

# Energy Efficiency Forecasting in New York

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**Draft – for discussion only.**

# Roles of the NYISO



## Reliable operation of the bulk electricity grid

- *Managing the flow of power over nearly 11,000 circuit-miles of transmission lines from more than 300 generating units*



## Administration of open and competitive wholesale electricity markets

- *Bringing together buyers and sellers of energy and related products and services*



## Planning for New York's energy future

- *Assessing needs over a 10-year horizon and evaluating projects proposed to meet those needs*



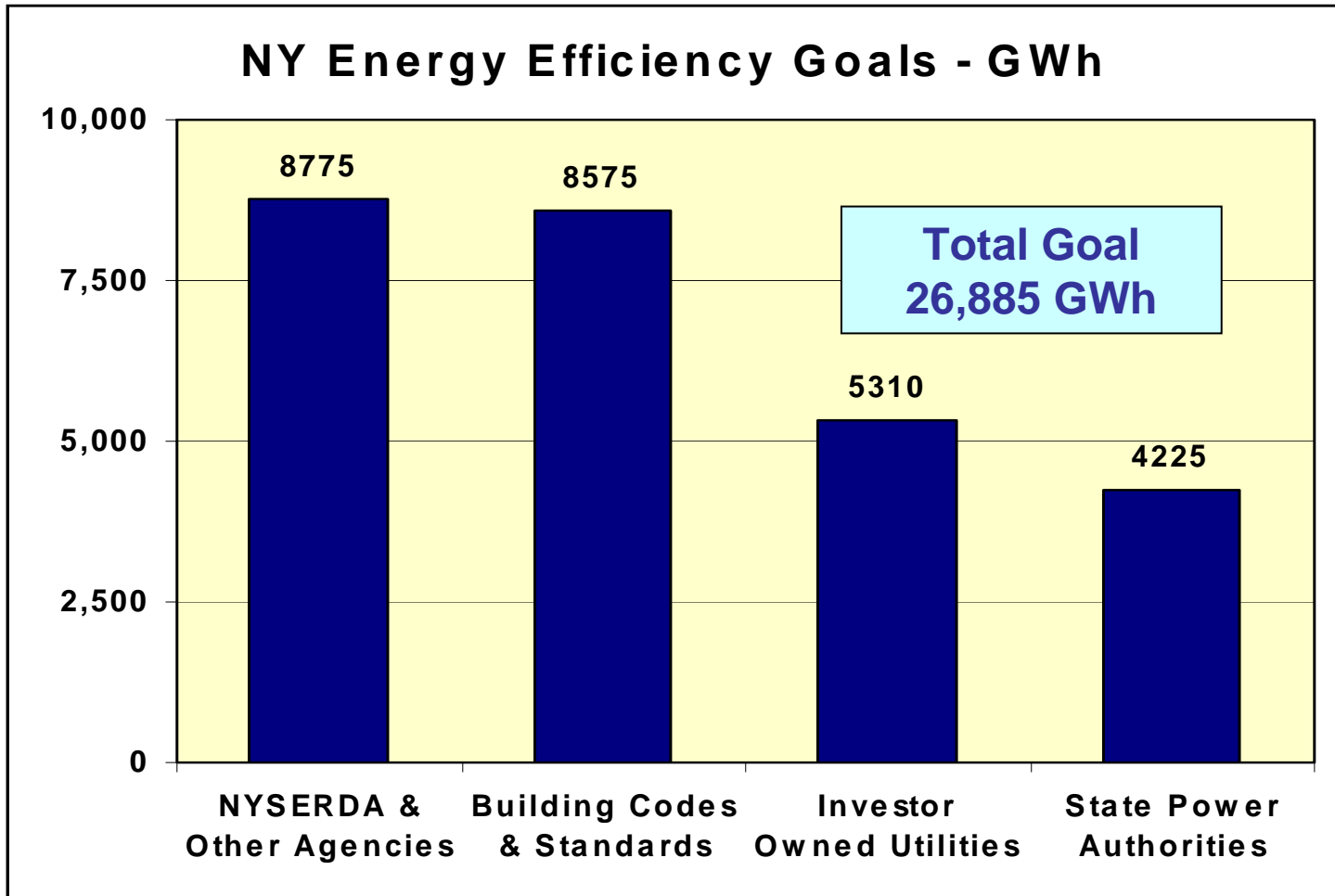
## Advancing the technological infrastructure of the electric system

- *Developing and deploying information technology and tools to make the grid smarter*

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# NY Energy Efficiency Goal

## *15% Energy Reduction by 2015*



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# Energy Efficiency Portfolio Standard

- ◆ **In 2008, the New York State Public Service Commission authorized the Energy Efficiency Portfolio Standard (EEPS)\***
  - *Specific Goals for NYSERDA & State's Investor Owned Utilities*
  - *Increased funding for Evaluation, Measurement and Verification (EMV)*
    - Up to 5% of program spending
  - *Created an Evaluation Advisory Group*
    - Representatives of all stakeholders
    - Develop Technical Manual for deemed energy savings
    - Develop standards for program data bases
    - Recommend activities that support EM&V
    - Monthly meetings
    - [www.dps.state.ny.us/EEPS\\_Evaluation.html](http://www.dps.state.ny.us/EEPS_Evaluation.html)

\* NY PSC 07-M-0548

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# NYISO Role in EM&V

- ◆ **Observe & account for impacts on energy & peak demand due to all aspects of economic activity, energy efficiency and technology changes**
  - *Labor productivity increases*
  - *Replacement of older technologies with newer*
  - *Shifts in energy usage across major sectors*
  - *Accounting for energy efficiency programs*
- ◆ **Produce accurate energy & peak demand forecasts (*with & without EEPS impacts*)**

# Stakeholder Participation

- ◆ **NYISO reviews current progress and future projections with its Electric System Planning Working Group**
  - *Composed of all market sectors & state regulatory staff*
  - *Stakeholders approve forecast used for NYISO's biennial Resource Needs Assessment*
- ◆ **NYISO consults regularly with individual utilities, state agencies & power authorities**
- ◆ **NYISO participates in the state's Evaluation Advisory Group**

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# System Forecast

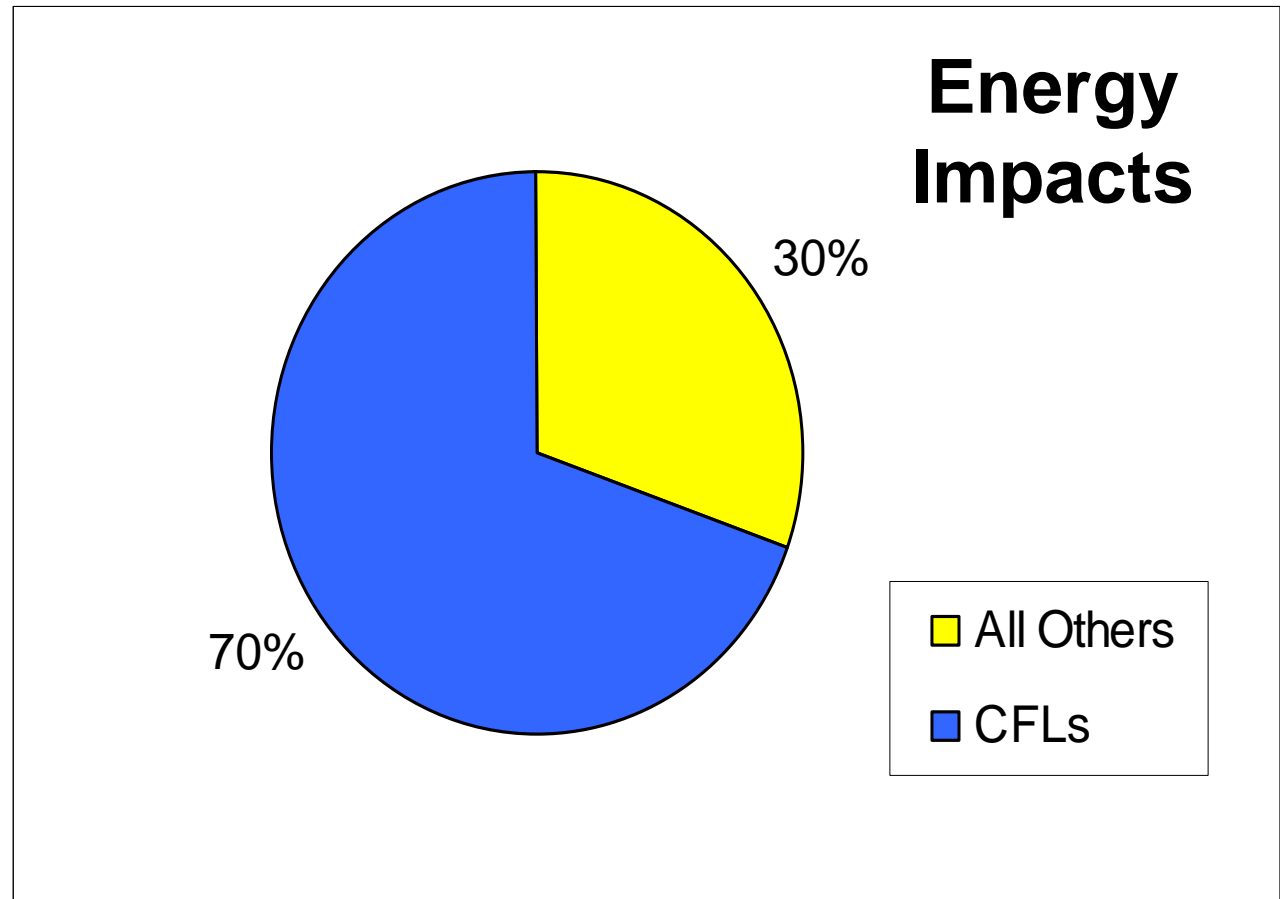
- ◆ **Prepare an Econometric Forecast**
- ◆ **Prepare an Energy Efficiency Forecast for Planning System Reliability**
- ◆ **System Forecast is Net of EE Impacts**
  - *Method can be extended to account for other emerging technologies*
    - **Electric Vehicles**

# EE Forecasting Issues

- ◆ **Assessment of the energy efficiency impacts to depend upon for system reliability planning**
- ◆ **Composition of programs and how it affects peak demand impacts**
- ◆ **Projection of future impacts based on current trends of program adoption**
- ◆ **Conversion of annualized impacts to calendar year impacts**
- ◆ **Measurement of life & replacement assumptions**



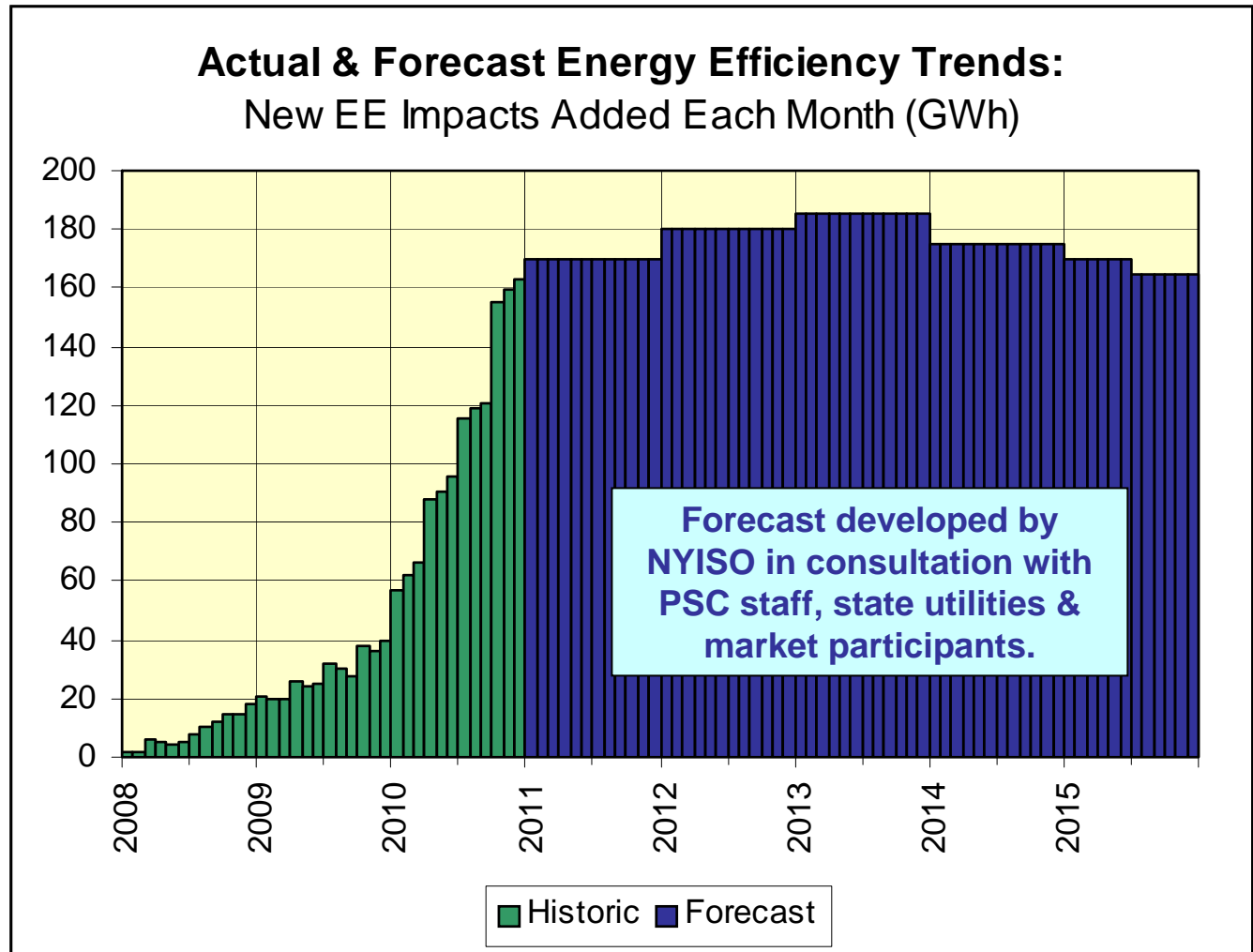
# EEPS Program Components



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# Forecasting EE Impacts (1)

**Forecasts  
Based on  
Actual Past  
Performance  
&  
Projected  
Schedules of  
Program  
Administrators**



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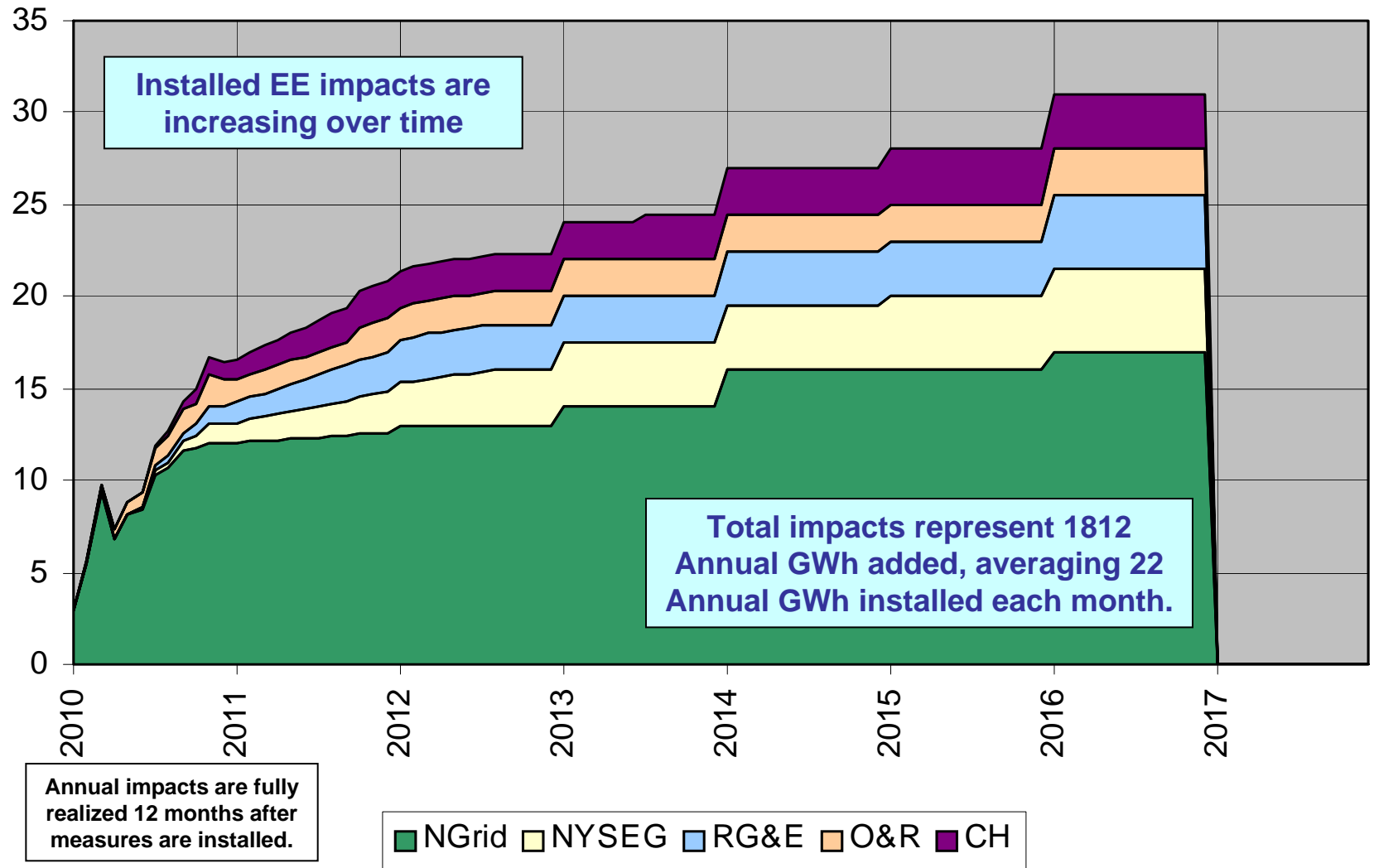
# Forecasting EE Impacts (2)

## ◆ **Bottom-Up Approach**

- ***Segment by geography & Program Administrator***
  - **Participation rates differ by geography**
    - Multi-family housing units concentrated downstate
    - Lower air-conditioning saturations upstate
- ***Segment by measure type***
  - **Peak impacts differ by measure type**
- ***Avoid double-counting of impacts***
  - **CFLs & appliance or motor rebate programs will offset impacts of new building codes & appliance standards**

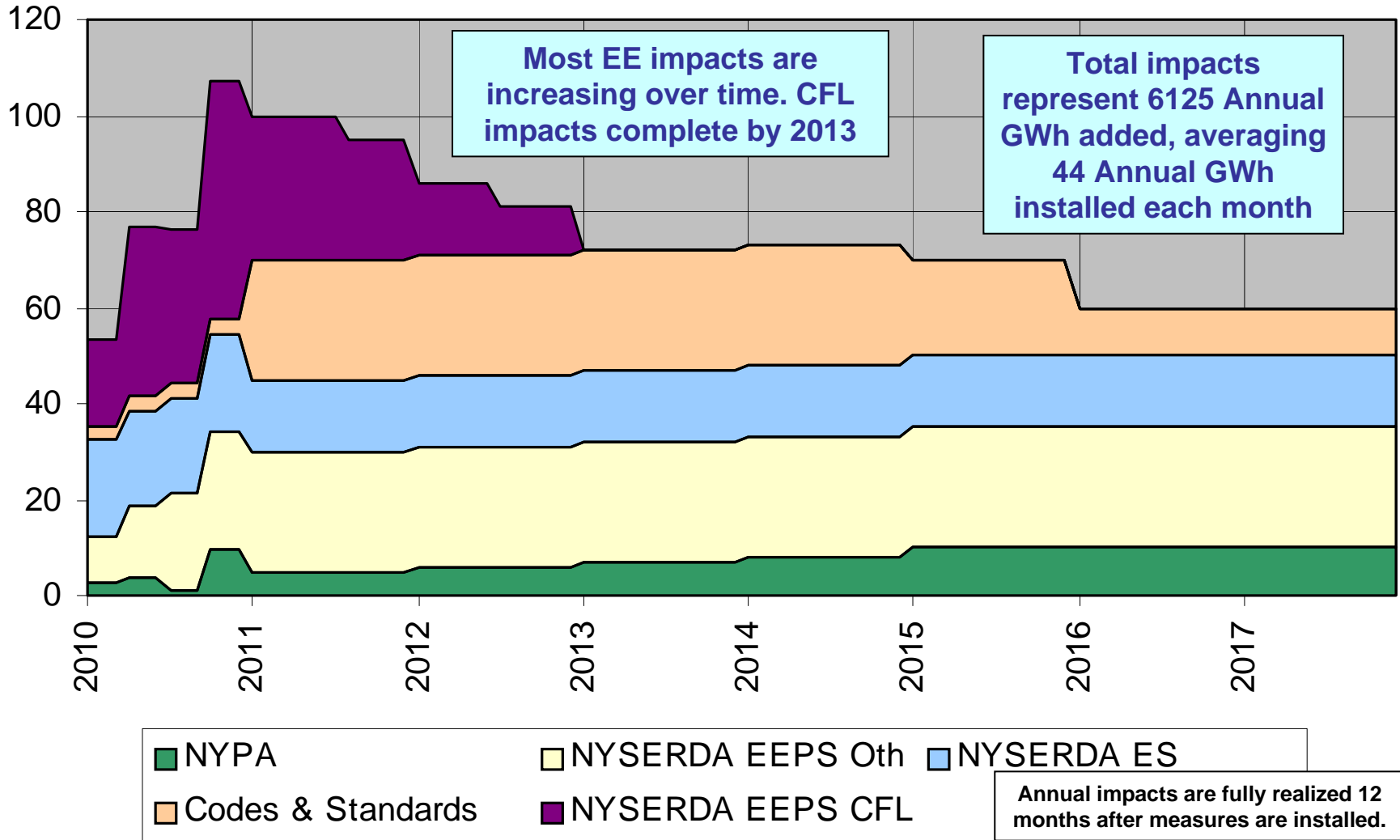
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## Monthly Schedule of New Energy Efficiency Impacts - Annual GWh per Year, per Month



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## Monthly Schedule of New Energy Efficiency Impacts - Annual GWh per Year, per Month



# Forecasting EE Impacts (3)

## ◆ Peak Demand Impacts

### ■ *Segment by measure type*

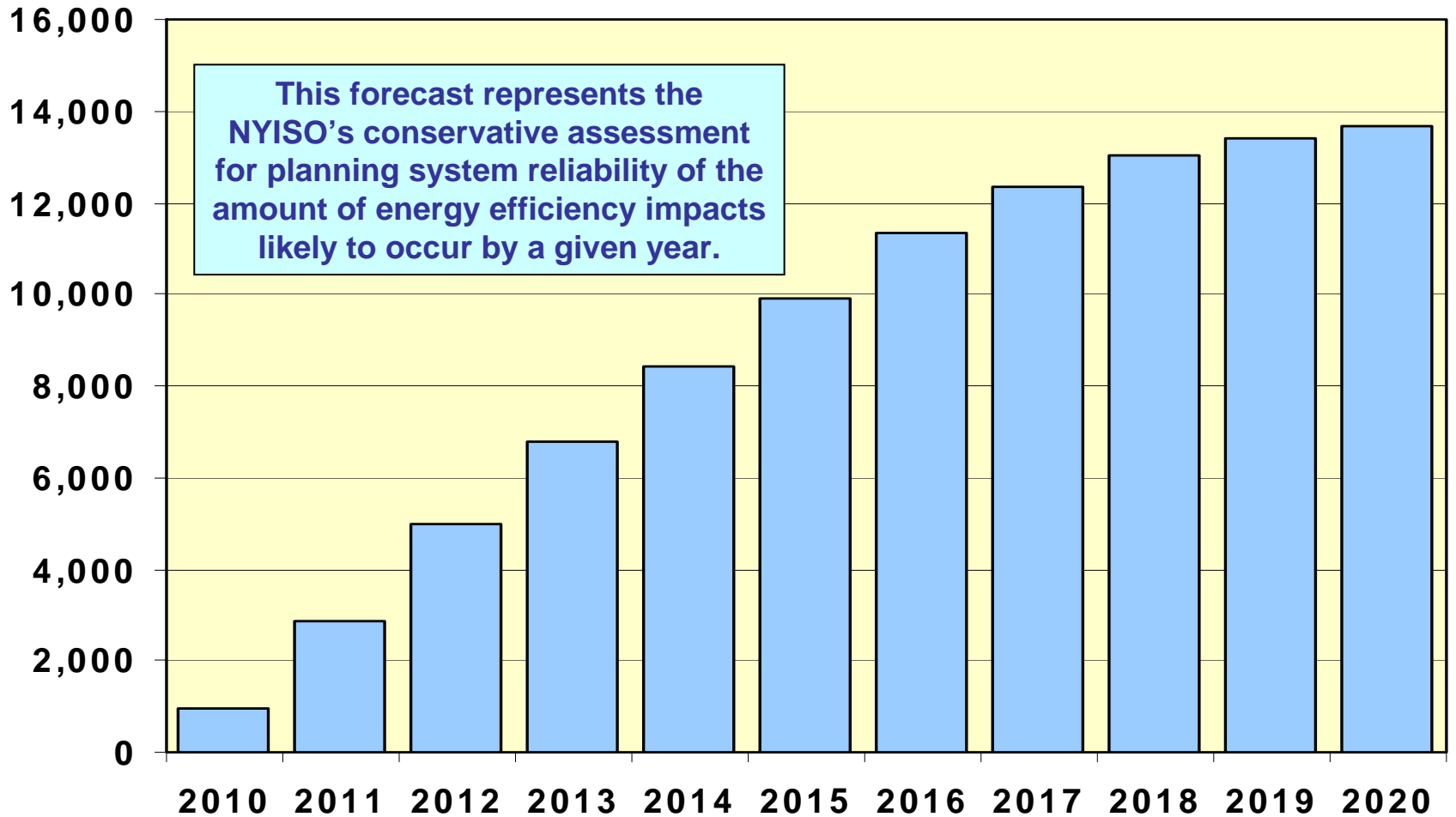
- **Separate treatment required for new lighting technologies that are primarily off-peak in summer**
  - Use a coincidence factor of 10%
  - Lower air-conditioning saturations upstate
- **Peak-Energy relationship of programs**
  - Highest summer impacts for air conditioning measures
  - Match measures to end-use profiles by sector & market segment

### ■ *Segment by geography*

- **For comprehensive multi-sector programs, overall peak impacts should be representative of current regional load factors.**

## 2010 Reliability Needs Assessment

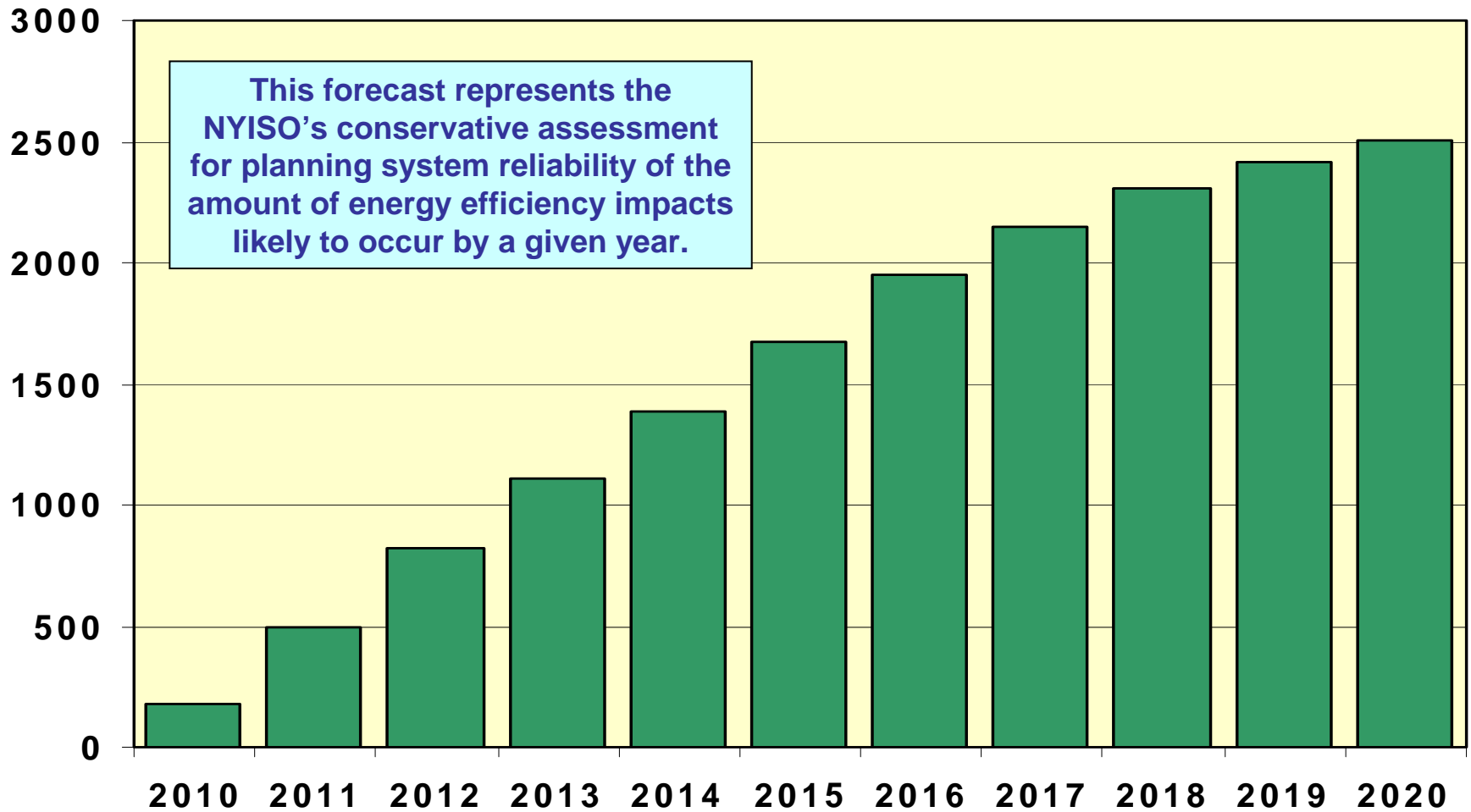
### Projection of EE Impacts on Energy Forecast - GWh



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## 2010 Reliability Needs Assessment

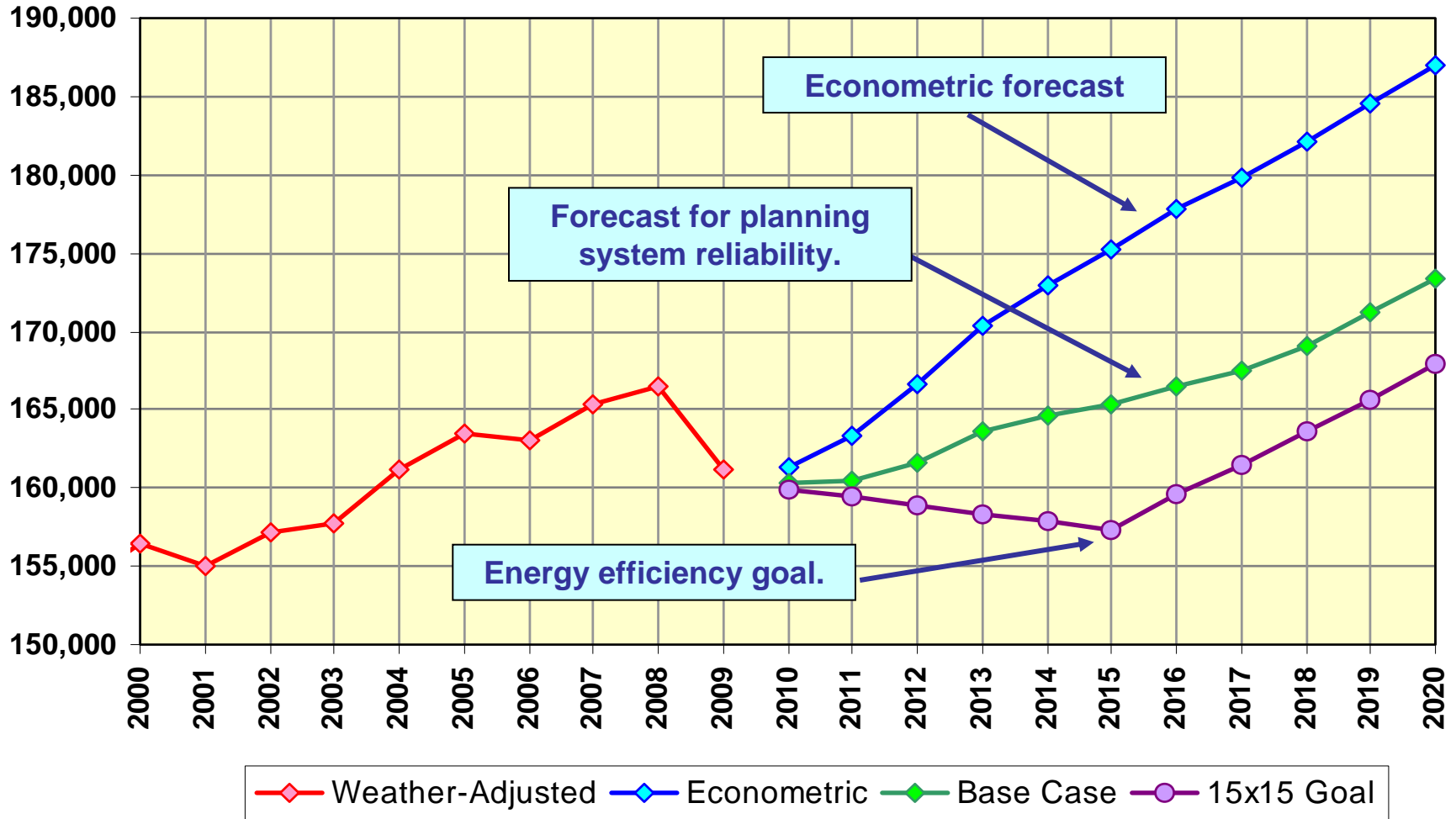
### Projection of EE Impacts on Summer Peak - MW



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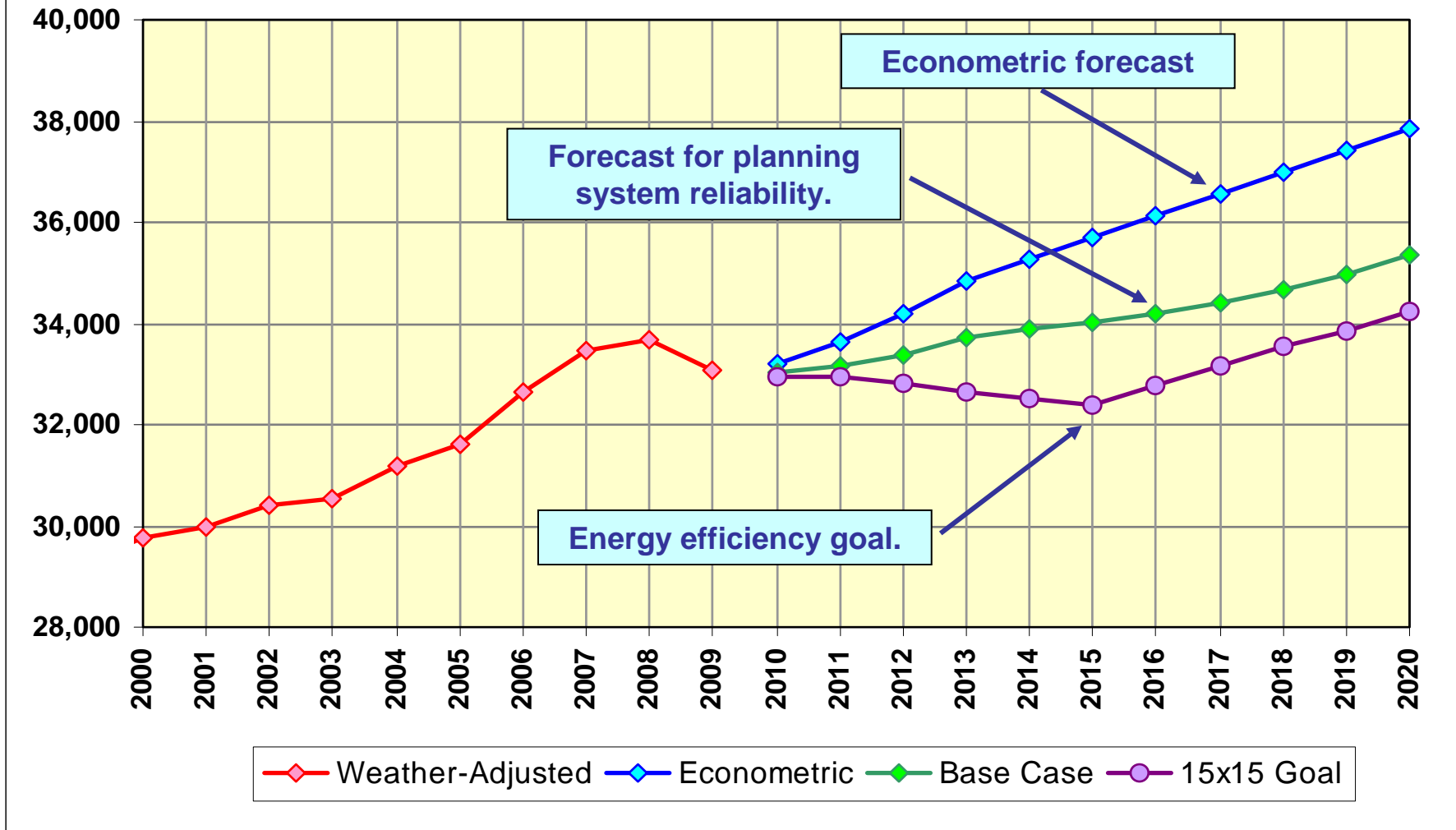
## 2010 Reliability Needs Assessment Energy Forecasts - GWh With and Without Projected Energy Efficiency Impacts



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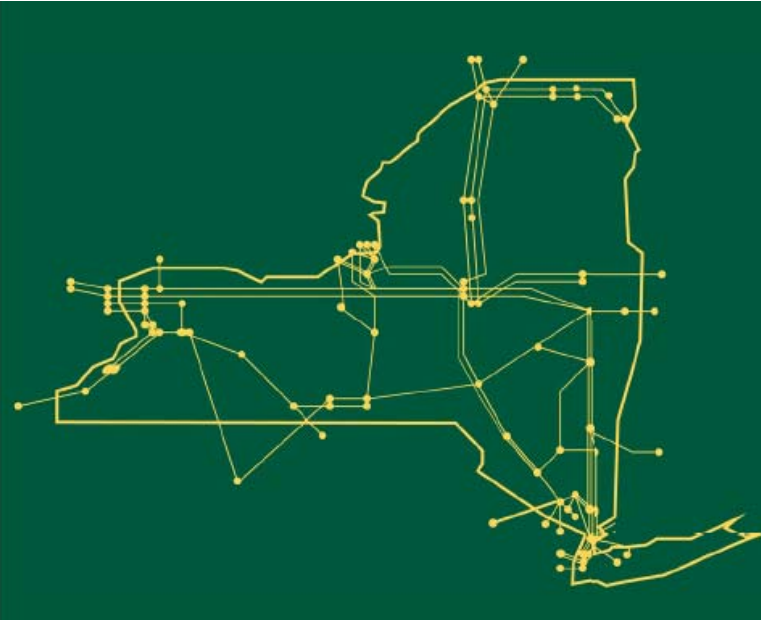
## 2010 Reliability Needs Assessment Summer Peak Forecasts - MW

### With and Without Projected Energy Efficiency Impacts



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The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



[www.nyiso.com](http://www.nyiso.com)