

# Value of Reliable Price Signals in Driving Conservation

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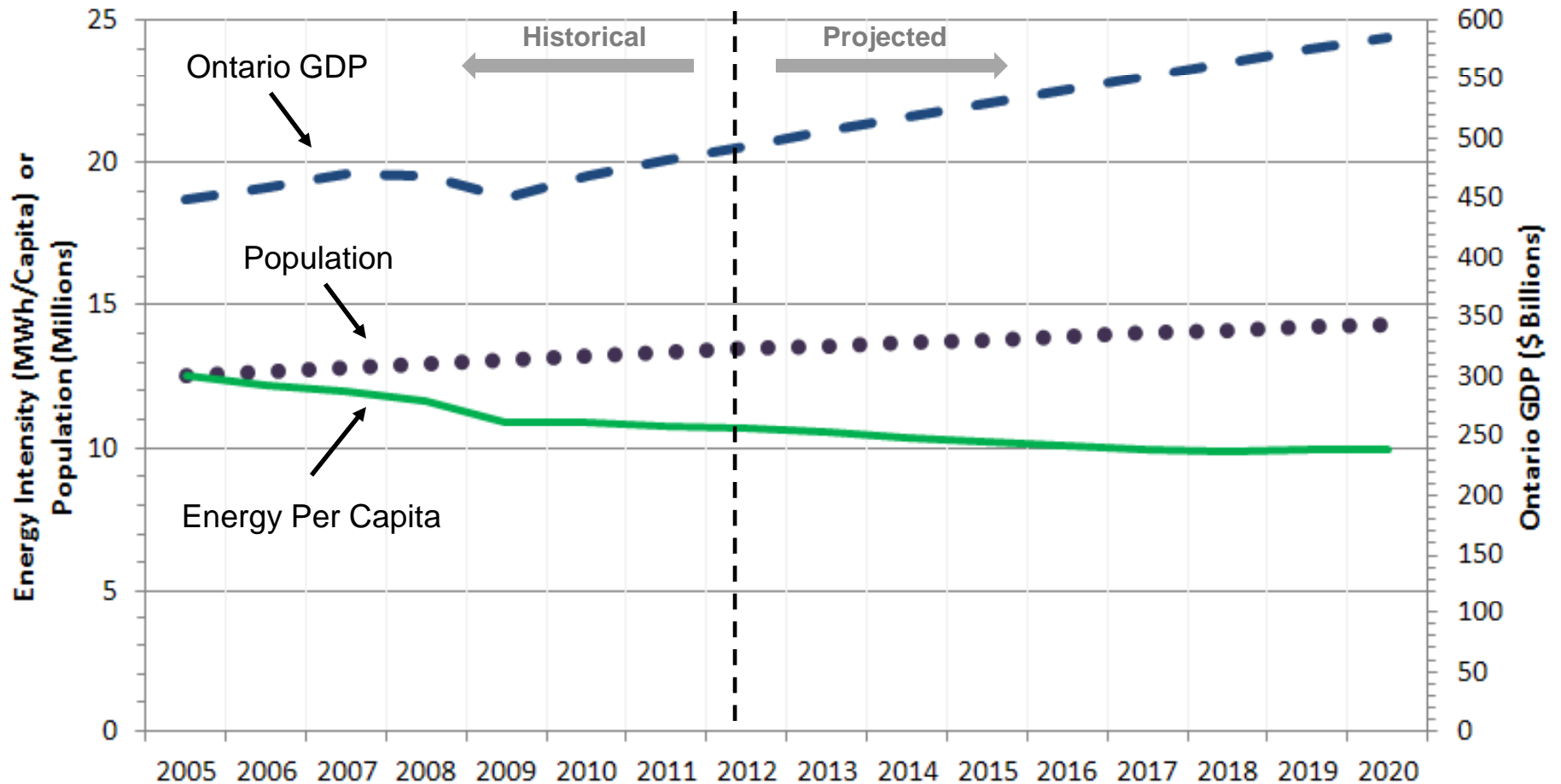
Ontario Power Authority

January 29, 2013

# Outline

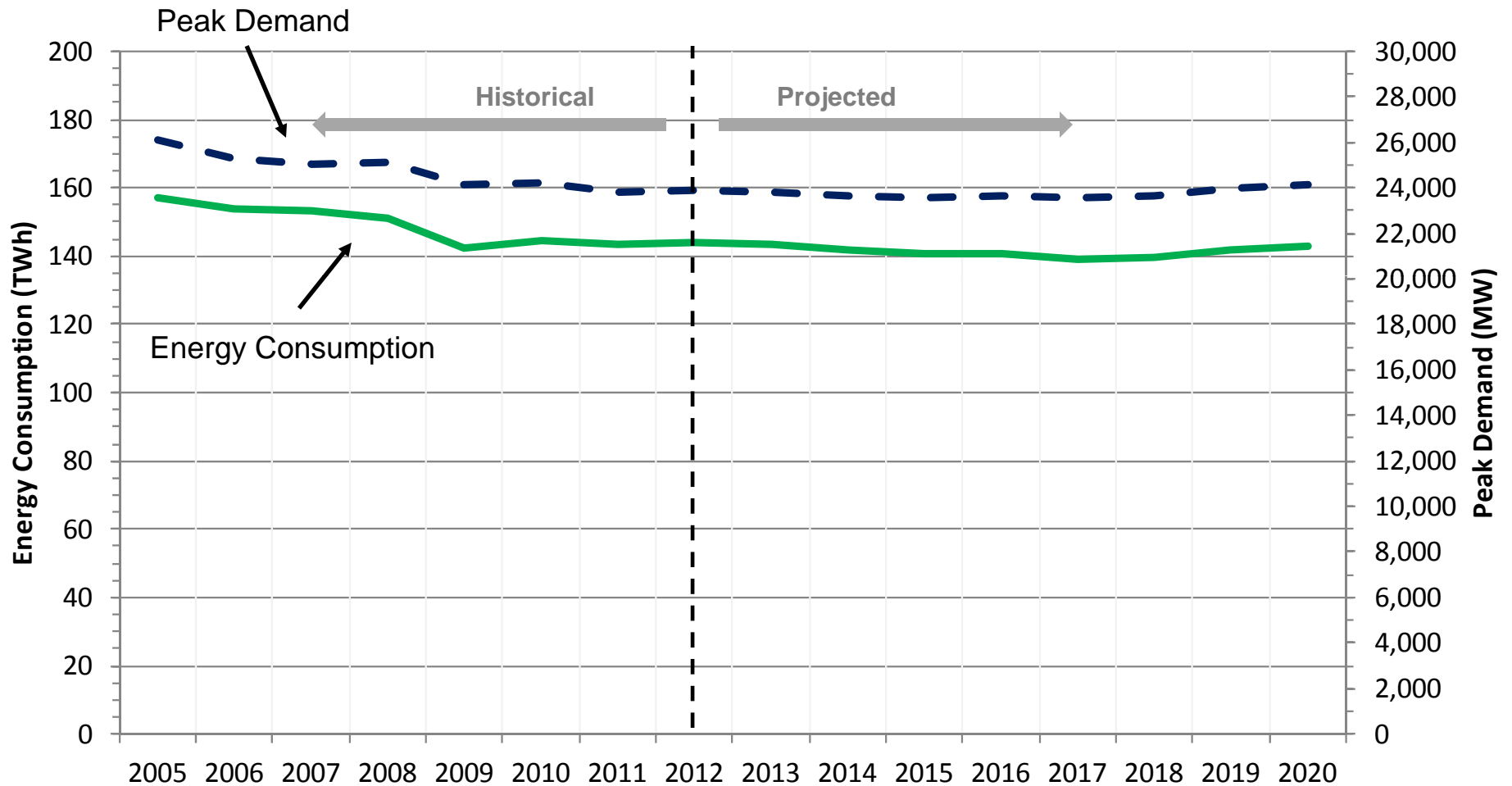
- Ontario demand and supply context
- Electricity sector evolution
- Ontario is well positioned to provide real-time price signals although market structure has a dampening effect
- Customers have opportunities to respond to price signals
- Long-term price forecasts provide the most effective signal to market participants

# Higher efficiency in electricity use in Ontario



Source: IESO/OPA

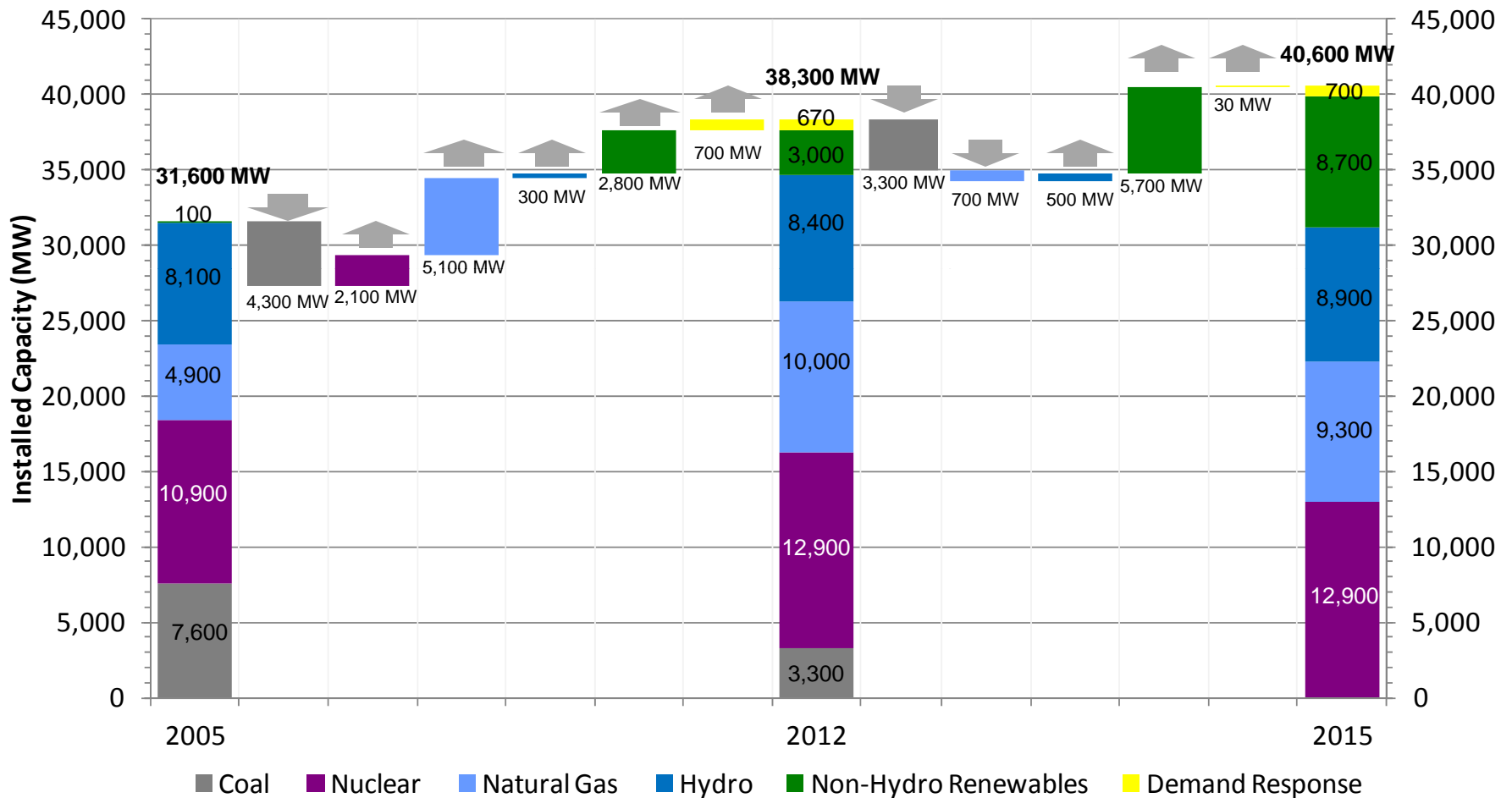
# Ontario electricity demand is declining



Source: IESO/OPA



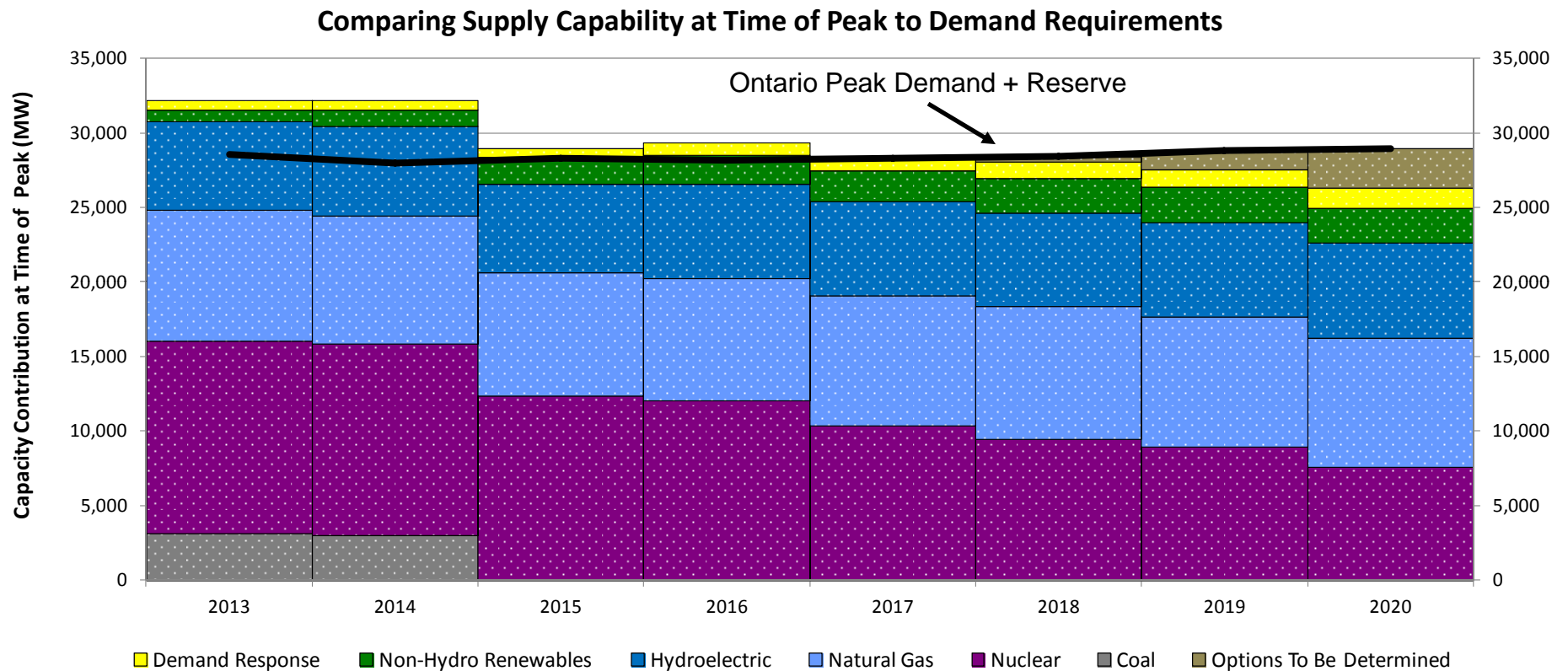
# Ontario's electricity system is undergoing a significant transformation



Demand Response in this table also includes residential load control devices

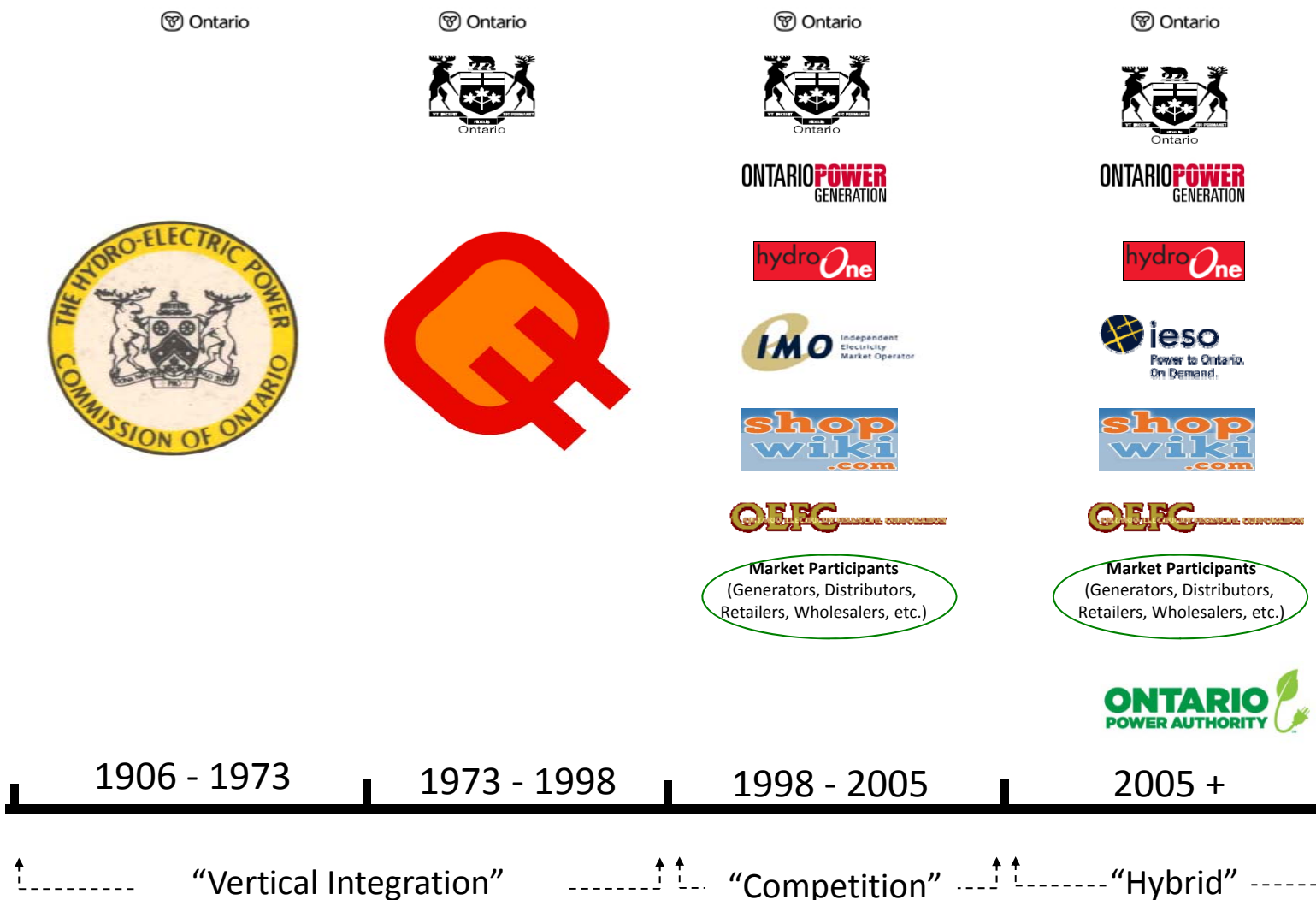
Source: IESO/OPA. Figures have been rounded.

# Ontario has adequate supply for at least next 5 years



- Need for additional resources arises in about 2018, there are available options to meet these needs, these options may need to be preserved and developed over the next few years

# Ontario's electricity sector 1906 - present



## Ontario is well positioned to provide price signals to customers

- Smart meter installation nearly complete for residential and small business customers
  - Enabled implementation of Time-of-use (TOU) rates
- In-home-display (IHD) offered through saveONenergy at home conservation program
- Interval meters for large customers





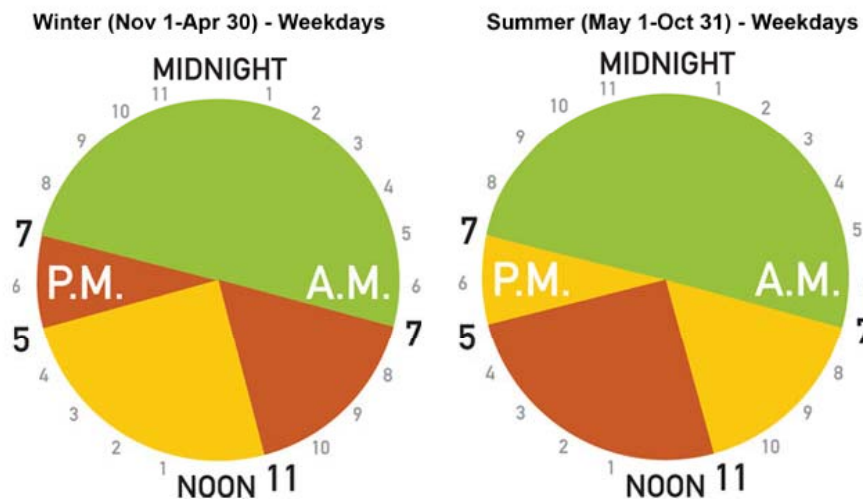
# Most customers exposed to TOU rates but not real-time market price fluctuations

- Residential and small business customers on regulated TOU rates
- GAM amounts are included in TOU rates
- Alternatively, customers may contract with retailers for fixed rates although GAM is then recovered separately

Off-Peak:  
\$0.063/kWh

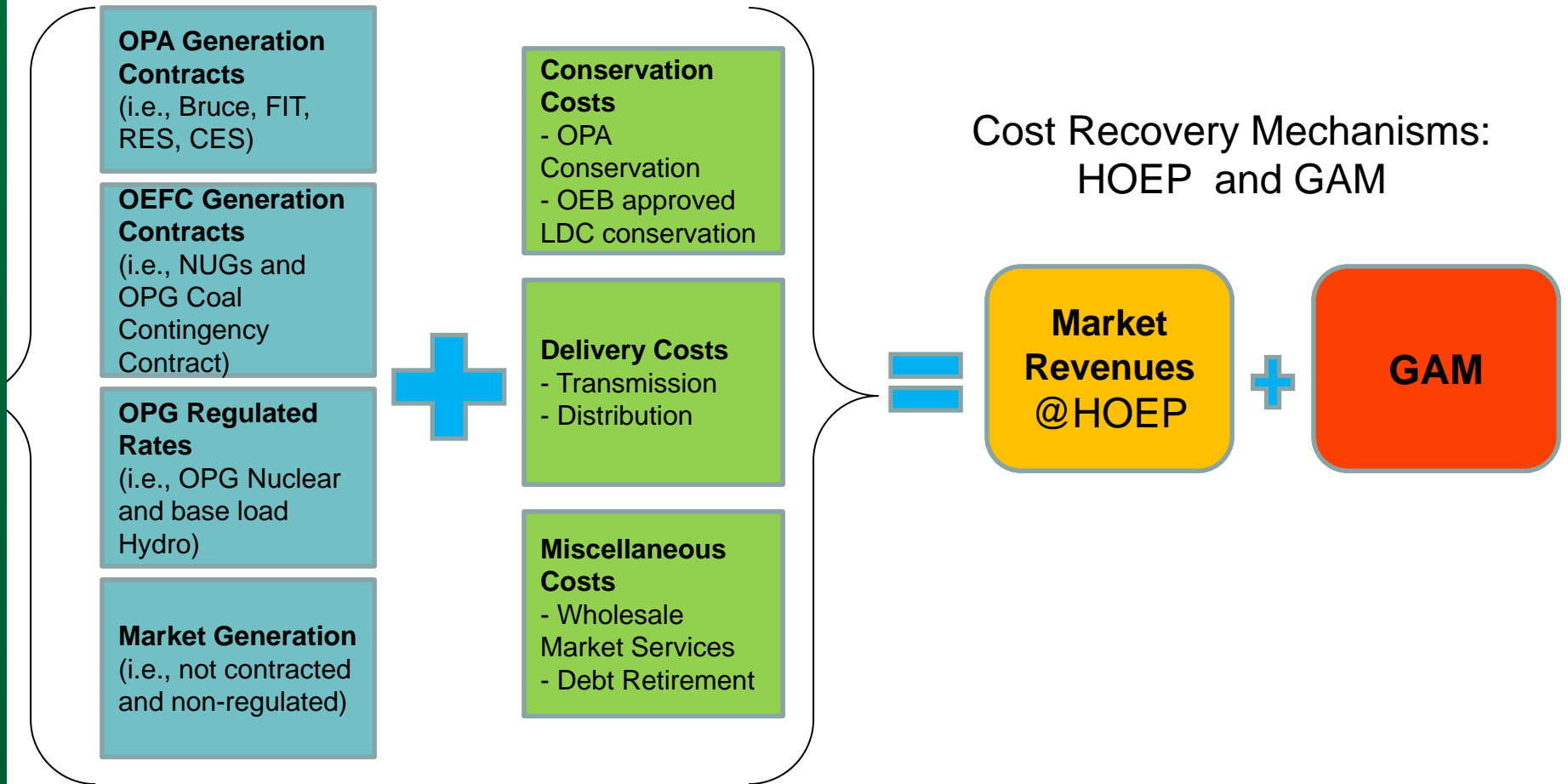
Mid-Peak:  
\$0.099/kWh

On-Peak:  
\$0.118/kWh



# Market design is a barrier to providing real-time price signals

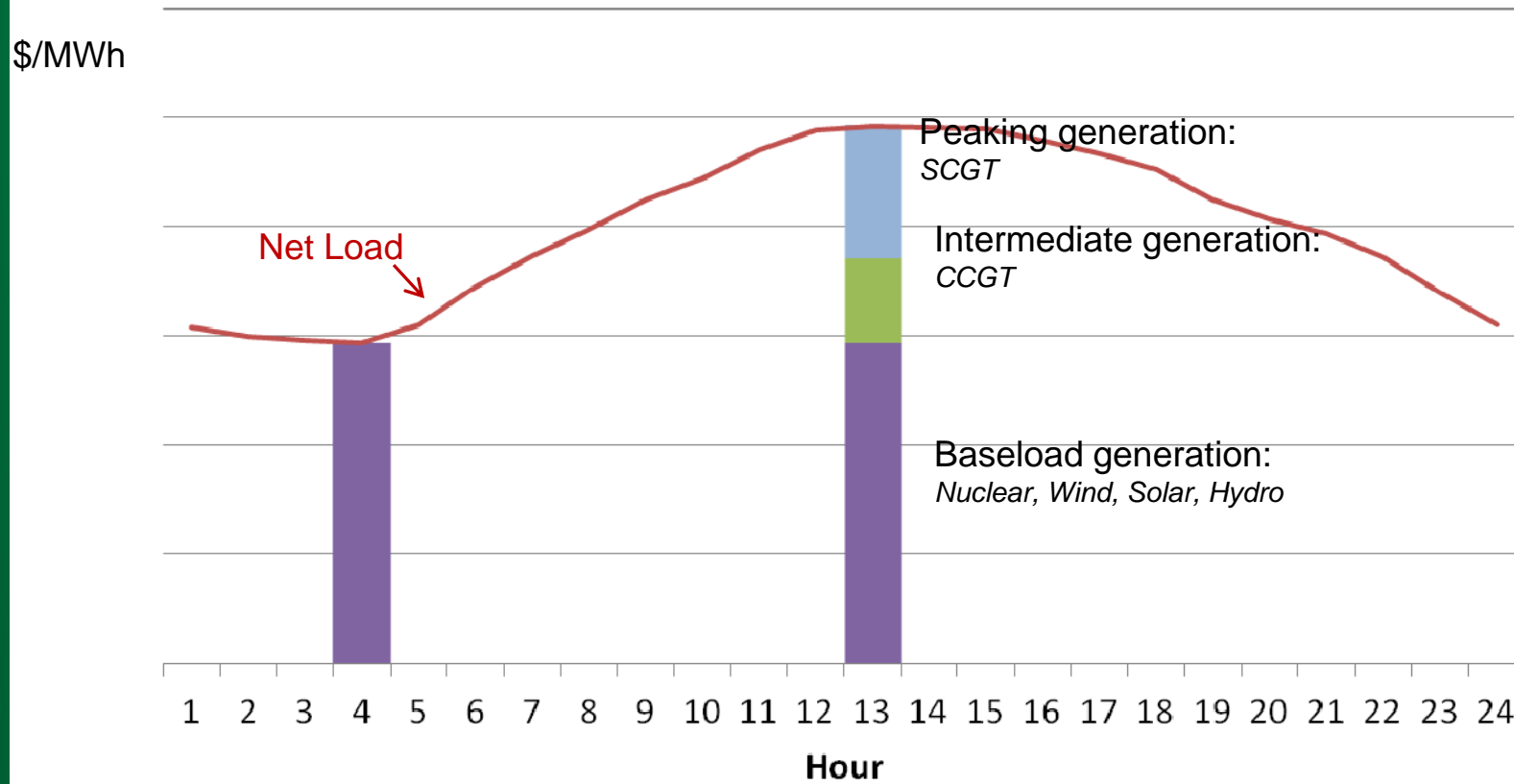
Generation, Conservation,  
Delivery, Miscellaneous Costs



# Ontario wholesale market

- Hourly Ontario Energy Price (HOEP) encourages efficiency in operation of real-time electricity system
- Generators bid into market and lowest cost supply resources are selected to meet load requirements
- Large sophisticated customers exposed to real-time market price
- Smaller customers pay time-of-use (TOU) rates
- Market revenues represent an increasingly smaller share of total electricity commodity costs and do not include transmission, distribution, regulatory and debt retirement charges

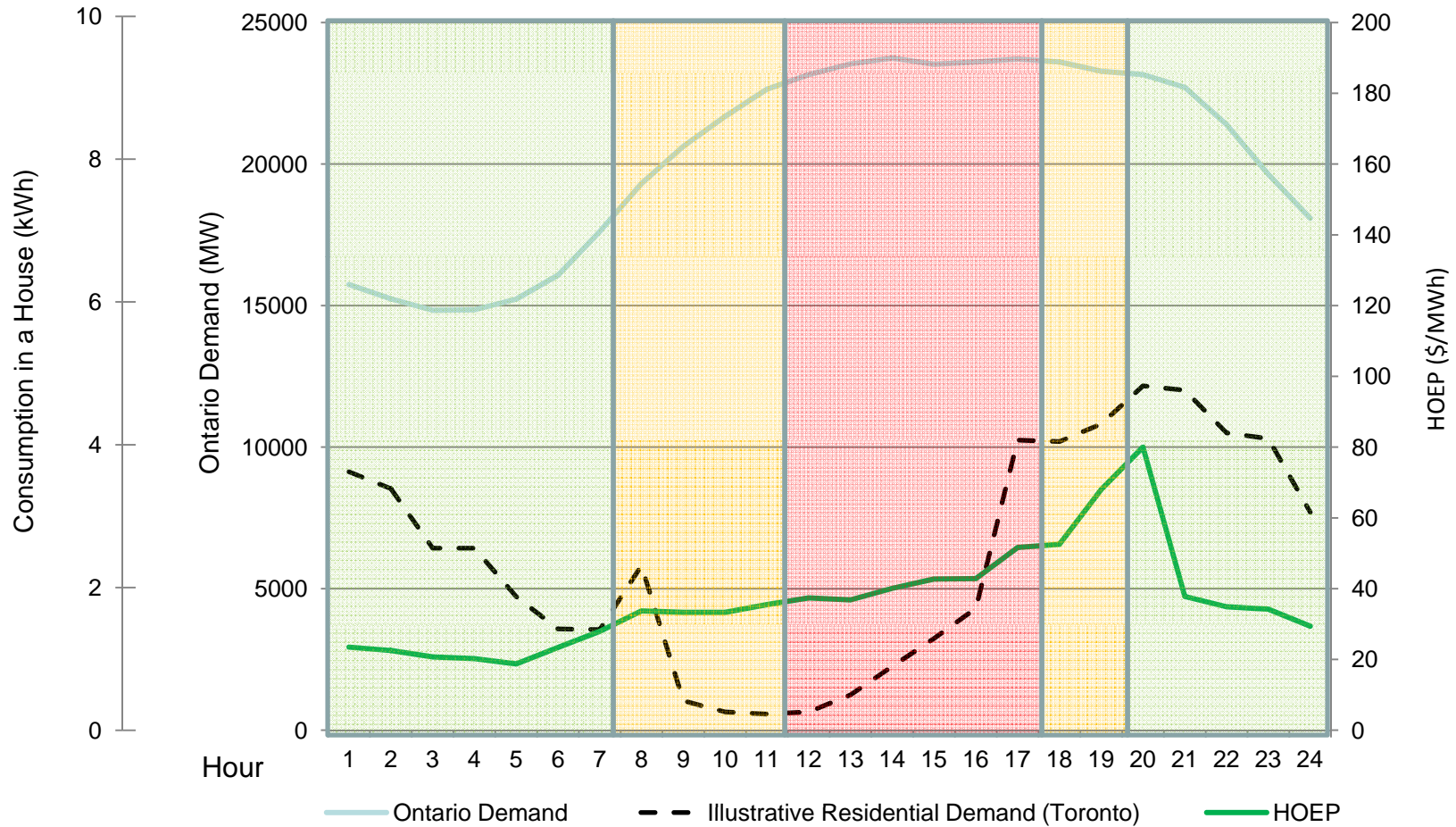
# Illustrative hourly energy costs



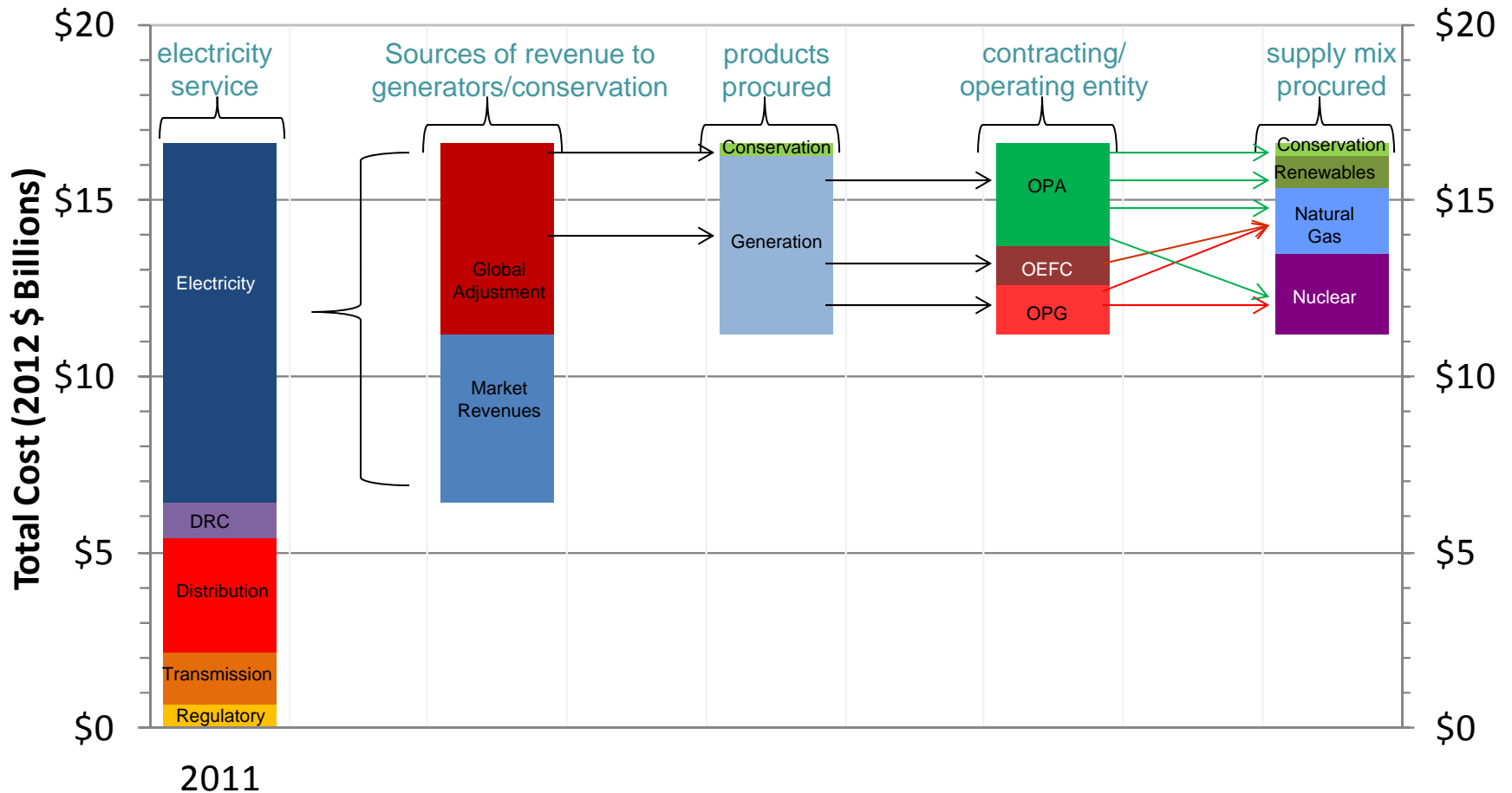
- However, real-time prices get 'lost in translation' due to market structure

# HOEP responsiveness to demand

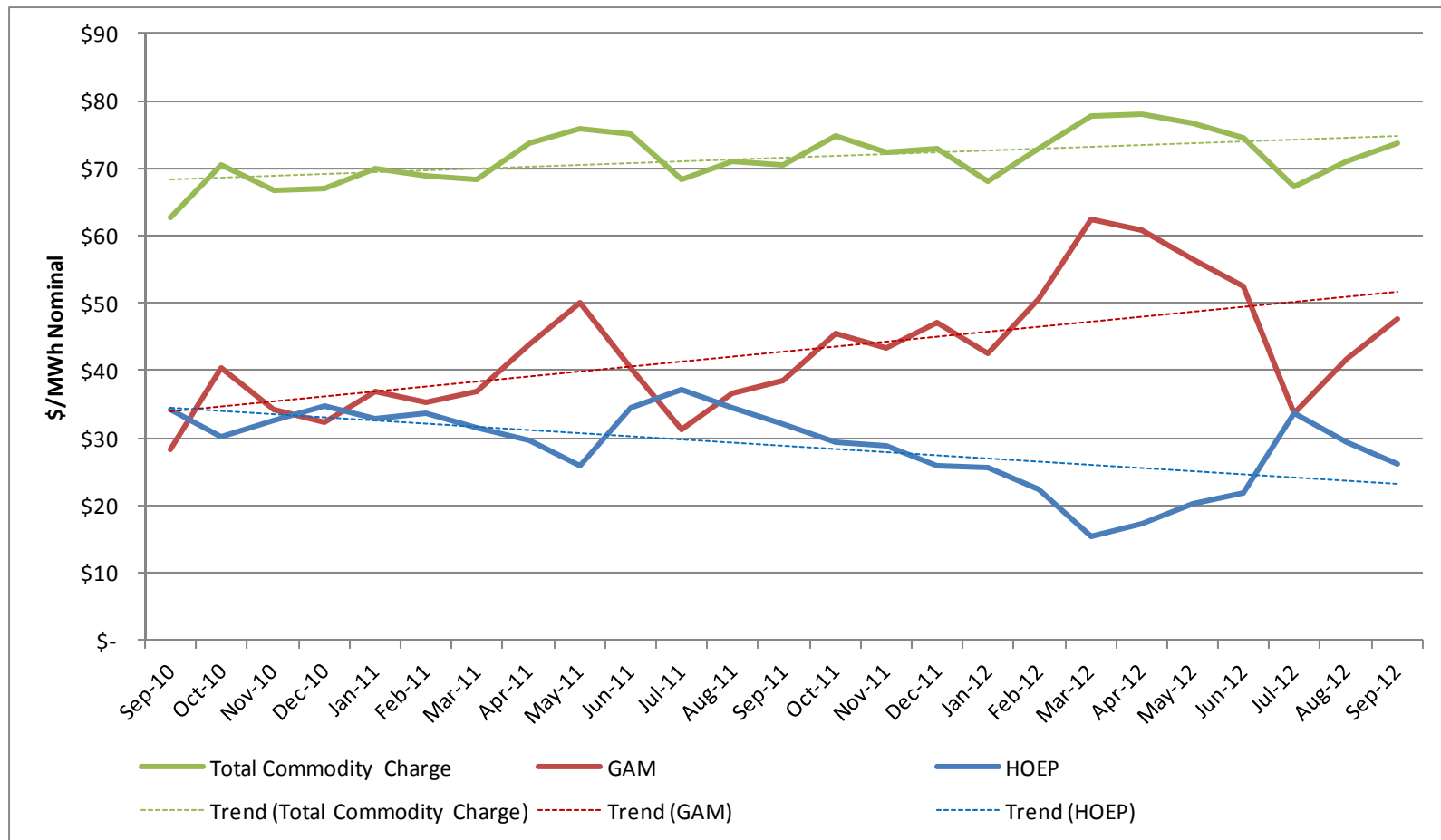
July 23, 2012



# Global Adjustment Mechanism is complex and difficult for customers to understand and predict



# GAM and HOEP move in opposite directions



## How GAM is collected from customers

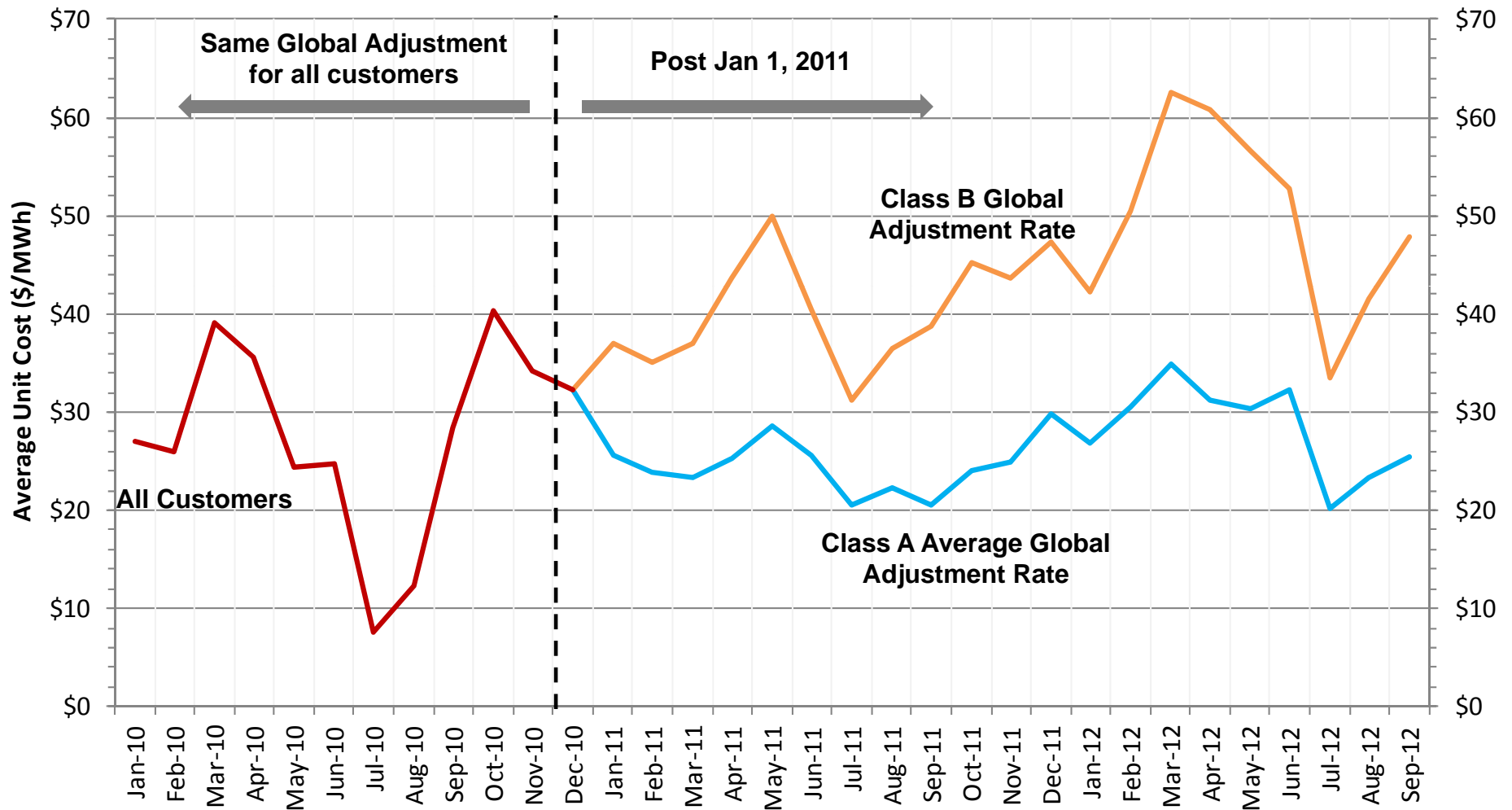
- Prior to January 1, 2011 – GAM was a uniform volumetric rate (total monthly cost divided by domestic demand)
  - Applicable to all customers (no difference in customer Class)
- After January 1, 2011 – GAM cost divided between Class A and Class B customers
  - Class A (demand greater than 5 MW) pay GAM based on their use during five highest peak demand hours in base period (“GAM High 5”)
  - Class B ( $\leq$  5MW) pay the remaining GAM cost on a volumetric rate basis

Schedule of when the GAM High 5 is determined for Class A customers (i.e., Base Period) and Adjustment Period, is when the determined shares are applied to GAM costs.

Base Period	Adjustment Period
May 1, 2010 to October 31, 2010	January 1, 2011 to June 30, 2011
May 1, 2010 to April 30, 2011	July 1, 2011 to June 30, 2012
May 1, 2011 to April 30, 2012	July 1, 2012 to June 30, 2013
May 1, (Year X) to April 30, (Year X+1)	July 1, (Year X+1) to June 30, (Year X+2)



# Illustration of the effect of High 5 participation on Global Adjustment Mechanism allocation



Source: IESO and Market Surveillance Report

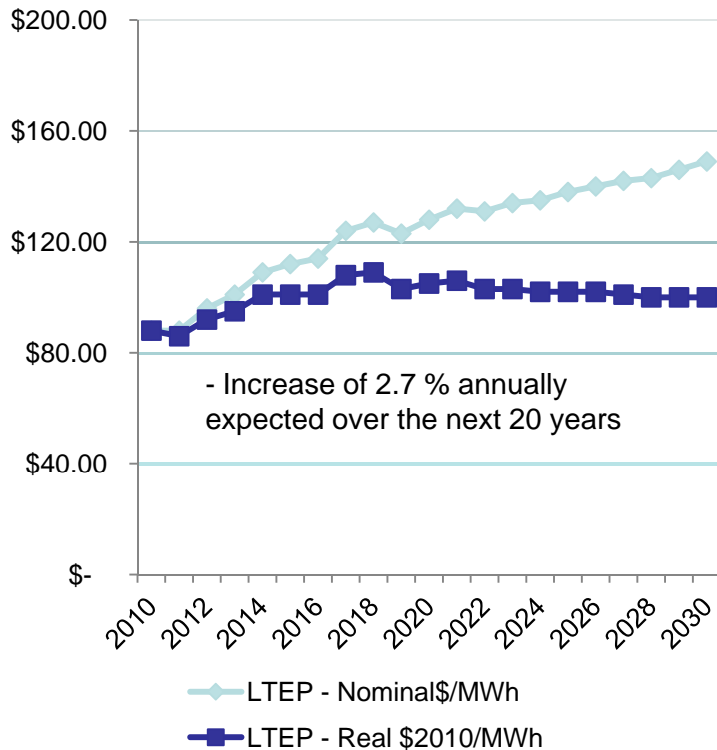
## Customers have opportunities to respond to price signals

- TOU rates
  - forecasted to achieve 308 MW peak demand savings by 2014
- GAM High 5 program
  - estimate of approx. 550 MW peak demand savings
- Emerging policy initiatives that supplement dampened real-time price signals to encourage consumers to better manage energy use
  - Supporting technology development
  - Information sharing and facilitating social benchmarking
  - Building capability

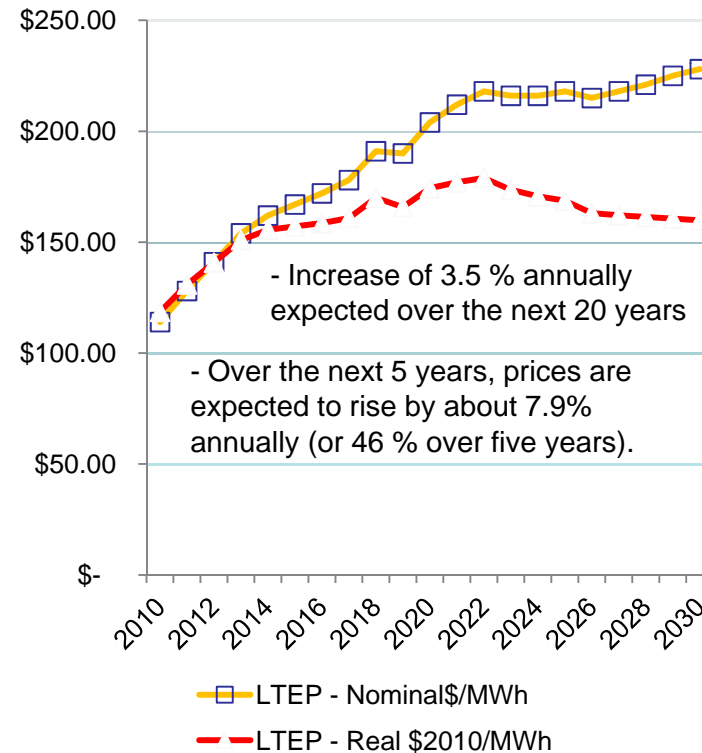
# Long-term price forecasts provide the most effective signal to market participants

- Policymakers, planners, regulators, system operators, program designers, etc. need to provide guidance on where prices are going

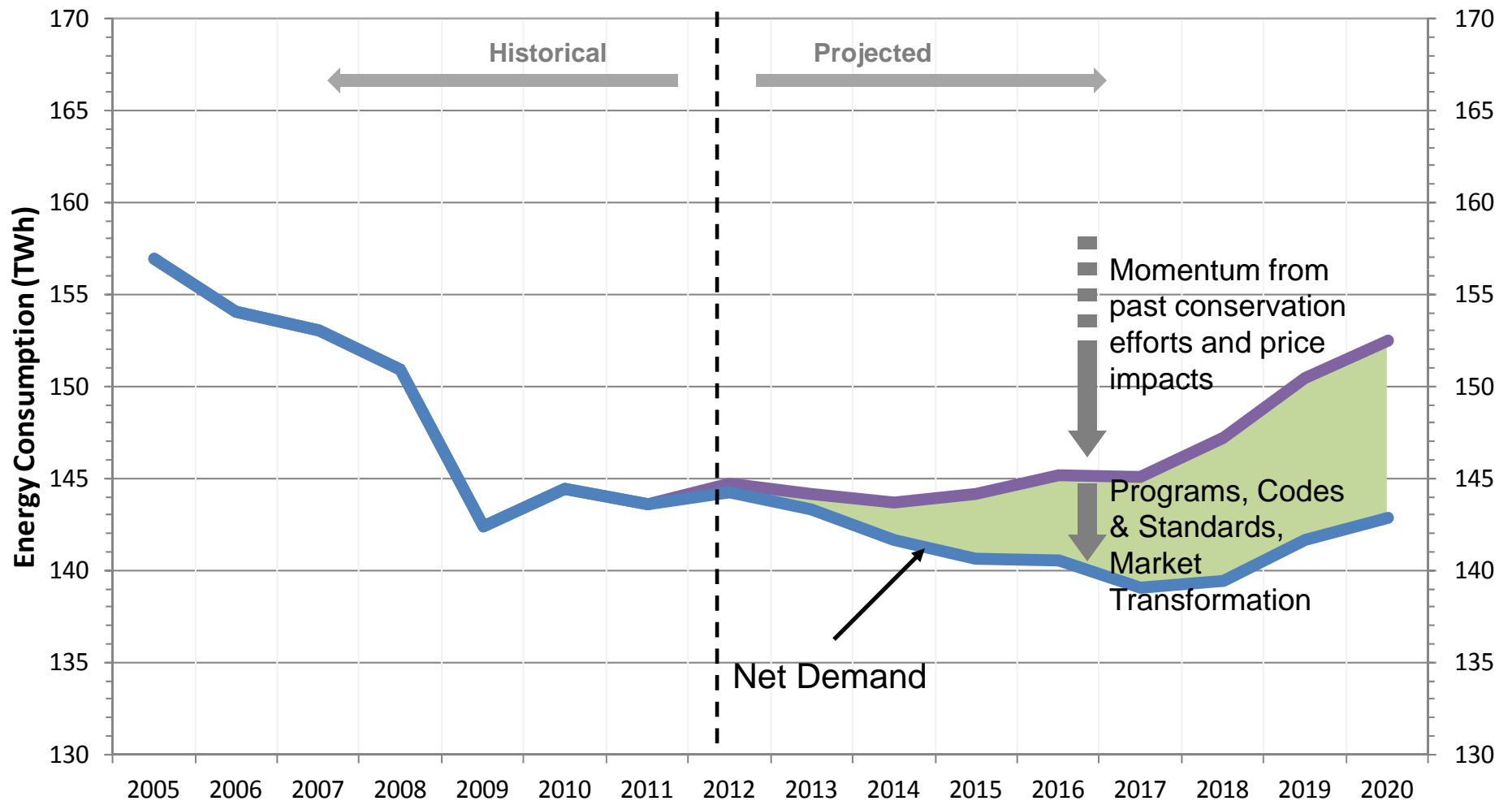
## Industrial Price Projections



## Residential Price Projections



# Combination of price impacts, programs and other initiatives will contribute significantly to lower demand



Source: OPA

# Observations

- Price is a powerful influencer
  - Behavior
  - Long term adoption of efficiency
- Program designers are recognizing the value of price incentives and adjusting programming to maximize the effect
  - Tools and information
  - Withdrawing support from transformed end uses
- There is uncertainty in the forecast of price effects, rely on market research and EMV to guide adjustments
- System planners need to continue to develop understanding of the price effects



## Save the Dates

Apr. 29-May 1, 2013

AESP's Spring Conference  
Dallas, TX

Sept. 30-Oct. 2, 2013

AESP's Fall Conference  
Seattle, WA

Jan. 27-30, 2014

AESP's National Conference  
San Diego, CA

For more information - [www.aesp.org](http://www.aesp.org)

