



**Synapse**  
Energy Economics, Inc.

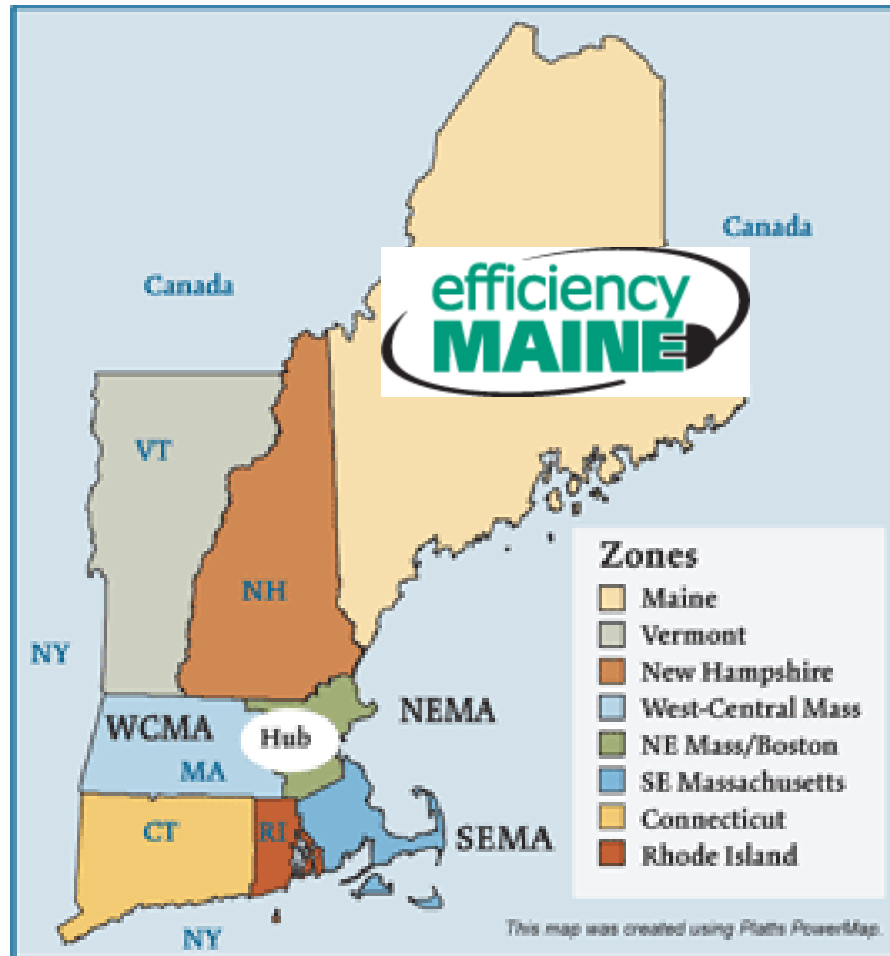
# Highlights of AESC 2011 Report

Presentation for Efficiency Maine Trust  
September 7, 2011

# AESC 2011: Study Sponsors and Process



A NISource Company



Northeast Utilities System



The United Illuminating Company



# Avoided Cost of Electricity – Maine Specific Components

**Avoided energy** = (wholesale electric energy price + REC cost and adjusted for wholesale risk premium). This is the largest component.

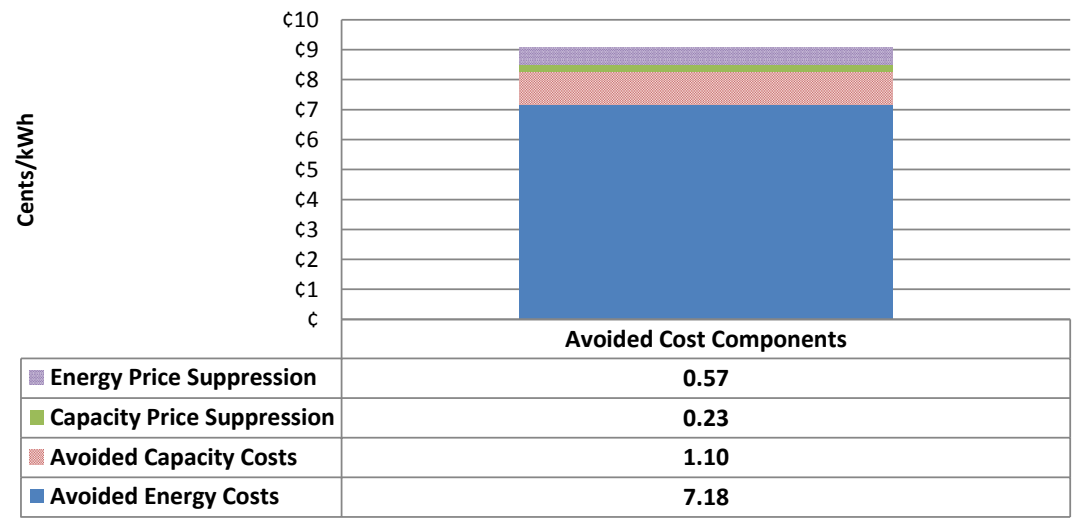
**Avoided capacity** = Revenue from bidding into Forward Capacity Market (FCM) **OR** value of reducing quantity of capacity from not bidding into FCM.

**Energy Price Suppression** = This is the value of reductions in energy market prices due to kWh reductions.

**Capacity Price Suppression** = Impact of kW reductions on FCM prices.

**Avoided local T&D infrastructure.** These costs are calculated by Program Administrators.

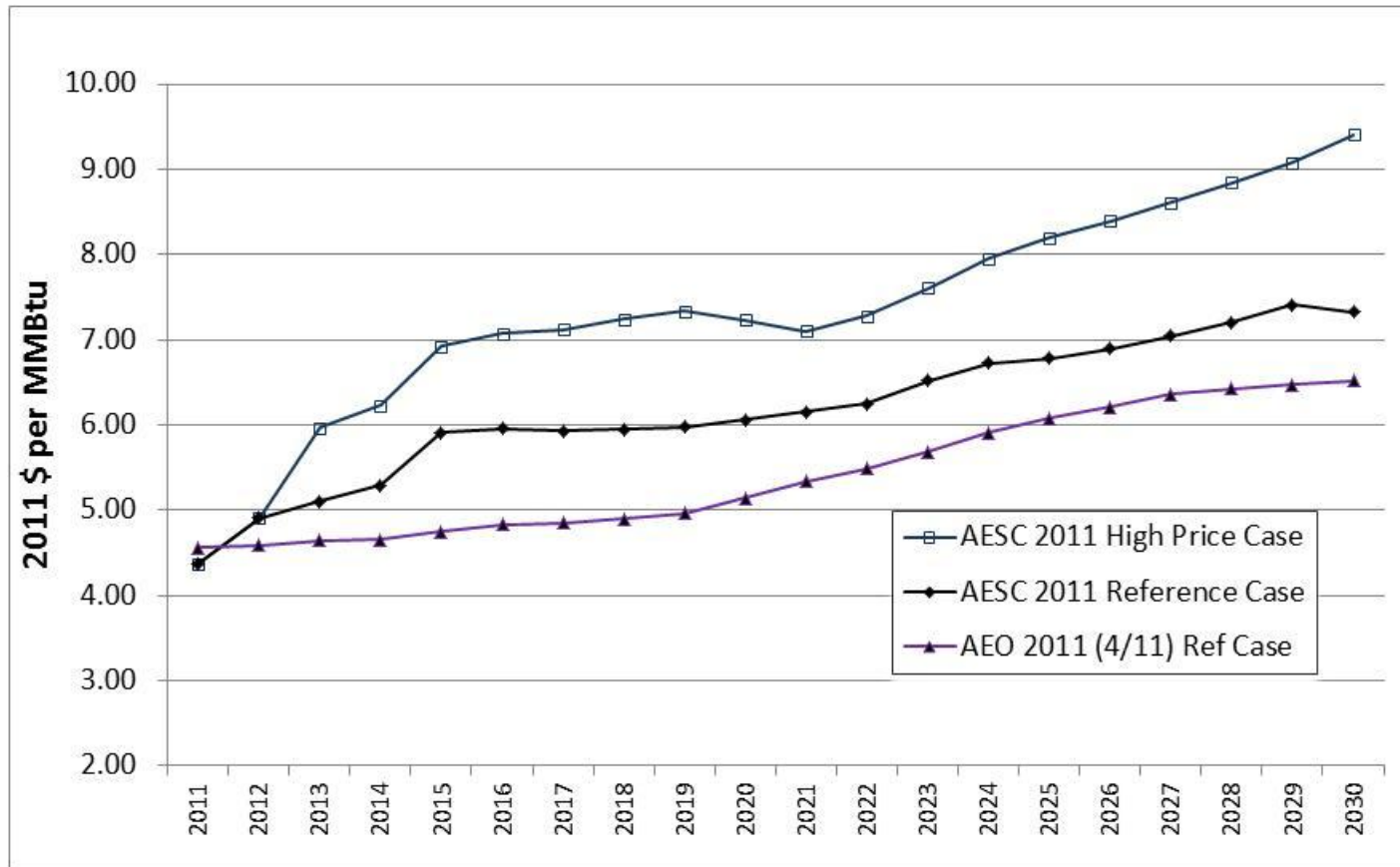
**AESC 2011: Maine Summer On Peak Avoided Cost Components (cents/kWh)**



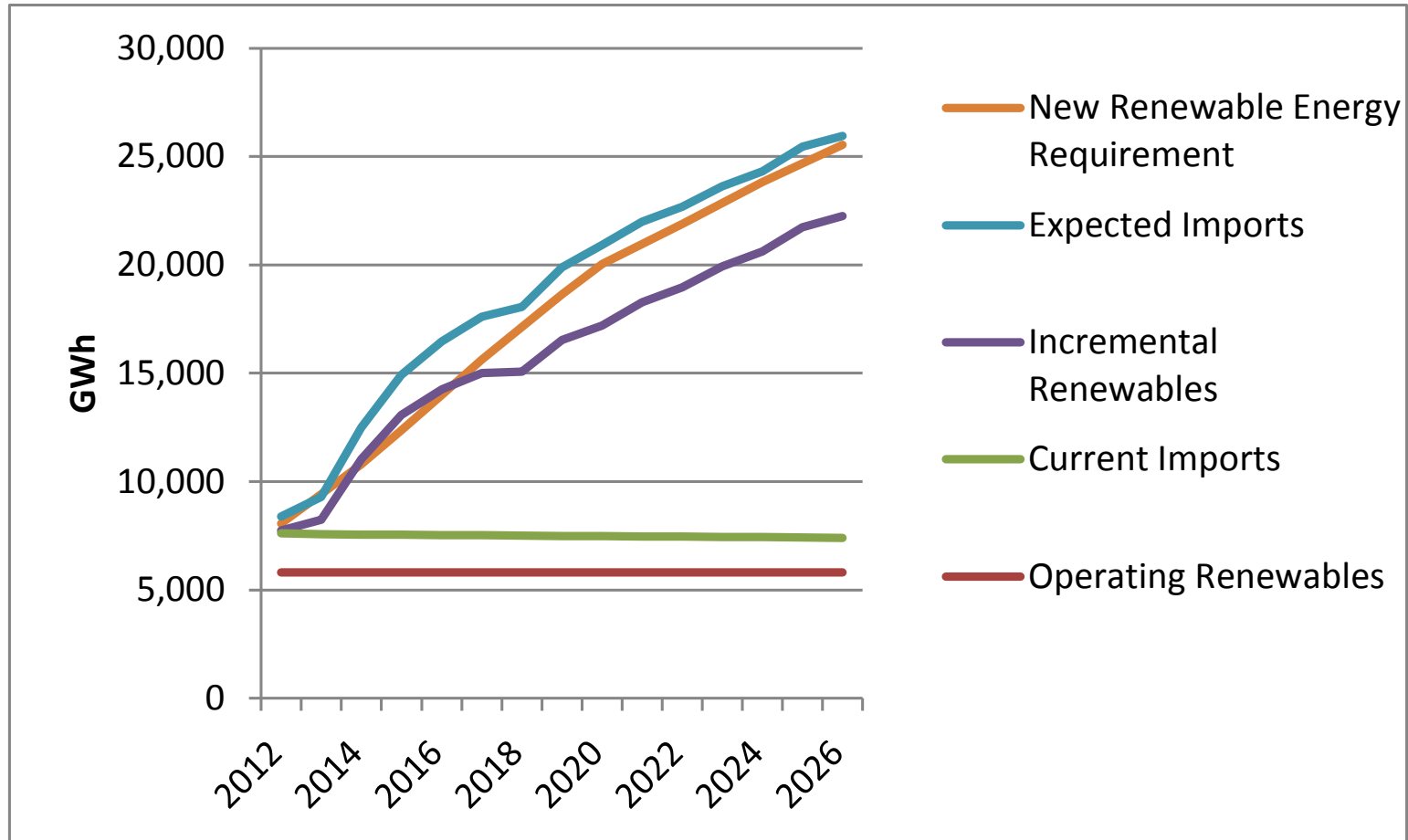
## *Components to determine wholesale energy costs*

- *Natural gas prices*
- *Forecasted load growth*
- *New additions and retirements*
- *Transmission configuration*
- *Renewable Portfolio Standards requirements*
- *Emission prices*

# AESC 2011 Natural Gas Forecast



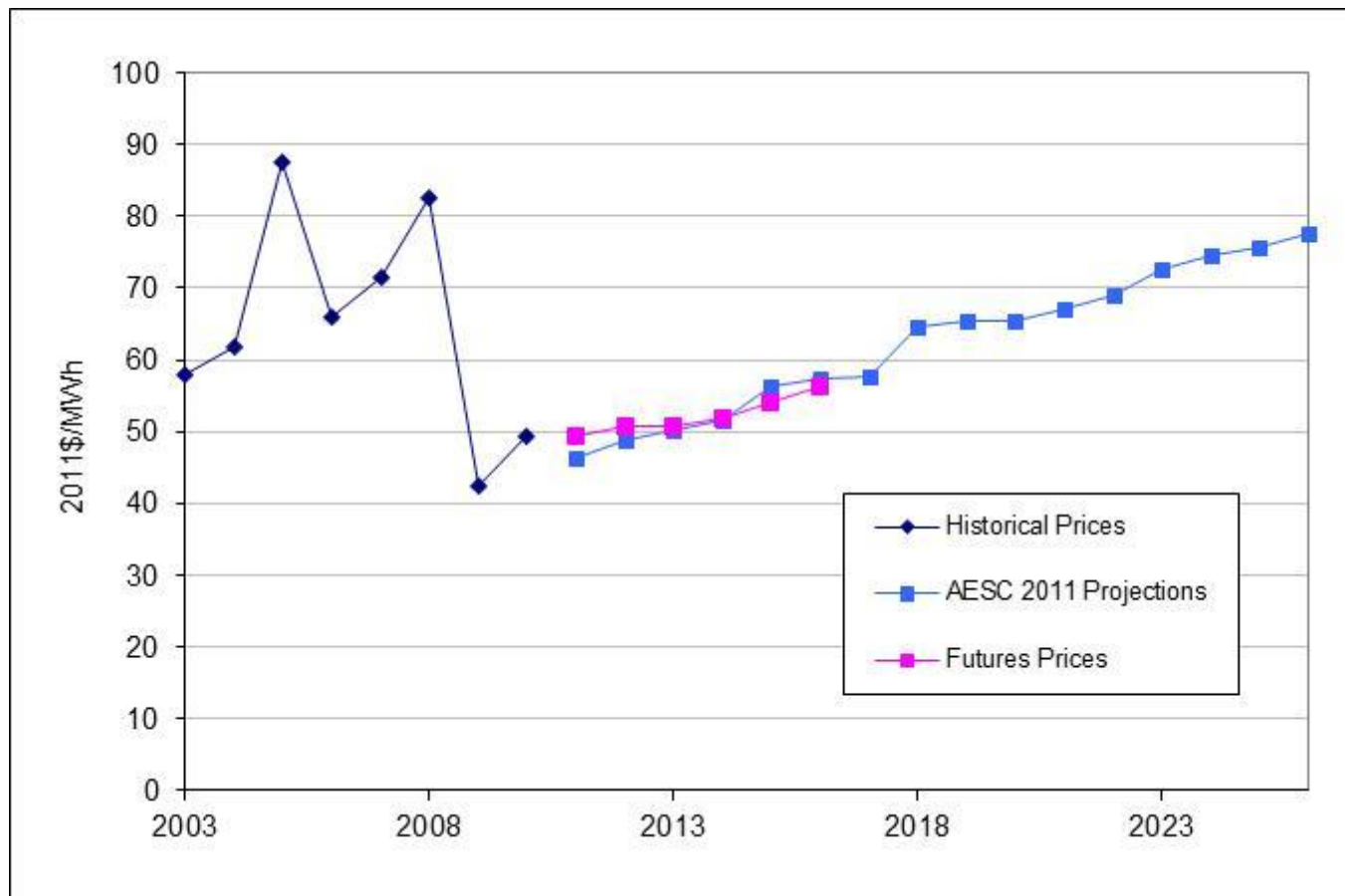
# AVOIDED ELECTRICITY COSTS: Renewable Energy Requirements



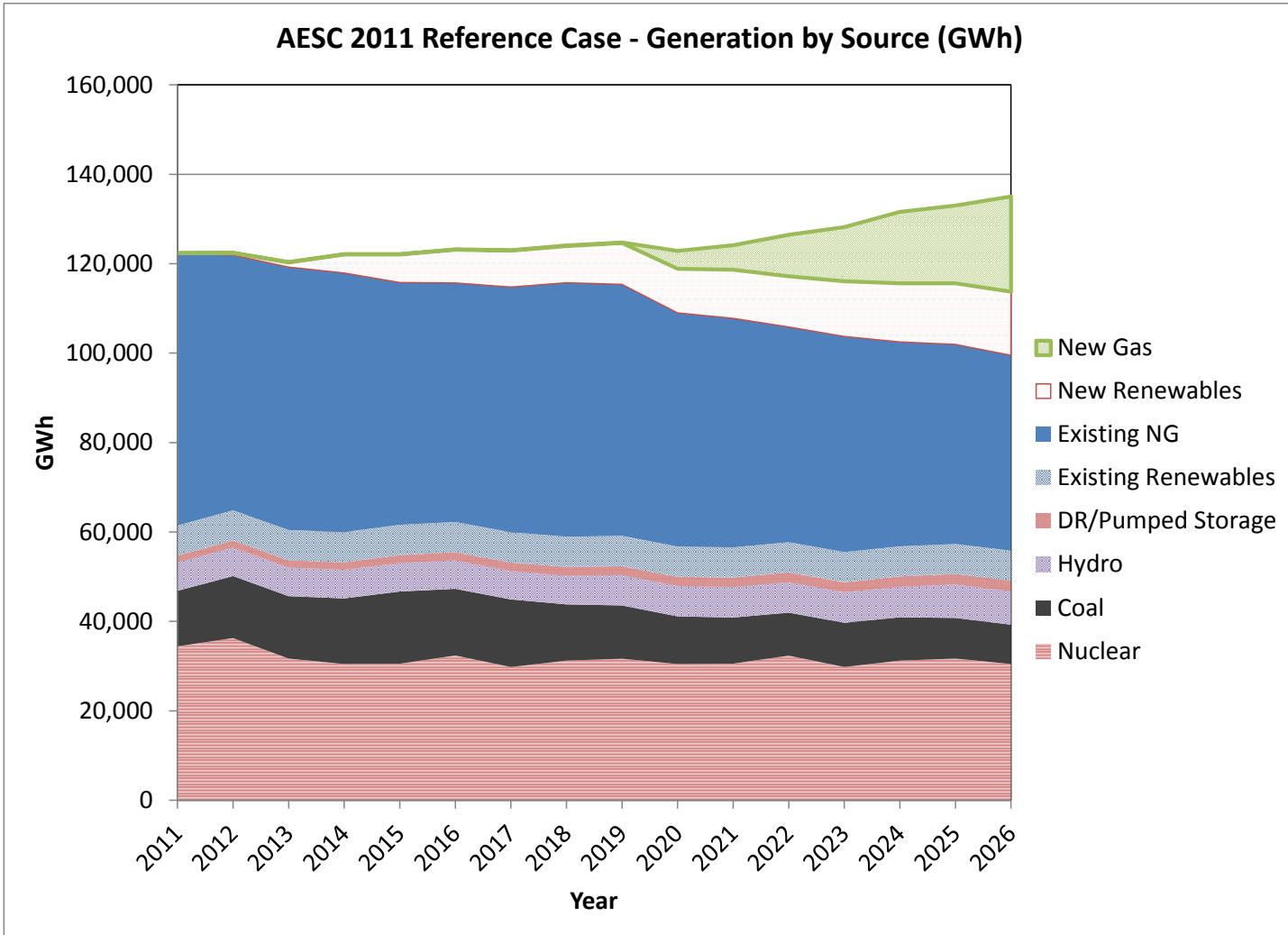
- Emission Allowance Prices
  - Emission allowance price forecasts for SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>
  - Price forecasts for SO<sub>2</sub> and NO<sub>x</sub> based upon values from allowance futures markets and experience with existing regulations
  - Price forecast for CO<sub>2</sub> assumes Regional Greenhouse Gas Initiative (RGGI), replaced by national regulations for CO<sub>2</sub> in 2018.

# AVOIDED ELECTRICITY COSTS - ENERGY

## Historical and AESC 2011– Annual Average Prices



# AVOIDED ELECTRICITY COSTS – Wholesale Energy Market Generation



## AVOIDED ELECTRICITY COSTS: Capacity

***Capacity:*** willingness to provide energy when required

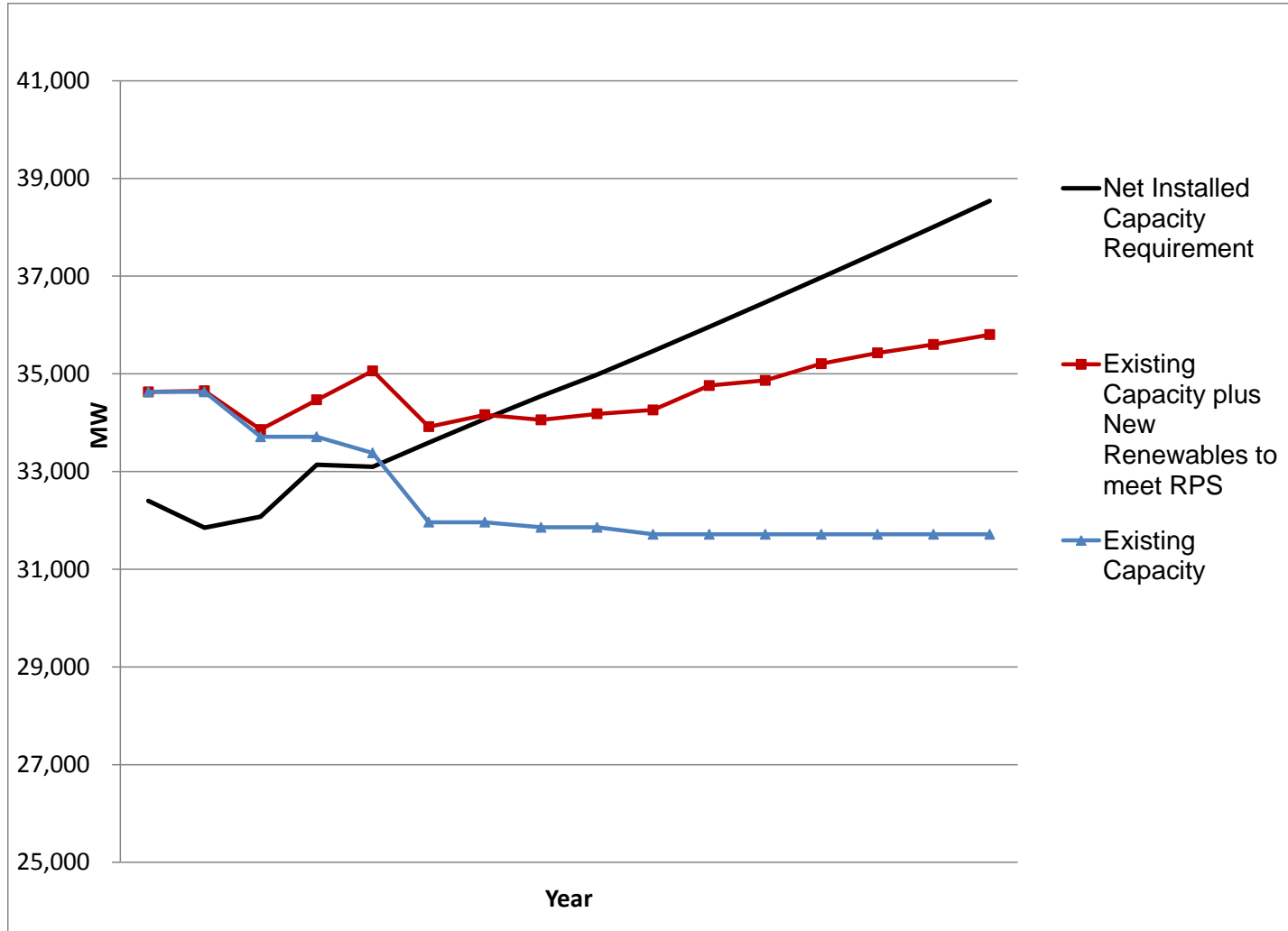
*Components incorporated into analysis*

*Low load growth*

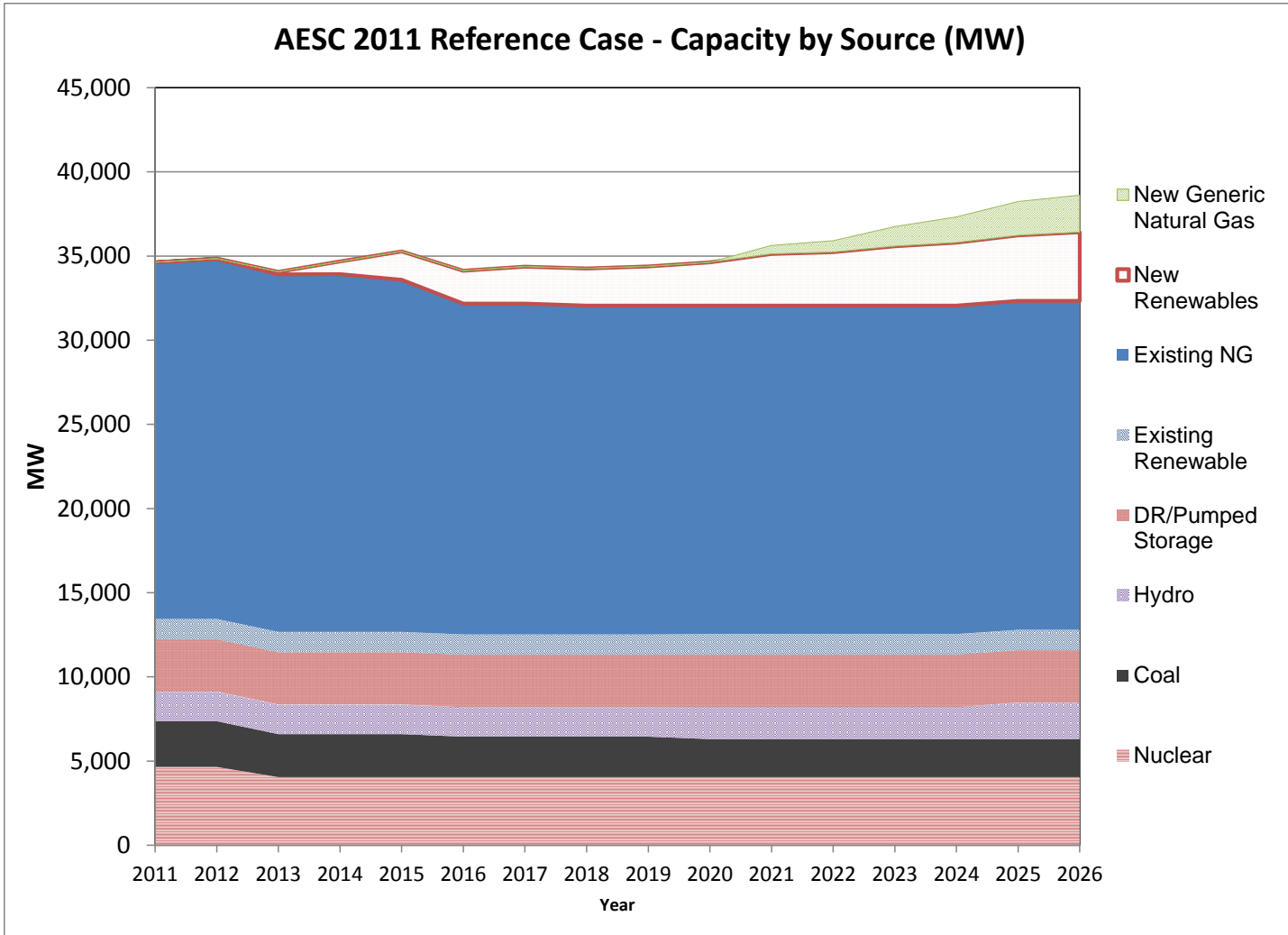
*Ample existing capacity in near term*

*Forecasted plant retirements*

# New England Generation and RPS Requirements

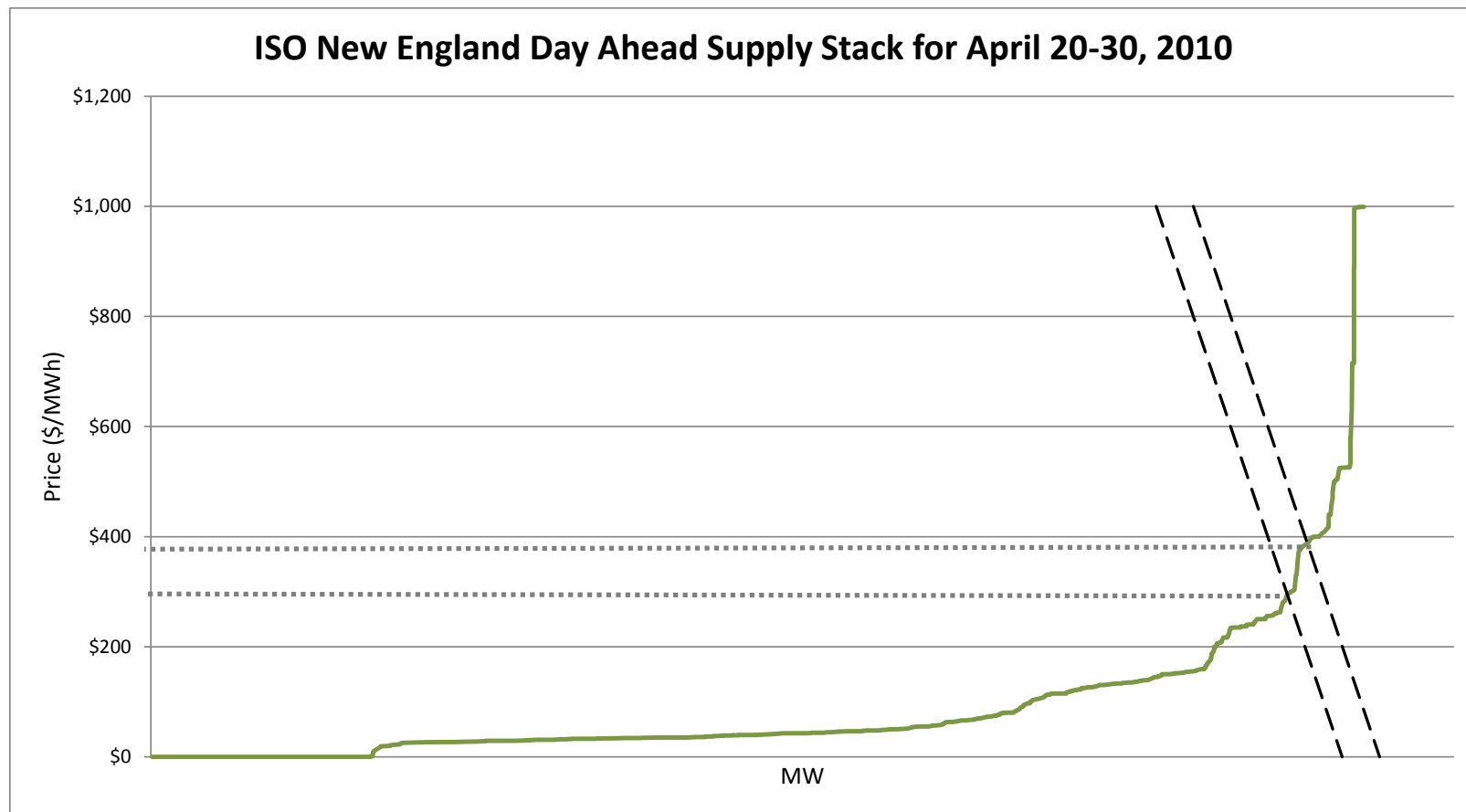


# AVOIDED ELECTRICITY COSTS – Capacity



- Demand reduction induced price effects (DRIPE) or Price Suppression effects
  - The marginal/ last generating unit sets the price paid to all generators in all markets
  - The last unit is always the most expensive unit
  - Therefore, reducing demand sets a new lower price, since different marginal unit sets price
  - This process benefits all ratepayers regardless of participation in energy efficiency

# Illustrative example of DRIPE or Price Suppression



- Program administrator specific information
- AESC 2011 surveyed participating utilities, but did not calculate avoided T&D costs.

# Avoided Cost of Electricity – Maine Specific Components

## AESC 2011: Maine Summer On Peak Avoided Cost Components (cents/kWh)

