

# Energy Efficiency Update

PAC Meeting  
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# Overview

- Update on the ongoing efforts to analyze state sponsored energy efficiency (EE) in New England
  - Detailed data request to region's EE program administrators (PAs)
- Present initial observations
  - Initial meetings with PA's indicate that the Forward Capacity Market (FCM) seems to be capturing nearly all state-sponsored EE in the region
- Next steps
  - Meet with MA & RI
  - Continue discussions with other ISOs & stakeholders

# Exploring an Energy Efficiency Forecast

- Background
  - Ongoing efforts by ISO & stakeholders to explore potential improvements to forecasting and planning
  - ISO analyzing data on short-term savings as well as long-term forecasting
  - Explore the potential to develop a discrete EE forecast in addition to ISO's load forecast

# ISO's Current Practice

## EE Incorporated

- Installed Capacity Requirement (ICR)
  - EE resources in the FCM are treated as resources that contribute toward meeting New England's ICR
- Load forecast
  - Reflects past EE not in FCM
  - Reflects future Federal appliance efficiency standards starting in 2013

## Long-term EE Not Incorporated

- State EE program goals alone are not used to reduce the load forecast

# Exploring Non-FCM EE

- States concerned that EE investments outside of FCM are not fully taken into account by existing practices
- December 2010 PAC presentation from MA DPU
  - Stated ISO forecast will miss other EE capacity in 2012
  - Requested ISO work closely with PAs to better understand amount of EE both in and outside FCM
- If there are EE savings out there, where are they and how do we find them?

# Exploring Non-FCM Energy Efficiency

- In February, ISO provided EE PAs with a EE data collection template designed to quantify future EE savings
  - Template modeled after Northeast Energy Efficiency Partnerships (NEEP) Common Statewide Energy Efficiency Reporting Guidelines
- Data collection template designed to
  - Determine amount of EE attributable to PAs that is not in the FCM
  - Provide detailed information on future projections of EE
  - Determine if PAs have specific data to aid in potential forecasting/planning such as locational or temporal data on EE

# Energy Efficiency Data Collection Template<sup>1</sup>

State:	Program Year:	ENERGY (MWh)				Demand (MW)				Forward Capacity Market			
XX	20YY	Adjusted Gross Annual Energy Savings		Net Annual Energy Savings		Adjusted Gross Annual Demand Savings		Net Annual Demand Savings		Qualified Forward Capacity Market		Non-FCM (Not Qualified)	
Energy Savings By Sector and Program	Facility Level Energy Savings (FLES)	Generator Level Energy Savings T&D Loss Factor (GLES) (FLES x 1.08)	Facility Level Energy Savings (FLES)	Generator Level Energy Savings T&D Loss Factor (GLES) (FLES x 1.08)	Facility Level Demand Savings (FLDS)	Generator Level Demand Savings T&D Loss Factor (GLDS) (FLDS x 1.08)	Facility Level Demand Savings (FLDS)	Generator Level Demand Savings T&D Loss Factor (GLDS) (FLDS x 1.08)	Cleared Capacity (MW)	Commercial Capacity (MW)	Proposed Capacity (MW)	Commercial Capacity (MW)	
Residential Non-Low Income Sector Energy Savings by Program													
Electric Efficiency Programs 1, 2, 3 etc (list)													
SUBTOTAL													
Residential Low Income Sector Energy Savings by Program													
Electric Efficiency Programs 1, 2, 3 etc (list)													
SUBTOTAL													
Commercial & Industrial Sector Energy Savings by Program													
Electric Efficiency Programs 1, 2, 3 etc (list)													
SUBTOTAL													
Other Customer Sector Energy Savings by Program													
Electric Efficiency Programs 1, 2, 3 etc (list)													
SUBTOTAL													
TOTAL ENERGY EFFICIENCY SAVINGS:													

<sup>1</sup> Template Modeled after NEEP Common Statewide Energy Efficiency Reporting Guidelines, Ver 1. December 2010. NEEP project subcommittee included NE stakeholders.

# Status

- Data collection template sent out to 16 PAs February 1, 2011
- Conference call with all PAs February 8, 2011 to explain the process and review the template
- ISO, PAs & States held follow-up meetings to discuss PA submission of EE data collection template March/April
  - To date, meetings have been held with PAs from all states except MA & RI
- Analysis of data submissions ongoing



# Preliminary Observations

- Based on meetings with CT, ME, NH and VT, majority of PAs report no EE outside of what is offered into FCM
  - MA and RI meetings to be held later this month
- No clear trends in market participation over 6 years of qualification process
- No clear relationship between program funding and FCM project size or delivery date
- Program year and FCM years are not correlated
- PAs indicated that funding is primary variable driving future EE implementation

# Preliminary Observations, *cont.*

- Long-term (5-10 year) estimates of future EE savings challenging for PAs
  - 2 of 16 PAs provided estimates of future EE savings
- More detailed information on the following would aid our analysis
  - Locational information of EE resources (assumed to be proportional with load)
  - EE load profile
  - Measure-specific information
  - Future state EE funding levels

# Remaining Issues

- Continue efforts to collect and analyze PA information
- New England states are making large investments in EE through many programs
- Difficult to track the amount of EE that is not in the FCM
- States and stakeholders want to be sure that consumers receive the full benefits of their EE investments
  - Short-term: Contribute to meeting ICR
  - Long-term: May defer the year of need for transmission projects
- Overstating these amounts could compromise the reliability of the system which could fail to meet mandatory reliability standards

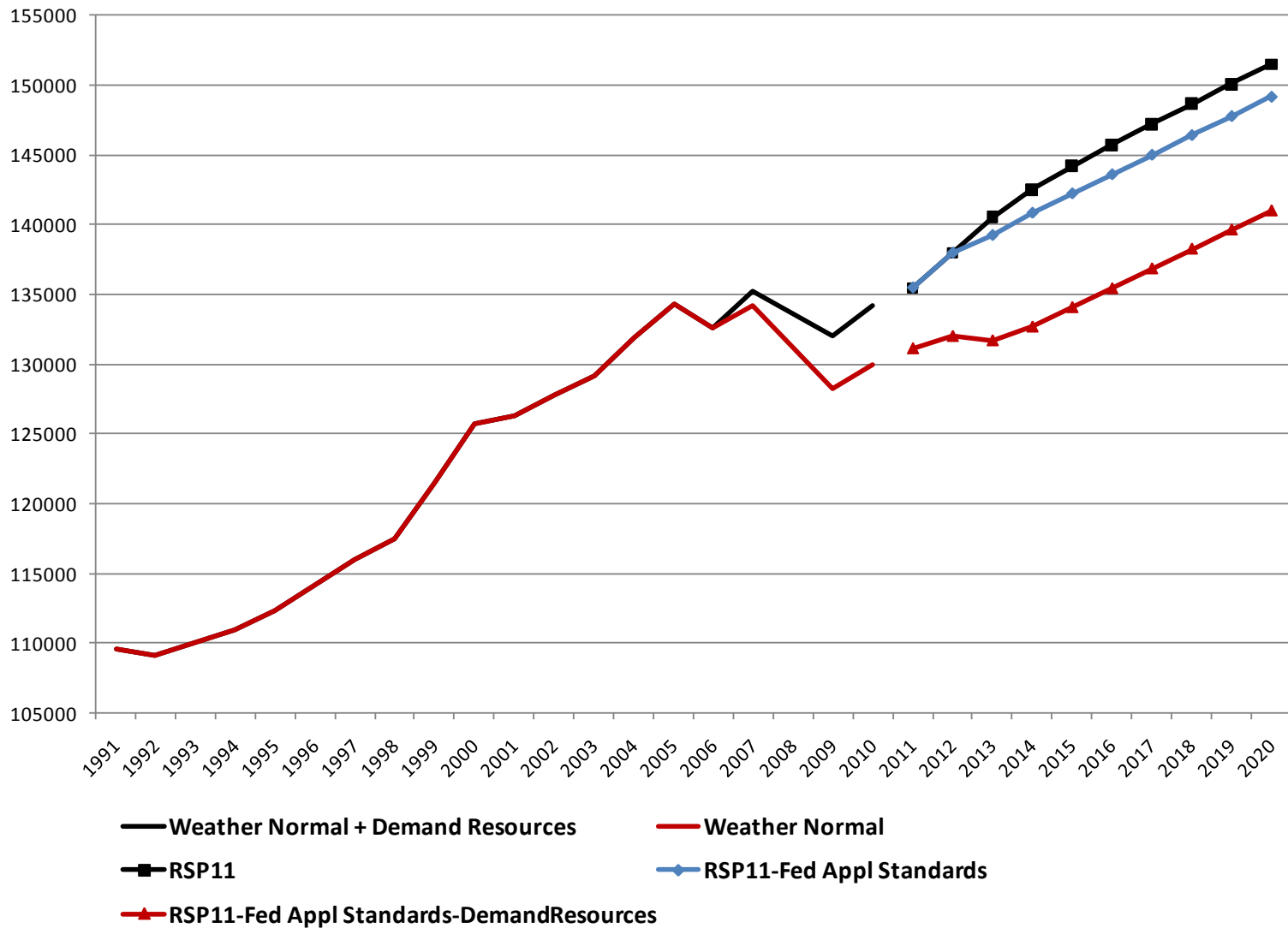
# Need for Additional Analysis

- How to adequately prevent double counting of state-sponsored EE as both Capacity product EE resources and as a modifier to the load forecast?
  - Example: Federal appliance efficiency standards are in the load forecast and should not be double counted
- How will measure life, and technology advancement be addressed over the long term?
  - Are their adequate predictors of measure level performance and persistence for future program implementation
  - What are reliable sources of information on technology and codes evolution that can be used to predict future changes

# Need for Additional Analysis, *cont.*

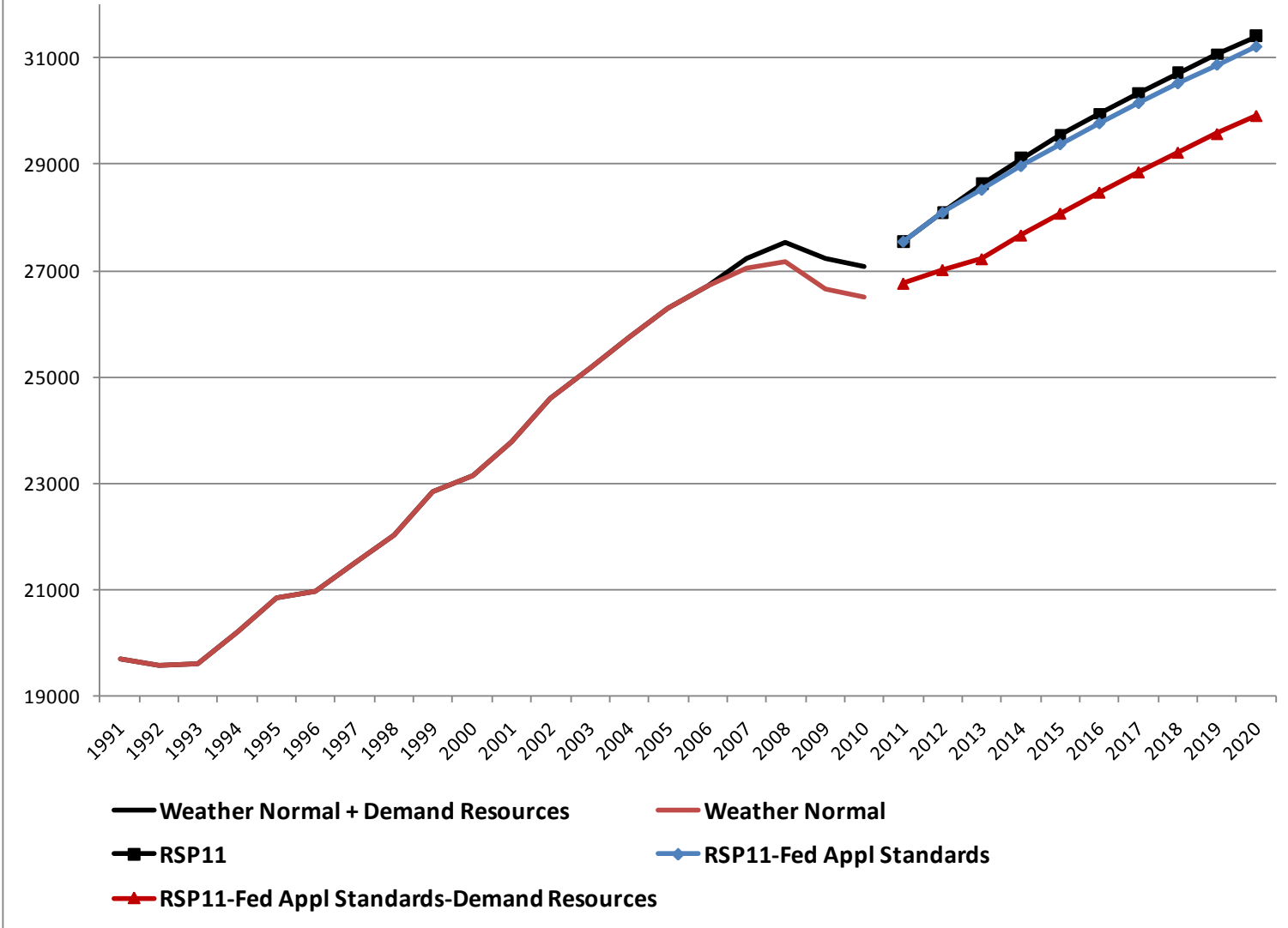
- What predictors can be used to estimate economic and market impacts on future program implementation?
- Are there better methods to identify penetration of EE programs in specific geographic locations?

## ISO-NE Annual Energy (GWh) Weather Normal 1991-2010 RSP11 Forecast 2011-2020



# ISO-NE Summer Peak (MW)

## Weather Normal 1991-2010 RSP11 50/50 Forecast 2011-2020



# Long-Term Forecast of Energy Efficiency in Other ISO/RTOs

- Via the IPSAC process ISO has gathered information on how other ISOs account for EE
- **PJM:** Process very similar to ISO NE's, account for EE in the capacity market, no specific EE forecast
- **NYISO:** Prepares an EE forecast; projects future impacts based on current trends of program adoption; uses measure type and geographic information; state EE goals discounted

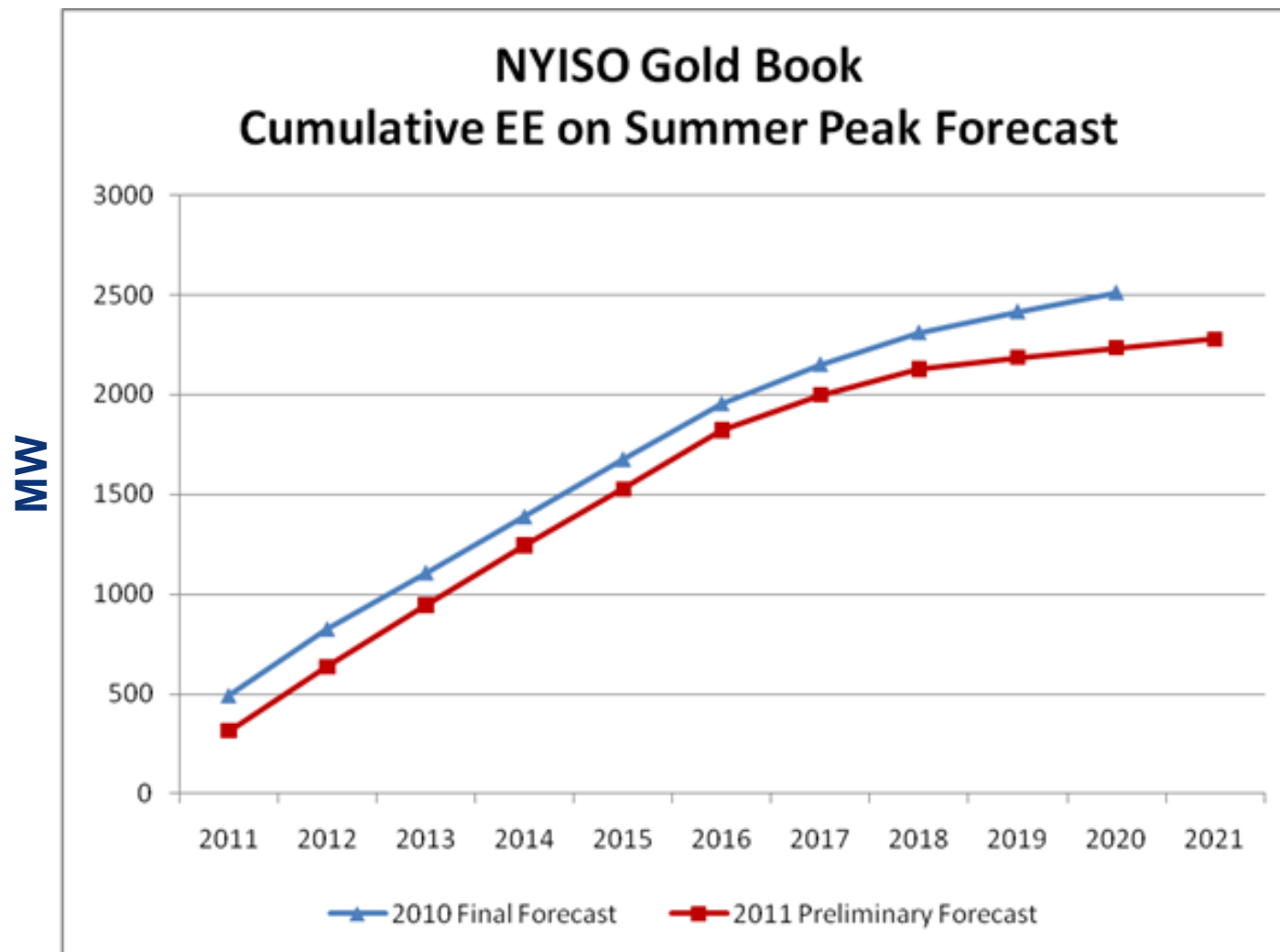


# Overview of NYISO EE Forecasting Method<sup>1</sup>

- Review recent past performance of actual rates of implementation
- Factor in assumptions on future spending levels and whether programs are in steady-state or growth mode
- Increase impacts to account for system T&D losses
- Distribute statewide program impacts (NYPA & NYSERDA) proportional to zonal energy
- Develop peak demand impacts on a measure-specific basis

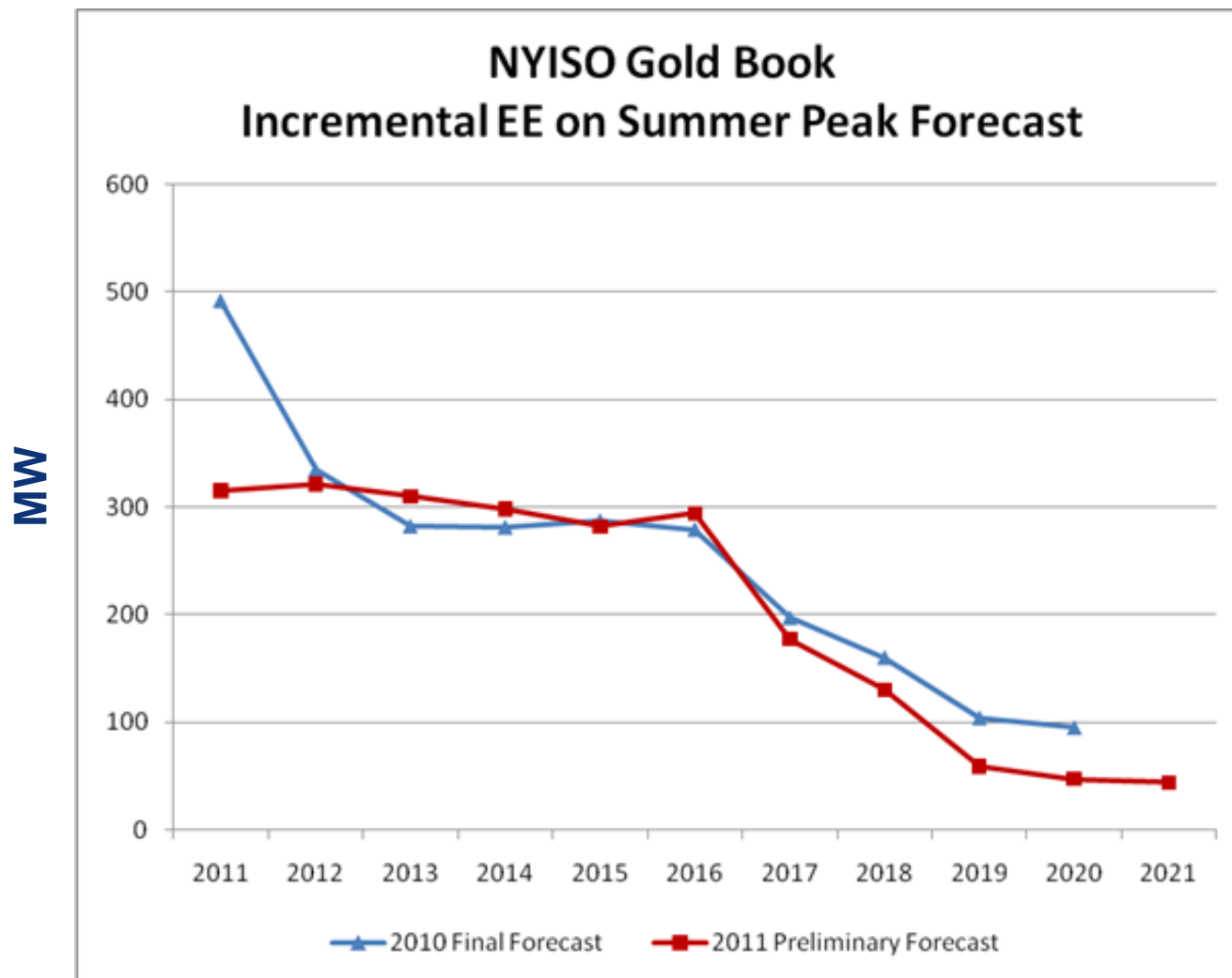
<sup>1</sup>[http://www.nyiso.com/public/webdocs/committees/bic\\_espwg/meeting\\_materials/2011-02-25/02252011\\_EE\\_Forecast\\_ESPWG.pdf](http://www.nyiso.com/public/webdocs/committees/bic_espwg/meeting_materials/2011-02-25/02252011_EE_Forecast_ESPWG.pdf)

# NYISO Energy Efficiency Forecast



Adapted from: [http://www.nyiso.com/public/webdocs/committees/bic\\_espwg/meeting\\_materials/2011-03-17/2011\\_Long\\_Term\\_Forecast\\_v2\\_.pdf](http://www.nyiso.com/public/webdocs/committees/bic_espwg/meeting_materials/2011-03-17/2011_Long_Term_Forecast_v2_.pdf)

# NYISO Energy Efficiency Forecast



Adapted from: [http://www.nyiso.com/public/webdocs/committees/bic\\_espwg/meeting\\_materials/2011-03-17/2011\\_Long\\_Term\\_Forecast\\_v2\\_.pdf](http://www.nyiso.com/public/webdocs/committees/bic_espwg/meeting_materials/2011-03-17/2011_Long_Term_Forecast_v2_.pdf)

# Long-Term Forecast of Energy Efficiency in Other ISO/RTOs, *cont.*

- **CAISO:** Does not have an EE forecast
- **ERCOT:** Forecasts EE impacts based on data that is provided by the Transmission Service Providers; impacts are held constant for shorter-term load forecasts (1- 5 years)
- **AESO:** Do not have comparable EE programs so they have no EE forecast
- **SPP:** SPP does not currently perform the load forecast and therefore has no specific methodology for incorporating EE into a load forecast

# Next Steps

- Complete data gathering activities with PAs (April)
- Evaluate approaches, including those used by other ISOs/RTOs, and determine the appropriateness for New England (discussed with IPSAC on 3/30 and complete evaluation by 5/31)
- Evaluate existing ISO planning procedures and treatment of EE (by 5/31)
- Update PAC as part of Administrative items and conduct more in depth discussions at the June and July PAC meetings
- Assess comments from PAC and refer to Technical Committees as appropriate (Q3/Q4 2011)