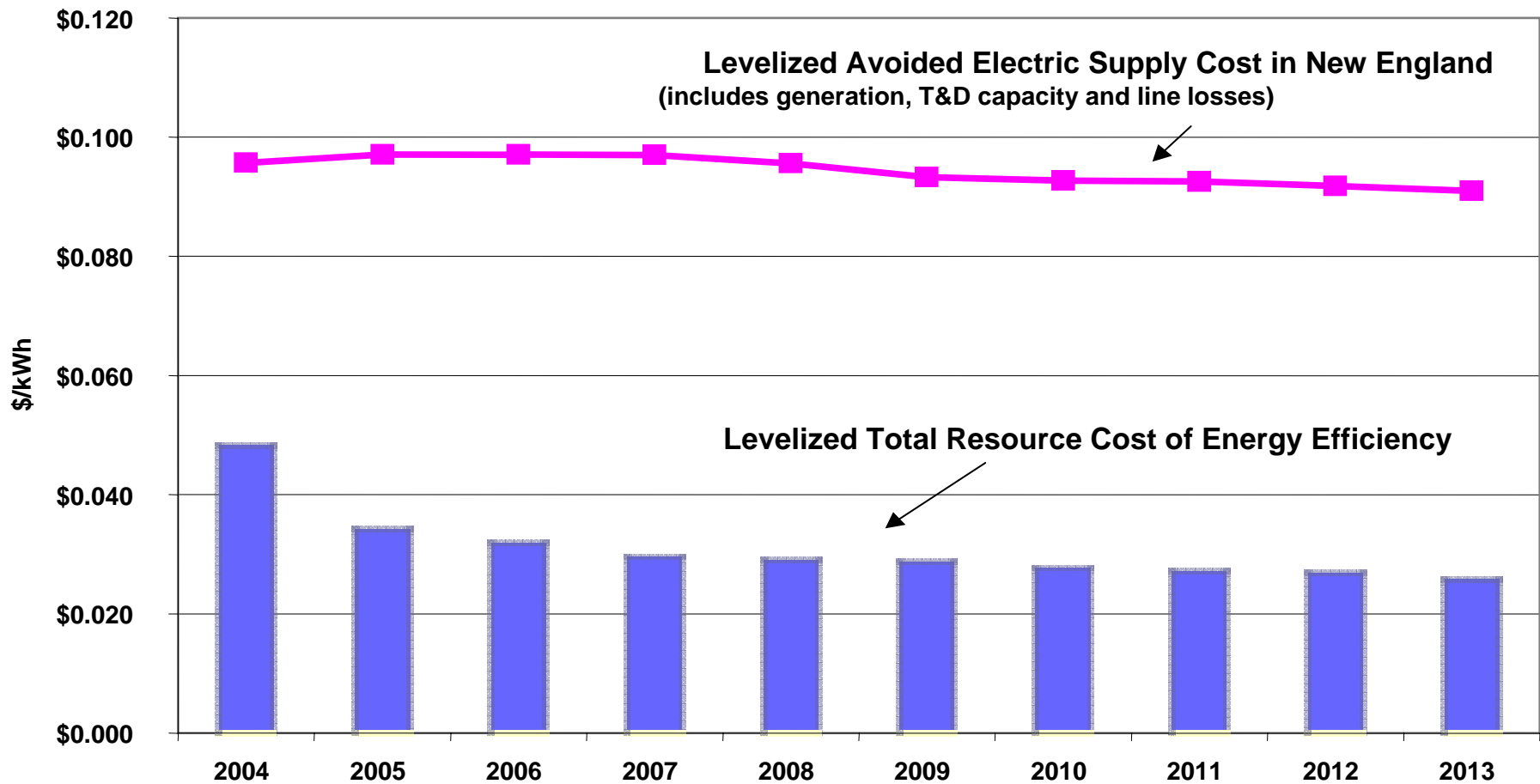


Vision for Connecticut's Business & Industrial Energy Future

- CEEF is evolving to support a sustainable and competitive business climate for Connecticut's business and industries based on bottom-line solutions for:
 - Economic competitiveness
 - Environmental stewardship
 - Energy security
 - Social responsibility
- Vision seeks to build on strong history of accomplishments by CEEF

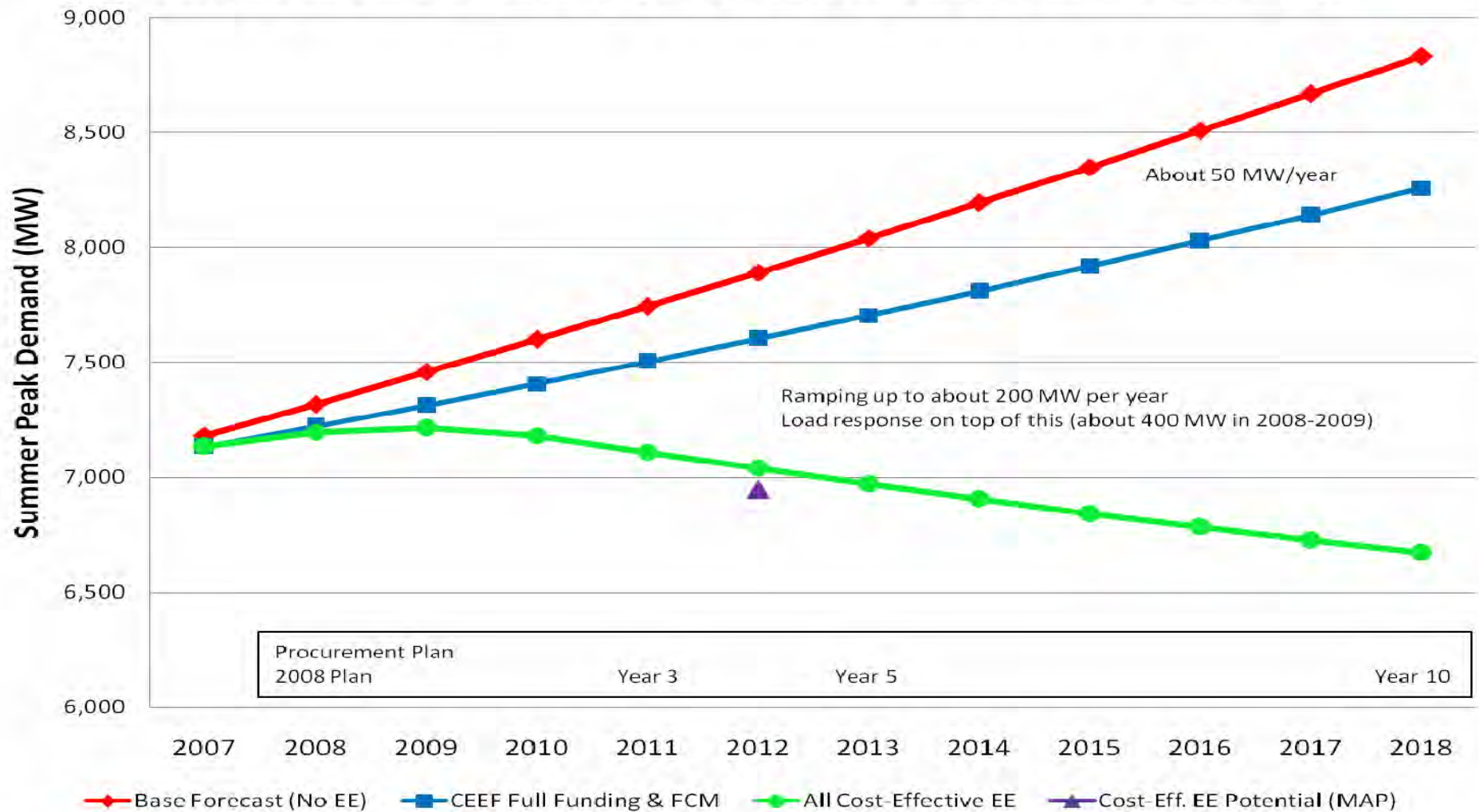
Energy Efficiency is 67% Cheaper than ANY other Supply Option

Source: NEEP



Energy Efficiency - Strategic Part of CT's Long Range Plan

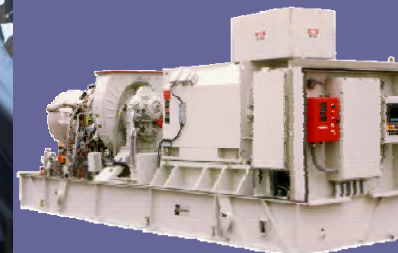
ECMB 2008 EE Planning Scenarios (Summer Peak MW)



Commercial & Industrial Program Offerings

- New Construction, New Equipment
- Retrofit
- Operations & Maintenance
- Load Response
- Distributed Generation

If there is a cost-effective energy-efficiency option or alternative—we likely can provide an incentive!



New Construction, New Equipment

- *CEEF funded programs can help if you are building new, making renovations, or adding equipment*

- Early involvement key
- Incentives address the incremental costs for the typically more costly energy efficient equipment

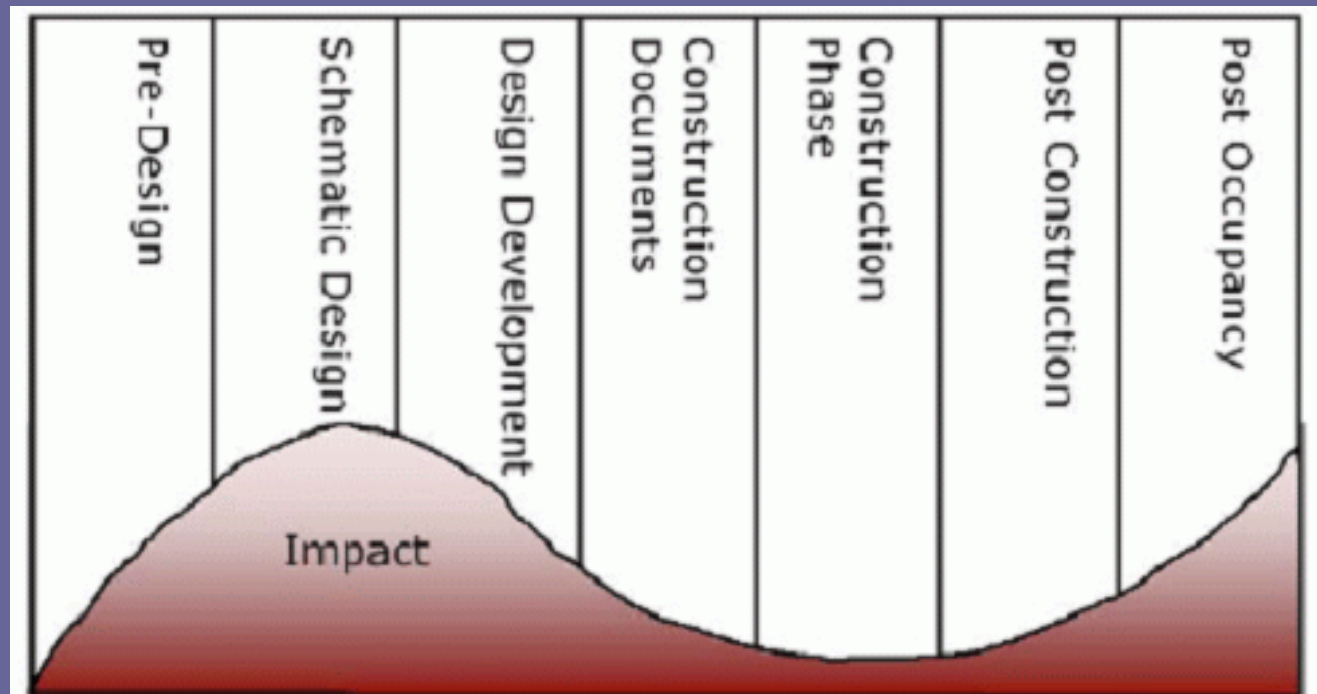


Figure 1 - Impact of Integrated Design Process



New Construction Typical Measures & Incentives

Measures

- Lighting and Lighting Controls*
- Refrigeration
- Variable Frequency Drives (VFDs)
- Motors/HVAC Systems
- Process Improvements

Incentives

- Prescriptive incentives are used when available; VFDs, Rooftop Units, Motors, Lighting Sensors (MotorUp and Cool Choice)
- Incentives can cover up to 100% of the incremental cost
- Lighting designs/installations that are >10% or >30% reduction from baseline can earn
 - 10% Reduction Incentives: Lesser of \$0.30/sq. ft or \$100/fixture
 - 30% Reduction Incentives: Lesser of \$1.00/sq. ft or \$100/fixture
- Occupancy sensors earn an incentive of \$20/ per fixture controlled
- Design professional incentives can earn a 4% bonus for qualifying projects based on incentive subject to measure value

*Lighting projects use watts/square feet calculations relative to ASHRAE baselines.

Retrofit Projects

- *Replacements and Retrofits*
- Replace Inefficient Building Systems
- Lighting System Replacements & Controls
- Heating & Cooling System Upgrades
- Building Control Systems & Repair
- Incentives Designed to Pay up to 50% of the Retrofit Cost





Retrofit Projects

Typical Measures

- Lighting and Lighting Controls*
- Motors
- HVAC Systems
- Compressed Air Systems
- Process Improvements
- Variable Frequency Drives (VFDs)
 - Redesign of existing lighting system must exceed code by 15%, use watts/sq. ft. methodology and scaled floor plans should be submitted
 - Redesigned installation must exceed ASHRAE 90.1-2001 w/addenda

Accelerated Chiller Retirement

- Projects must be submitted by September 30, 2007 and installed by April 30, 2008
- Incentive Guidelines (lesser of)
 - 75% of installed cost, \$600/ton cap or Measure cap
- Qualification Criteria
 - Only water-cooled machines
 - Minimum chiller age > 25 years
 - Must be operational and operate June-August from 1 p.m. to 5 p.m.
 - IPLV must be > 3% better than minimum allowed by code
 - Engineer/chiller manufacturing analysis must be provided
 - Any chiller under an existing LOA is ineligible



Comprehensive Retrofit Projects

Bonus Incentive may be available if:

- At least two measures and the measure are in at least two end uses
- The second largest end use must represent at least 10% of total project energy savings
- Savings from all measures can be combined
- Incentive will be lesser of:
 - Buy-down to a two-year payback
 - Utility Measure Cap
- Projects with a simple payback of less than two years, or more than 10 years, will not qualify for this bonus

Comprehensive Project Example

| Example Hospital Project (Lighting, Cooling, Motors, Controls) | | |
|---|---------------------------------|----------------------|
| | Individually Implemented | Comprehensive |
| Total Project Installed Cost for Eligible Measures | \$3.2M | \$3.2M |
| Annual Electric Bill Savings | \$749K | \$749K |
| Potential CEEF Incentive | \$1.1M | \$1.1M |
| Potential Comprehensive Bonus Incentive | N/A | \$587K |
| Simple Payback after CEEF Incentive if not performed comprehensively | 2.78 yrs 35.9% ROI | 2.0 yrs 50% ROI |

Example for illustrative purposes



Operations & Maintenance

- Improve electrical efficiency of equipment through changes/repairs
- Not intended for normal preventive maintenance, repetitive procedures for a customer on a regular basis, or to subsidize major equipment purchases

Typical Measures

- Compressed air system improvements (repair of leaks)
- EMS maintenance, i.e., replacement of defective sensors, relays and actuators, reprogramming
- Computer Network Energy Management Software

Incentives

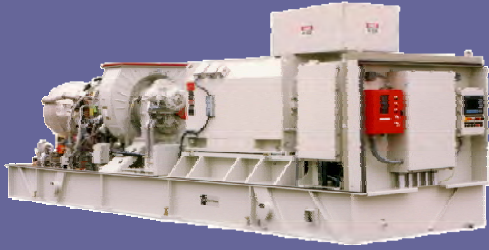
- Up to 50% of installed costs; 100% in Southwest CT towns

Multifamily Initiative



- Multifamily projects contain elements of commercial and industrial (central air systems, controls) and residential (appliance) sectors
- Incentives/rebates under existing programs are packaged by CL&P for your particular project:
 - New Construction
 - Retrofits
 - Low Income





Load Response & Distributed Generation

Incentives/Grants

- Load Response
 - Curtailment incentive payments up to \$80/kW-year
 - Respond with curtailment when called upon
- Customer Side Generation ≤ 65 MW
 - \$450 to 500/kW generator incentive*
 - Rebate of gas distribution charge
- Emergency Generation
 - \$200 to 250/kW emergency generator incentive for applications* received prior to 7/25/2007
 - Must enroll in ISO-NE Demand Response Program

* Additional \$50/kW only available for units operational before April 30, 2008

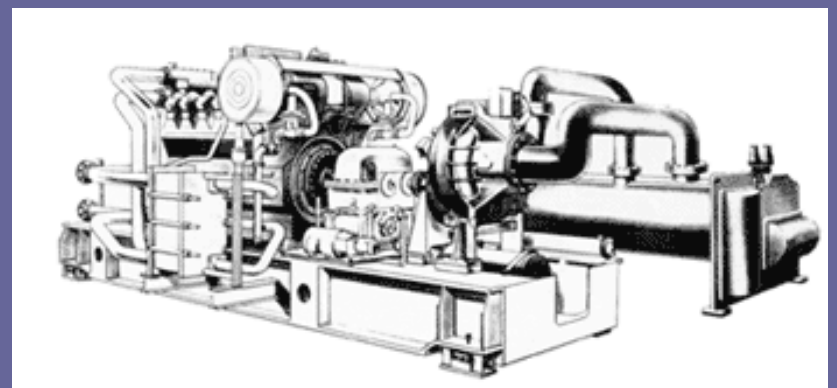
Energy Independence Act Gas Cooling Efficiency Pilot

Qualifying Projects

- Natural gas engine-driven chiller
- Implemented through new construction/retrofit programs
- Installed and operating by December 2007

Incentives

- Up to \$900 per kW saved

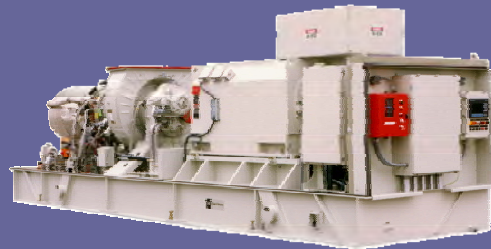


Distributed Resources Long-Term Financing Program

- 2005 Energy Act created long-term financing for customer-side distributed resources
 - Creation of customer-side distributed resources
 - Includes: distributed generation (CHP); emergency generation and energy efficiency
- Buy-down mechanism reduces effective annual interest rate to the prime rate
 - Total amount of financing for all projects (DG, EG, EE) will not exceed \$150M
 - Minimum size 50 kW to maximum size of 65MW
 - Loans provided by DPUC selected financing entity (Banc of America) with maximum term of 10 years
 - Fixed interest rate
 - Project financing is for capital costs and project development costs

Summary

- In a preliminary ballot, New England's power industry players have voted to keep the state in the New England price zone (avoiding a higher price zone), because recent state efforts have succeeded in substantially cutting demand in Connecticut and increasing generating capacity
- Keys to reducing transmission congestion charges and energy costs are
 - Transmission
 - Infrastructure (contractors, ESCOs)
 - Support of energy legislation
 - Energy efficiency and Load response programs



Questions?

- Call 1-877-WISE-USE (877.947.3873)
- Internet: www.cl-p.com

