



Connecticut Department of Energy and Environmental Protection



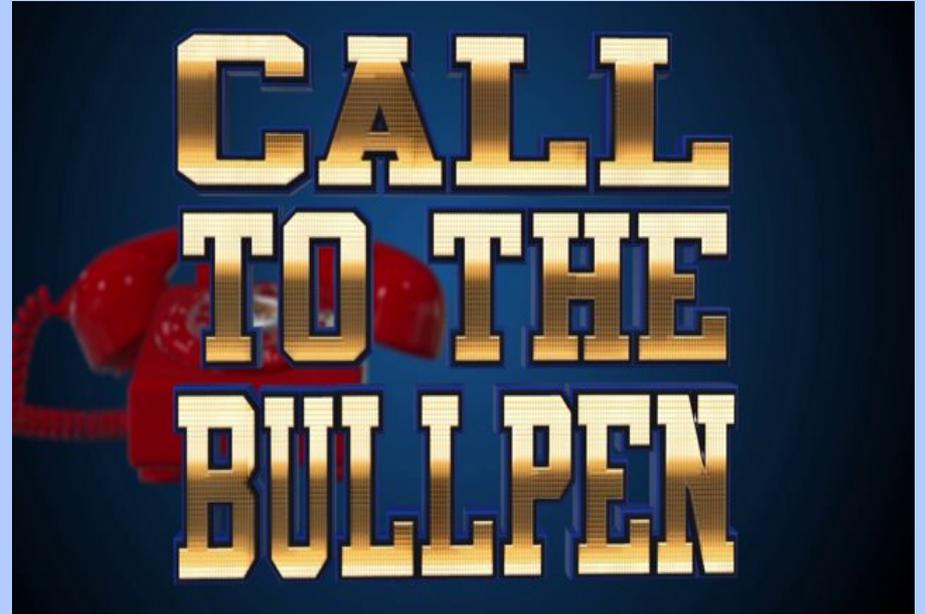
Overview of Draft Connecticut Integrated Resource Plan

January 2015



Connecticut Department of Energy and Environmental Protection

Emergency Start



Tracy Babbidge apologizes for not being able to be here today.

Introduction

- Over the last several years the Connecticut Department Of Energy and Environmental Protection has advanced an a comprehensive strategy for securing, cheaper, cleaner, more reliable energy. These programs have been highly effective at achieving the goals they were set out to do.
- Unfortunately, Connecticut ratepayers are being affected by critical developments in New England's wholesale electricity markets that are challenging the affordability and reliability of the region's electric system.
- The 2014 IRP analyzes these trends in the region's electricity system over the next decade and makes eight key recommendations. These recommendations meet the state's electricity needs in a way that provides affordable electricity to Connecticut customers over time and creates consumer benefits consistent with the state's environmental goals and standards.

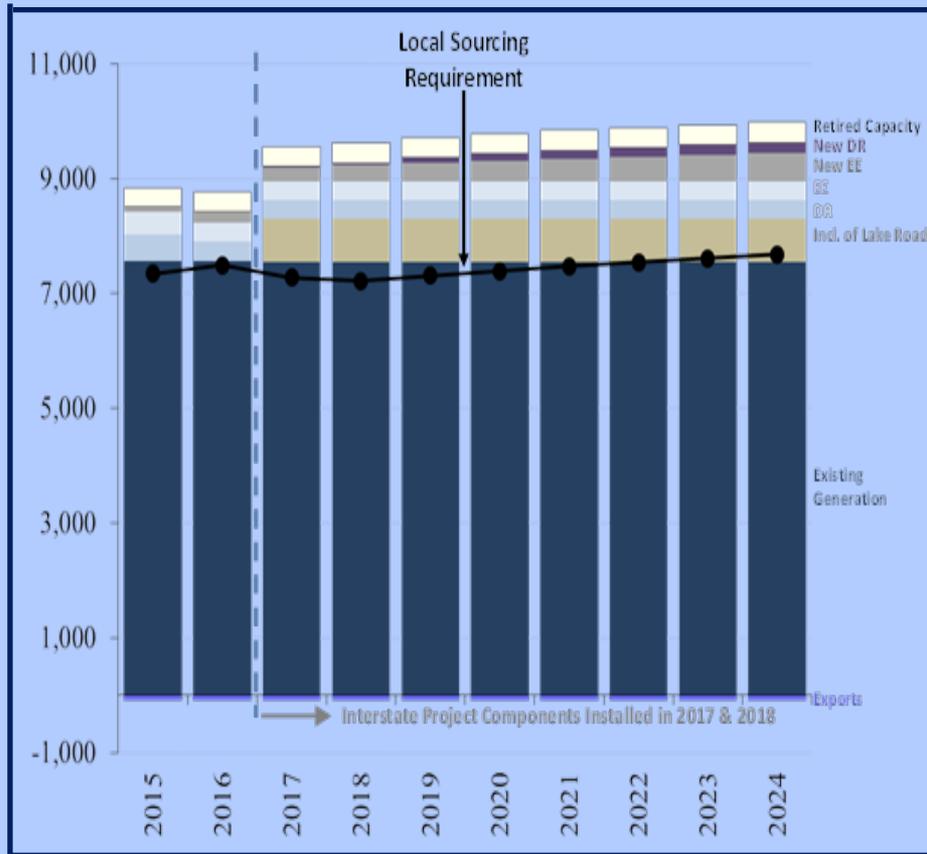
The Regional Trends



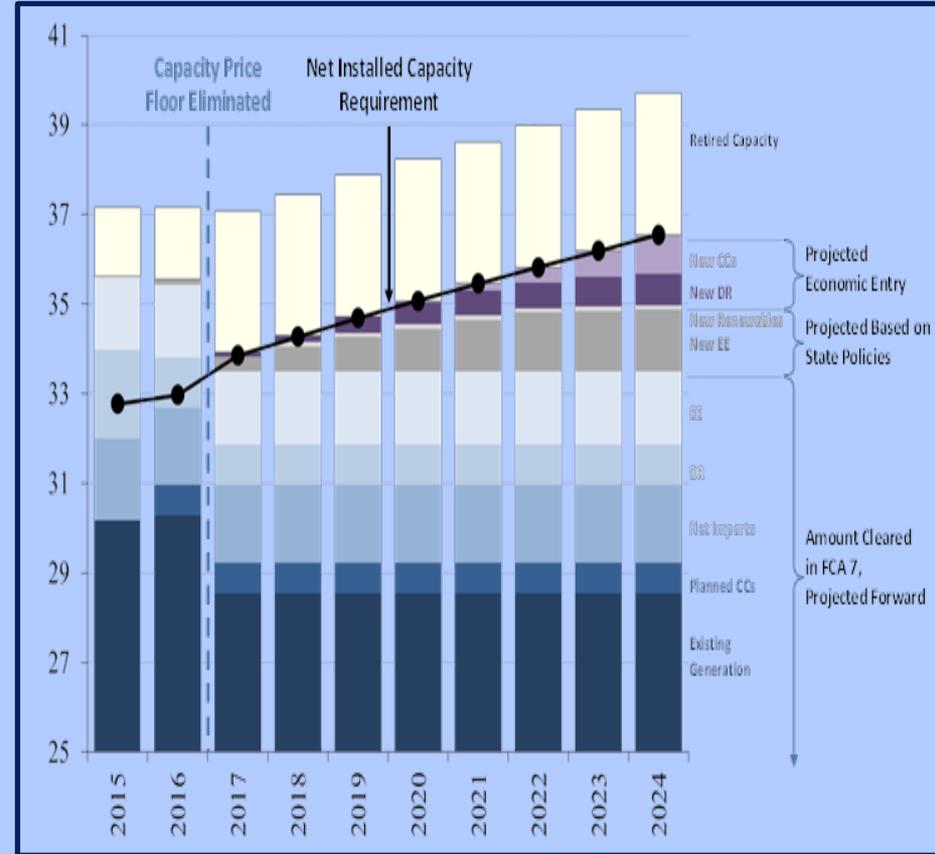
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Generation Resource Adequacy

Locational Resource Adequacy in Connecticut (MW)



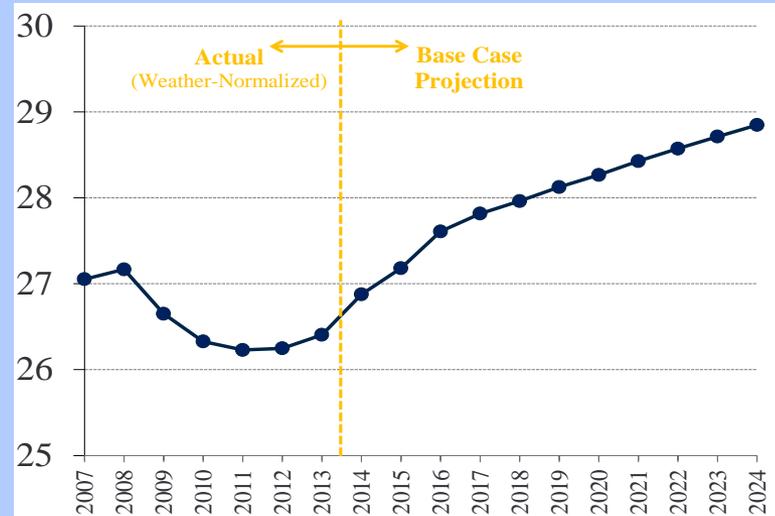
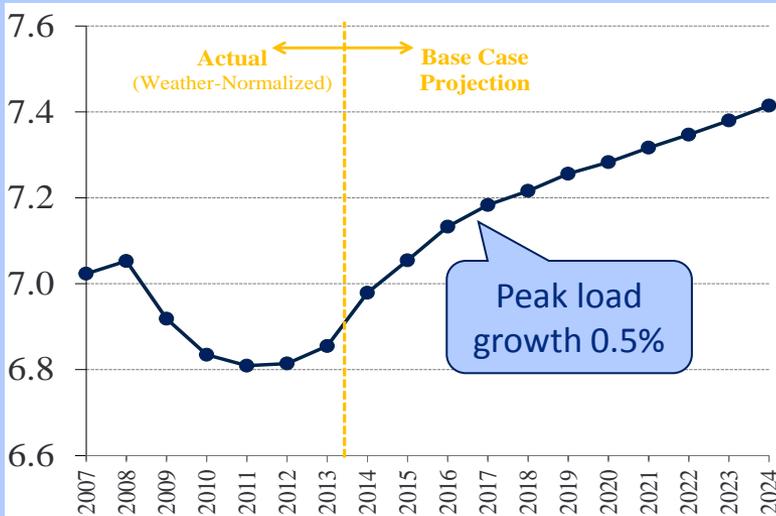
Regional Resource Adequacy in New England (GW)



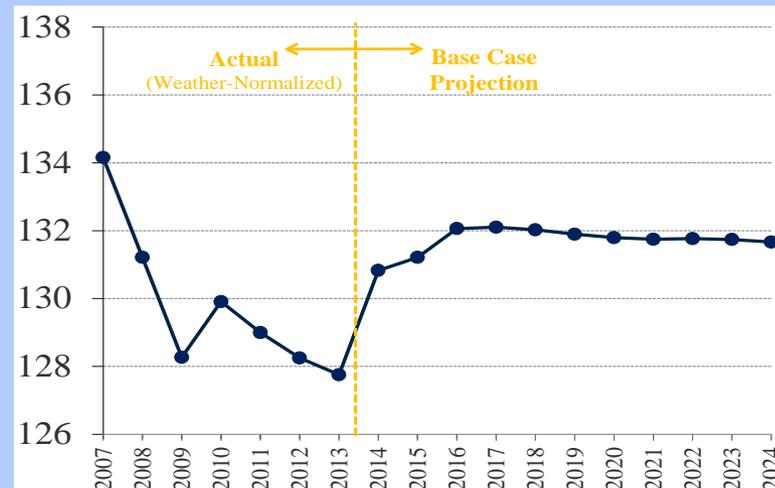
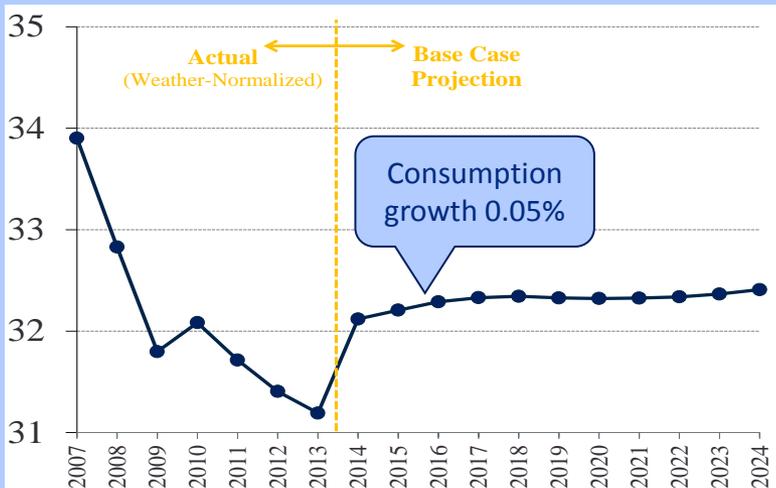
- Connecticut has adequate resources to meet needs through 2024
- New England needs new capacity by 2017

Effective Energy Efficiency Programs

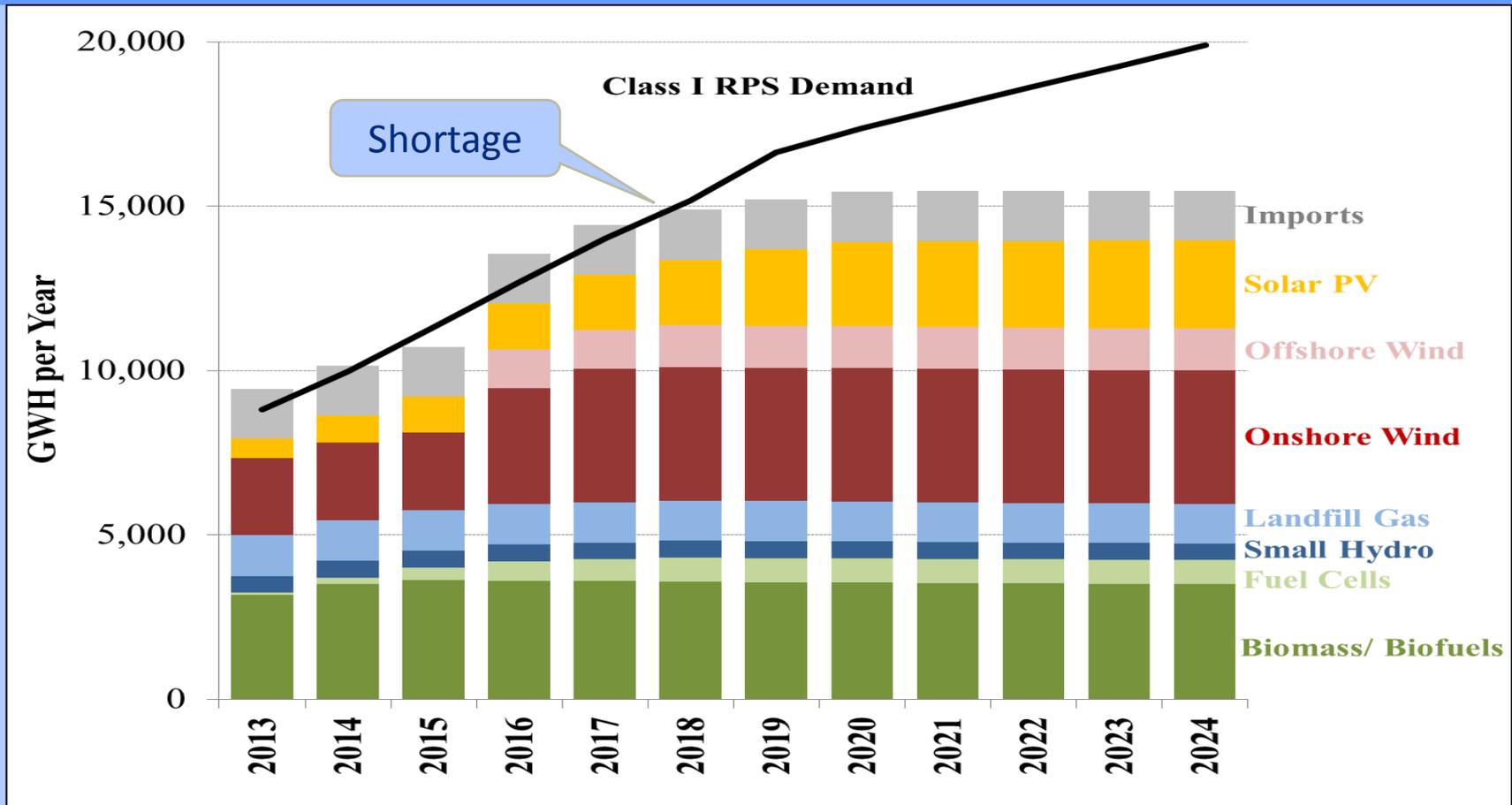
Peak Load (net of Energy Efficiency) — Historical and Projected Connecticut (GW) New England (GW)



Annual Energy Consumption — Historical and Projected Connecticut (TWh) New England (TWh)

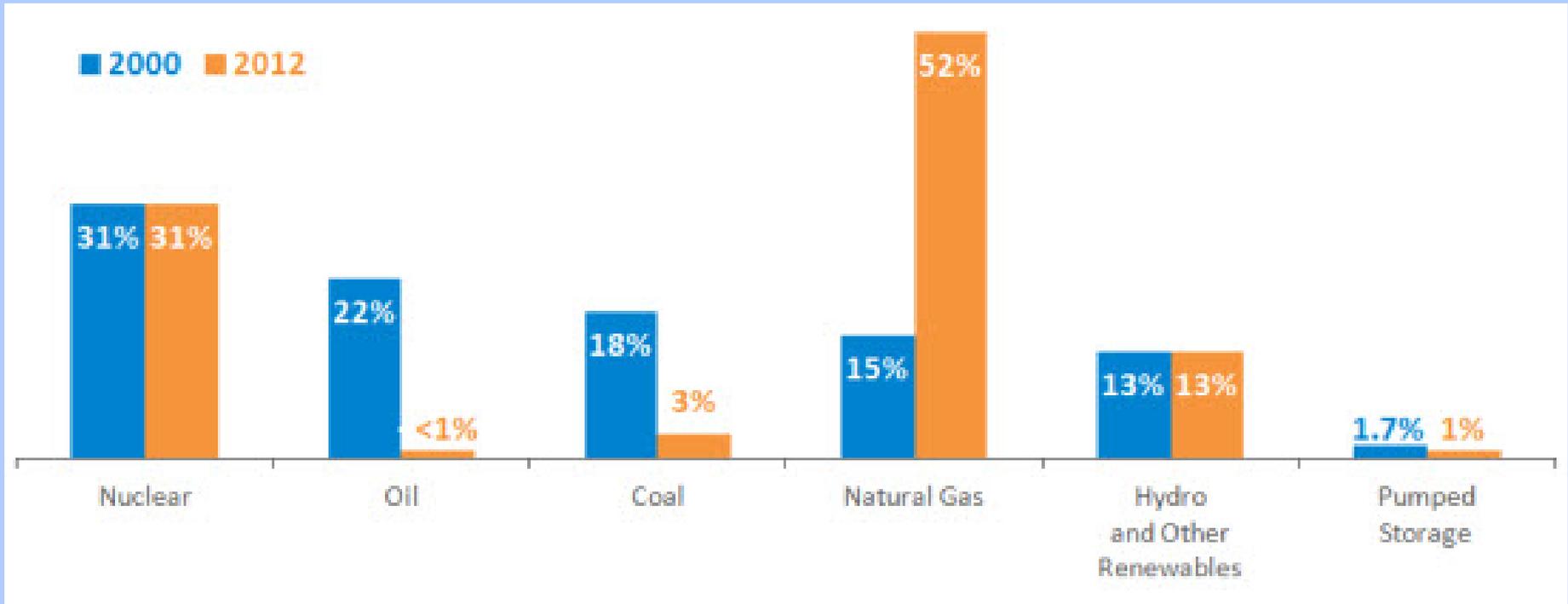


New England Class I Renewable Resource Supply and Demand Balance



- Since 2011, Connecticut has taken a proactive approach in meeting its renewable energy commitments
- Potential upcoming shortage (still some potential under existing authority to fill some of the gap)

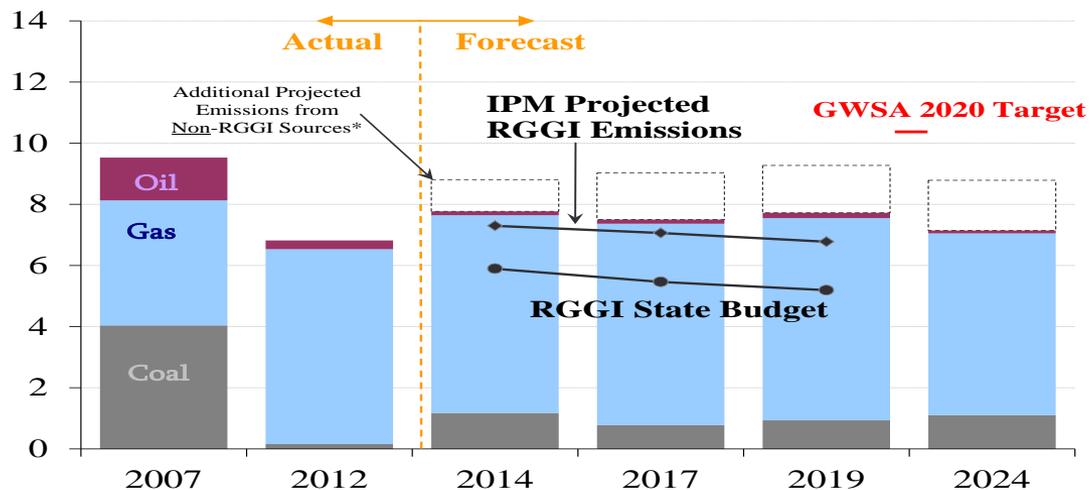
Recent Shift in Generation Fuel Source



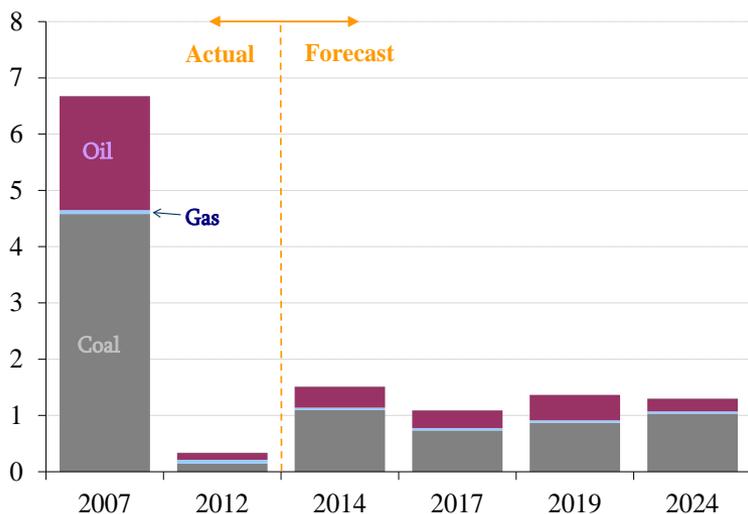
- Approximately 50% of generation is now natural gas
- Oil generation is now less than 1%
- Coal generation is now 3%

The Good: Pollution Reduction

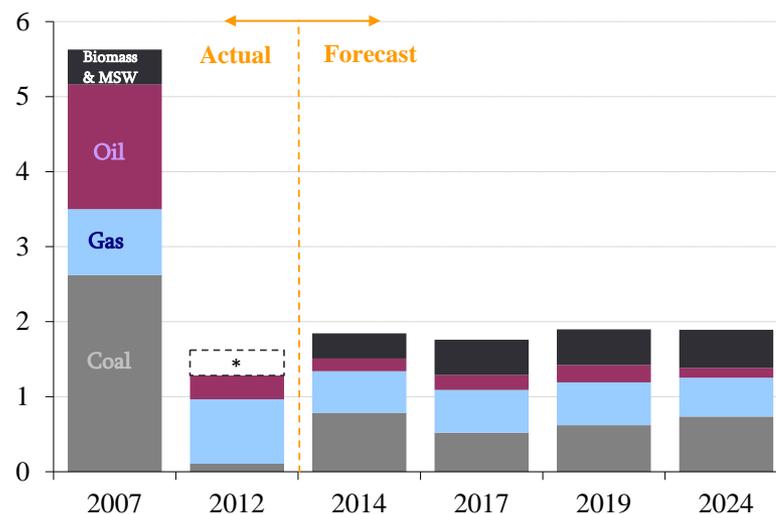
Annual CO₂ Emissions, 2007-2024 (million tons)



Annual SO₂ Emissions, 2007-2024 (thousand tons)



Annual NO_x Emissions, 2007-2024 (thousand tons)





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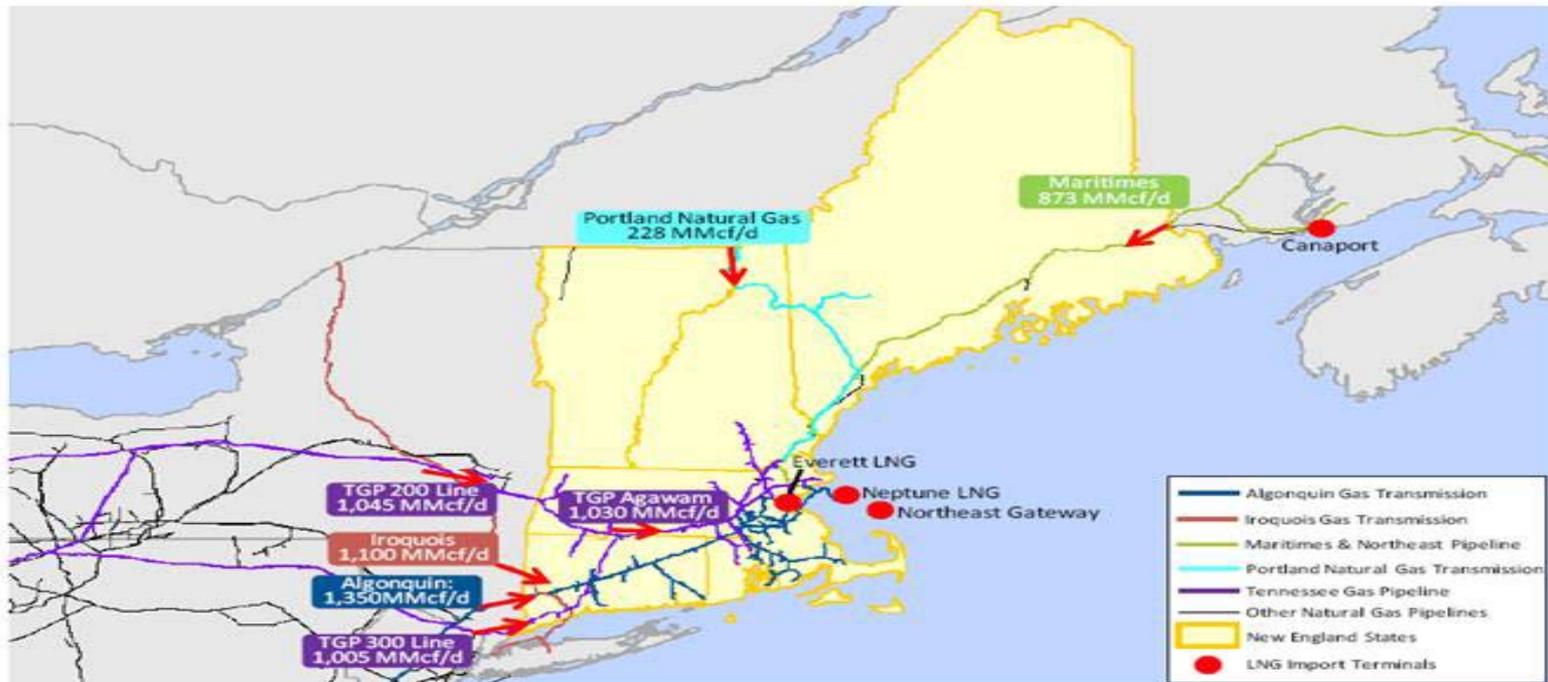
The Eight Key IRP Recommendations



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A Regional Solution

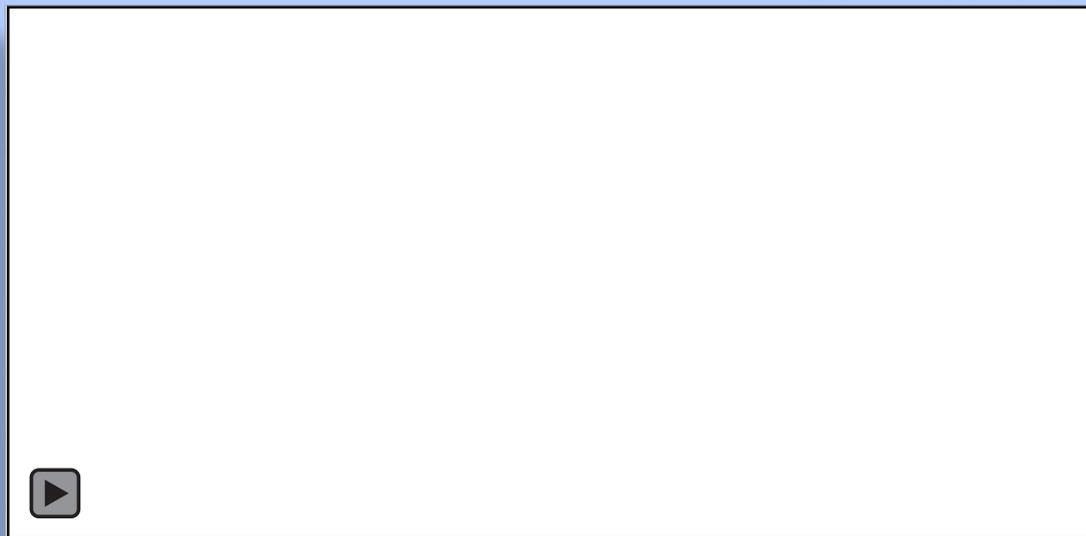
New England Natural Gas Infrastructure



Source: Energy Velocity, LCI Energy Insight, Pipeline Electronic Bulletin Board Data

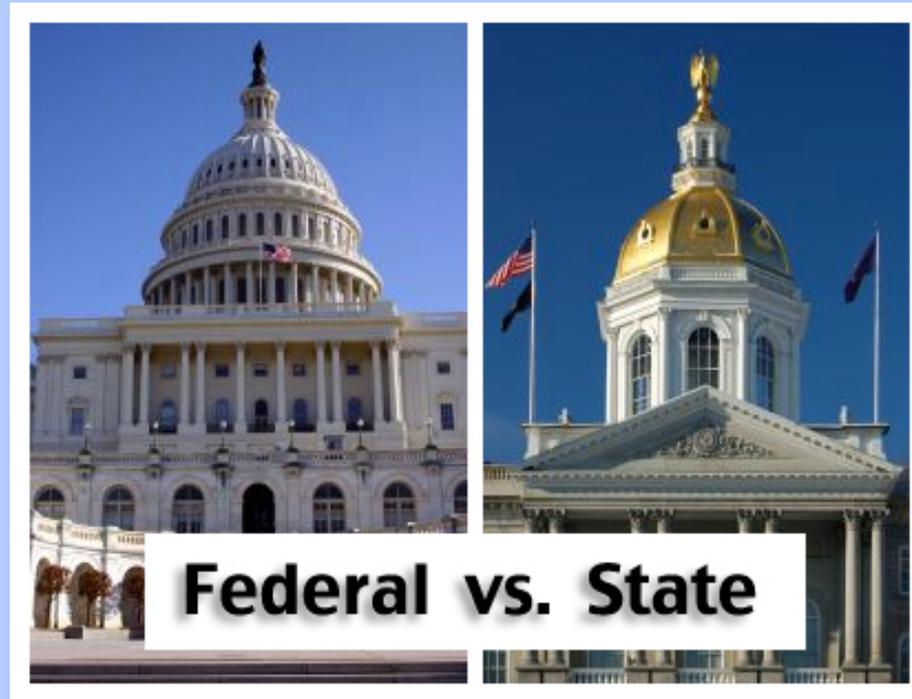
- No one state can solve the natural gas supply infrastructure alone.
- The region needs to add approximately 1.0 Bcf/day of natural gas capacity, or the equivalent in 5,000 MW of non-gas fired generation or demand reduction to address the steep winter prices caused by natural gas supply constraints.
- The IRP recommends the department procure renewable energy and seek new legislative authority to run a competitive procurement that can cost-effectively resolve the gas infrastructure constraint, up to an amount that is proportional to Connecticut's share of regional electric demand.

Continue to Invest in Cost-Effective Energy Efficiency



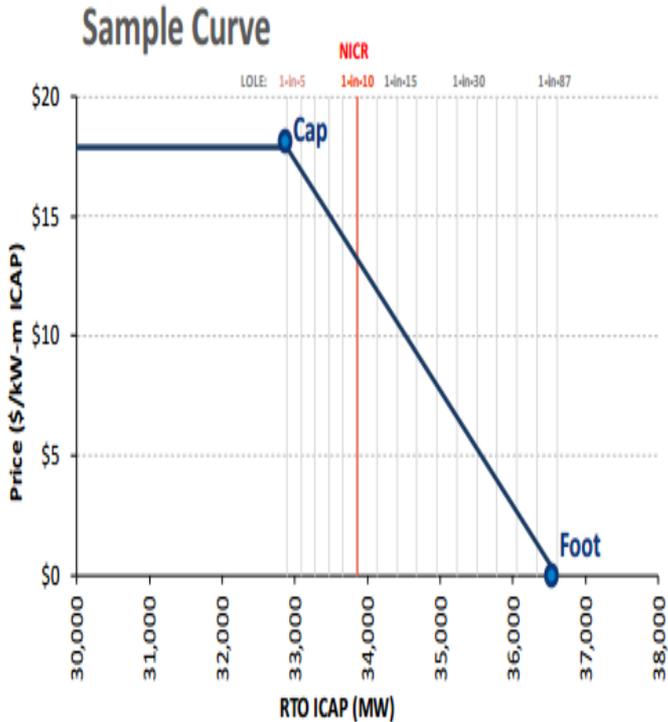
- In addition to energy efficiency competing in the regional gas infrastructure solutions the 2014 IRP recommends:
 - a. Continuing to improve efficiency program design to deliver greater savings at lower costs;
 - b. Refocusing efficiency programs on lowering peak demand;
 - c. Continuing to invest in efficiency measures for state buildings;
 - d. Continue efforts to pursue energy efficiency improvements codes and standards; and
 - e. Identify unrealized energy efficiency savings.

Stepped up participation in the Federal Arena

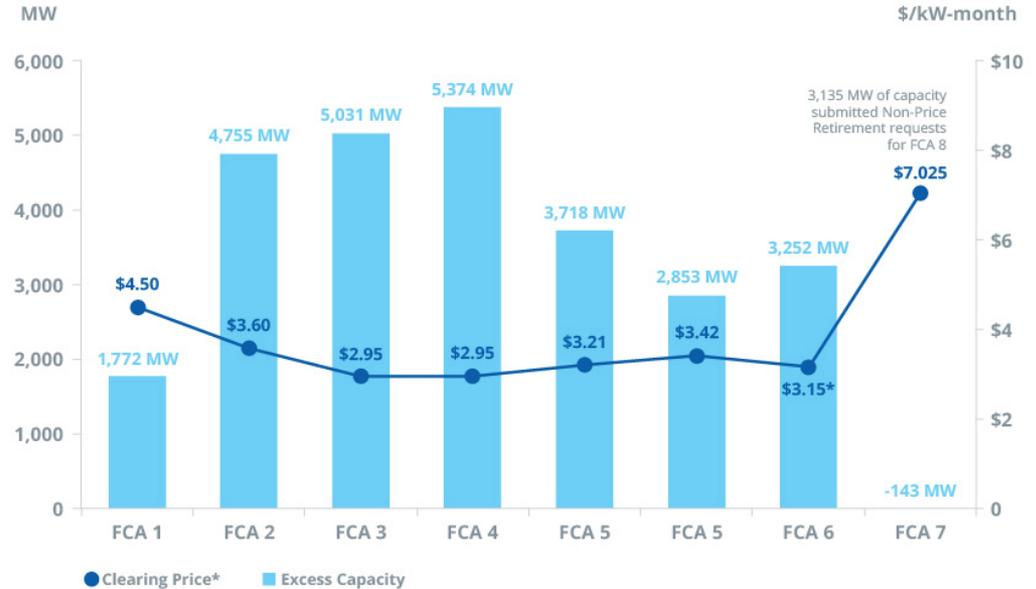


- **Connecticut will take a more active stance before federal bodies.**
- **A key area is defending Demand Response's (DR) ability to participate in the energy and capacity markets.**

Procure New Generation if Necessary



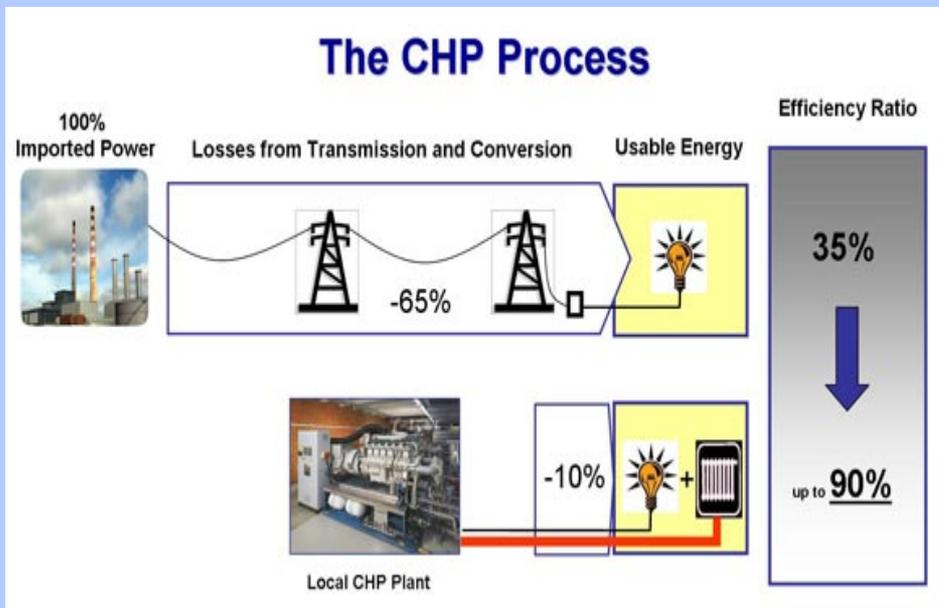
Capacity Surplus or Deficit (MW) Against Auction Clearing Prices (\$/kW-month)



* Prices cleared at the floor price in the first seven auctions due to excess capacity; therefore, resources were paid a slightly lower prorated price. The clearing price in NEMA/Boston was \$14.999/kW-month for FCA 7 (new capacity received \$14.999/kW-month and existing capacity received an administrative price of \$6.66/kW-month). The clearing price in FCA 8 was \$15.00/kW-month (new capacity in all zones and existing capacity in NEMA/Boston received \$15.00/kW-month and existing capacity in all other zones received an administrative price of \$7.025/kW-month).

- Higher Forward Capacity Prices expected to bring in sufficient new capacity to New England
- If the market fails, the IRP recommends that DEEP pursue options within state authority to procure capacity resources.

Support Increased Combined Heat and Power Deployment



- Revitalize existing incentive programs to help deploy cost-effective CHP potential
- CHP systems can provide special value in locations for micro grids avoiding costly upgrades to the utilities' electric distribution systems.

Support Increased Distributed Generation in Connecticut.



Solarize Hamden!
Solar. Simple. Together.



SolarizeCT.com/Hamden

- The IRP recommends continuing to refine and extend programs to support in-state renewable generation such the Connecticut Green Bank's popular Residential Solar Incentive Program.

Modernize Regulation and Incentives for Better Integration of Distributed Resources.

Smart & Efficient Homes, Distributed Generation ... and Electric Vehicles



- As part of an ongoing and evolving process, the IRP recommends initiating a proceeding to evaluate the value of distributed generation.

Gradually Phase Down REC Values for Class I Biomass and Landfill Methane Gas Beginning in 2018.



- Monitor RPS compliance and the capacity market and, in the next IRP, consider establishing a schedule for reduced Class I REC value beginning in 2018 for biomass and landfill methane gas.

Schedule For Finalizing the IRP

Technical Meeting(s)

- January 12, 2015, 10:00 a.m., DEEP's New Britain Office.
- If necessary, January 13, 2015, 10:00 a.m., DEEP's New Britain Office

Public Hearing

- January 22, 2015, 10:00 a.m., DEEP's New Britain Office

Comments Due

- February 11, 2015

Final IRP

- March 11, 2015

Questions?

- **Please let DEEP know if you will be attending the technical meeting on Monday at DEEP.EnergyBureau@ct.gov**
- **Please specify whether you wish to present oral comments or plan to question DEEP staff and its consultants.**