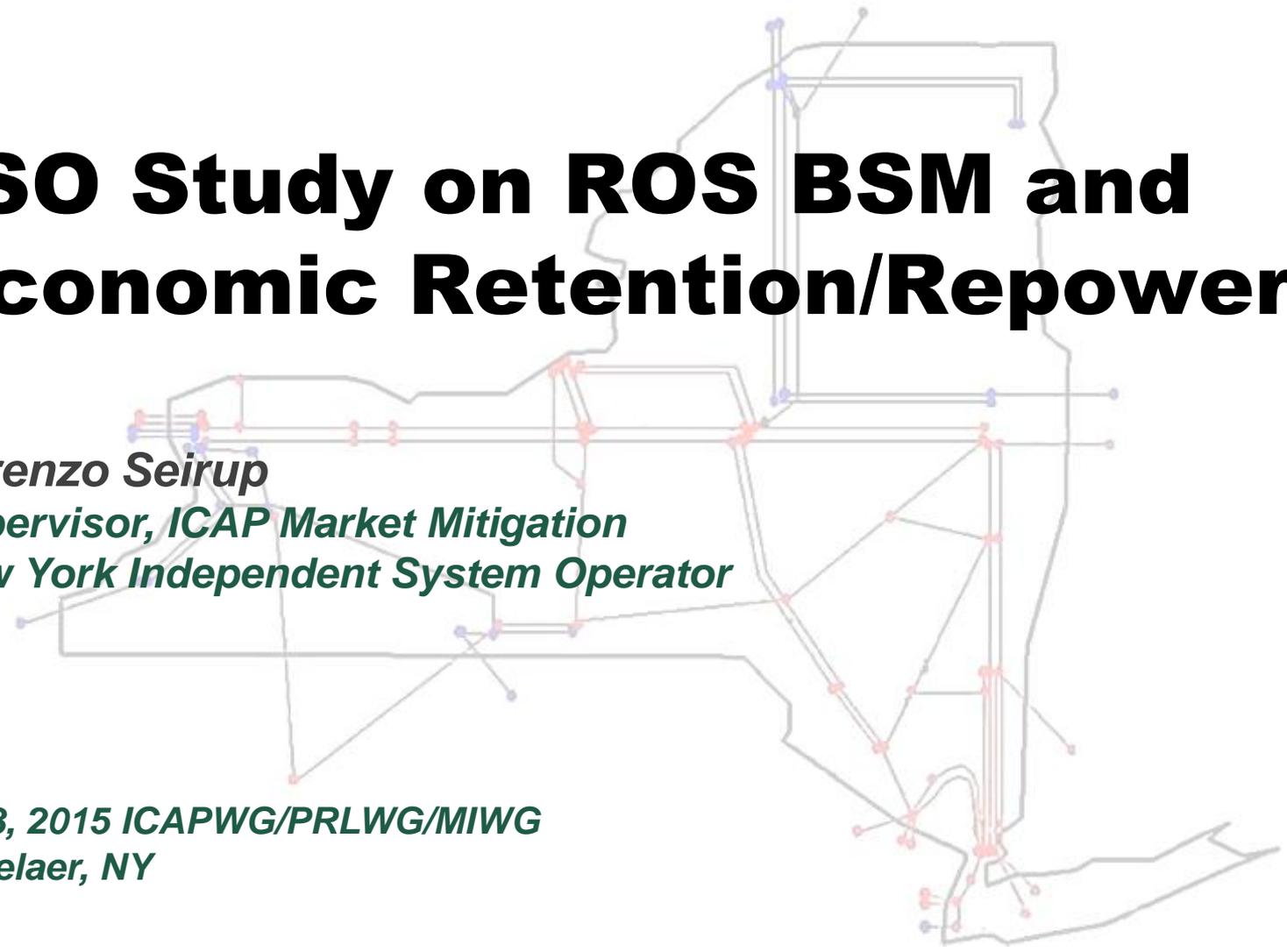


NYISO Study on ROS BSM and Uneconomic Retention/Repowering



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*May 18, 2015 ICAPWG/PRLWG/MIWG
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Background

- ◆ On March 19, 2015 the FERC issued an order directing the NYISO to establish, and report on, a stakeholder process
 - *150 FERC ¶ 61,214, FERC Docket No. EL13-62-000*
- ◆ In general, FERC asked that the NYISO look at:
 - *Whether there are circumstances that warrant the adoption of BSM measures in Rest of State (ROS)*
 - *Whether there is a need for, and what mitigation measures would need to be in place to address, repowering agreements with the potential to suppress capacity prices*
- ◆ At the April 30th ICAPWG, the NYISO
 - *Presented to Stakeholders, and sought input on, an overview of study objectives*
 - *Sought input on issues raised for consideration in the FERC Order.*
- ◆ The NYISO's report to the FERC is due June 17, 2015

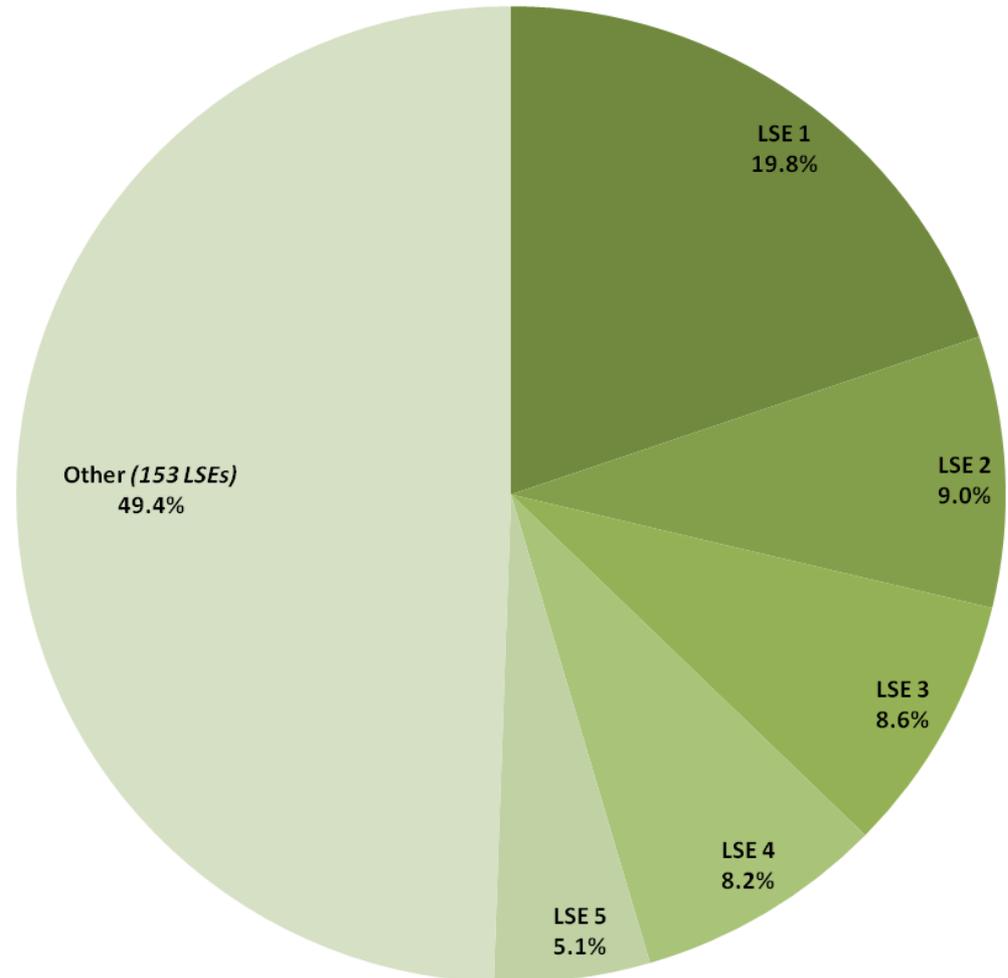
Objective

- ◆ **Present the NYISO study's findings to date**
 - *Short-term price impacts from the addition of supply*
 - *Cost savings to a Load Serving Entity(ies) in ROS from the addition of supply*
 - *The elasticity of ROS supply and the longevity of price fluctuations*
 - *Interregional liquidity and elasticity*
 - *The elasticity of internal supply*
 - *Restoration time*
 - *Update on CONE estimates*
 - *Discussion*
- ◆ **Describe further work and next steps**
 - *Comparison of potential market-power incentives with CONE values*
 - *Repowering & uneconomic retention*
 - *Continue further with the analysis presented today*
- ◆ **Solicit Stakeholder feedback**

ROS LSE Requirements

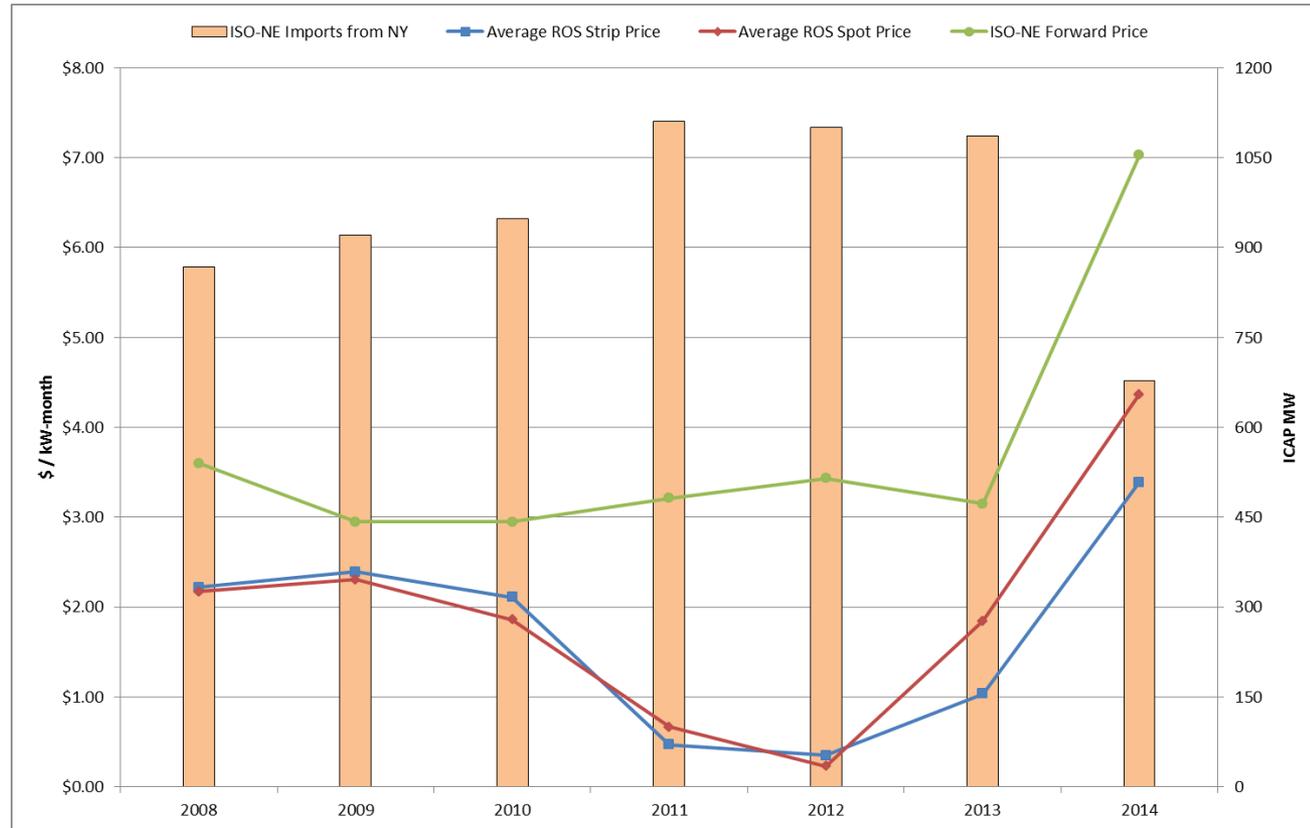
LSEs' shares of ROS Requirements

- *The NYISO is looking at what market share two of the largest entities would control if they were acting in concert*
 - Common practice when exploring the potential for market power
- *An assumed 30% market share is a reasonable and conservative amount to study*
- *This means that a hypothetical 'conglomerate LSE entity' would see 30% of the roughly \$46.5M/year presented on the previous slide as savings – \$14M/year (per 100 MW addition)*



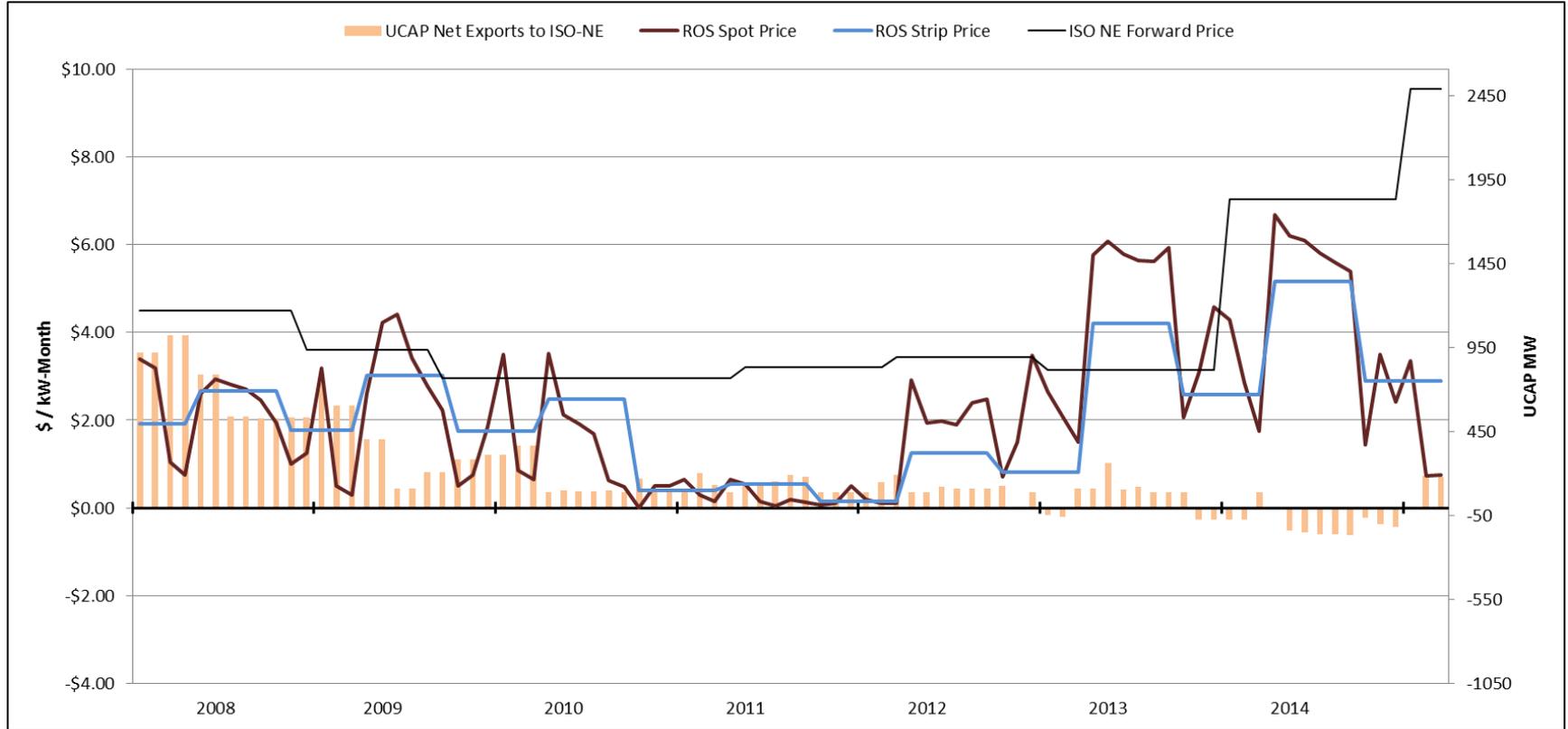
- **At first glance, the data suggests relationship between Forward Capacity Auction (FCA) sales and NYCA capacity prices at the time**
- **However, the underlying supply elasticity is likely overstated by this historic view because:**
- **Resources with EFORDs historically had an incentive to sell to ISO-NE, because the ISO-NE FCA historically settled on ICAP values, and the NYISO on UCAP**
 - **This may not be the case going forward with the implementation of ISO-NE's pay-for-performance design**
- **A large portion of the capacity sold into ISO-NE in the FCA was brought back in subsequent reconfiguration auctions**

Capacity Exports – ISO New England FCA



- **This behavior was at least in part an artifact of the early ISO-NE forward capacity auctions clearing at the price floor. There was no price floor in the incremental auctions, allowing the incremental auctions to predictably clear at a lower price**

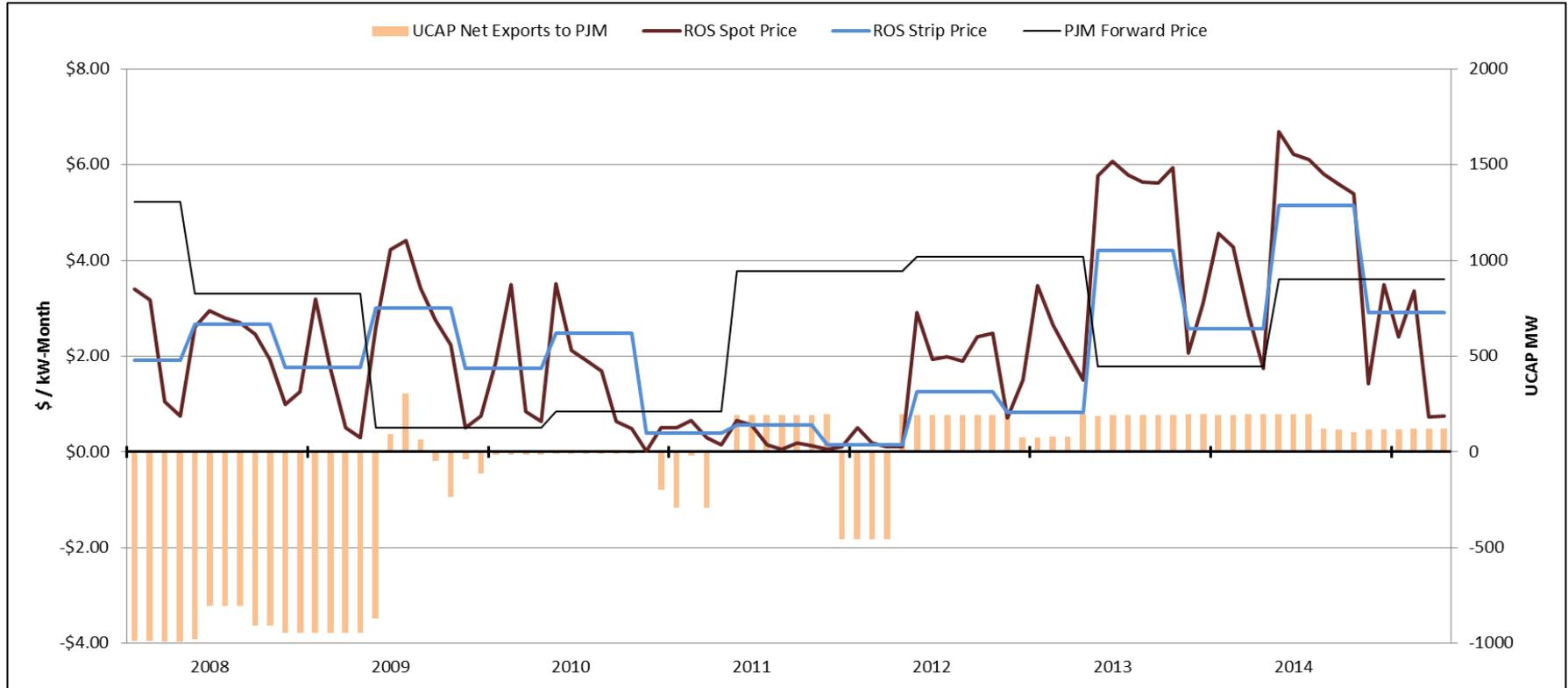
Capacity Exports – Realized Monthly Sales to ISO New England



Discussion

- This graph shows the relationship between NYCA capacity prices, ISO-NE forward prices, and monthly non-UDR capacity sales between New York and New England
- These sales remained low even several years after the decline in NYCA capacity prices in late 2010
- It is difficult to predict how the behavior of sales to ISO-NE will change in the future as the ISO-NE FCM prices are expected to rise higher than they were in the historical period, and ISO-NE continues to make refinements to their market design

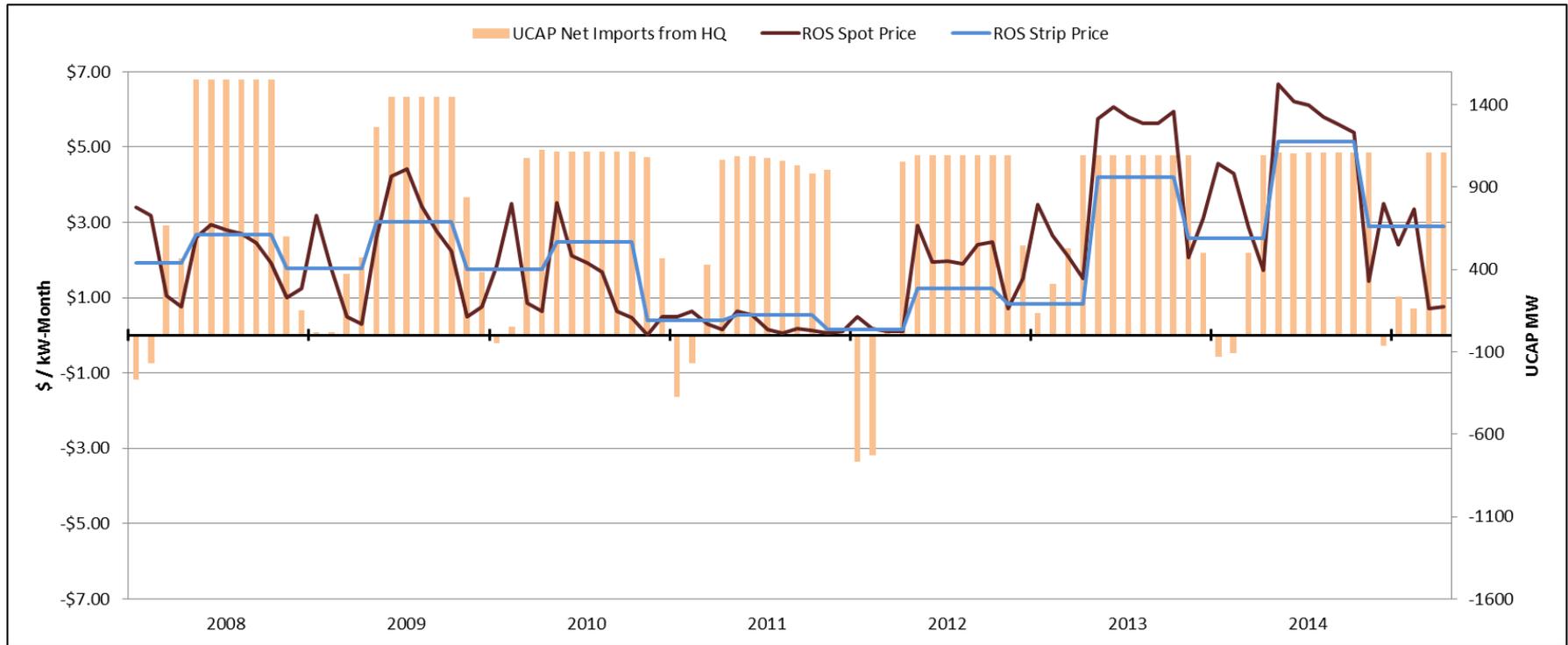
Capacity Exports – Realized Monthly Sales to PJM



Discussion

- This graph shows the relationship between NYCA capacity prices, the PJM forward price from the Base Residual Auction (BRA), and monthly non-UDR capacity sales between New York and PJM
- There is not a clear response in these sales to the decline in NYCA capacity prices in late 2010, or to the increase in NYCA capacity prices in 2013

Capacity Exports – Net Monthly Imports from HQ



Discussion

- This graph shows the relationship between NYISO capacity prices and monthly capacity sales between Hydro Quebec and New York
- There not a clear response in these sales to the decline in NYCA capacity prices in late 2010, or to the increase in NYCA capacity prices in 2013

Liquidity of Neighboring Control Areas

- *The NYISO is looking at the volume and associated prices of capacity transacted in reconfiguration auctions and bilaterals in the PJM and ISO-NE Control Areas*
- *Low liquidity and/or elasticity may make it more difficult for ROS capacity to take advantage these auctions and lead to a weaker short-term market response to lower NYCA prices*

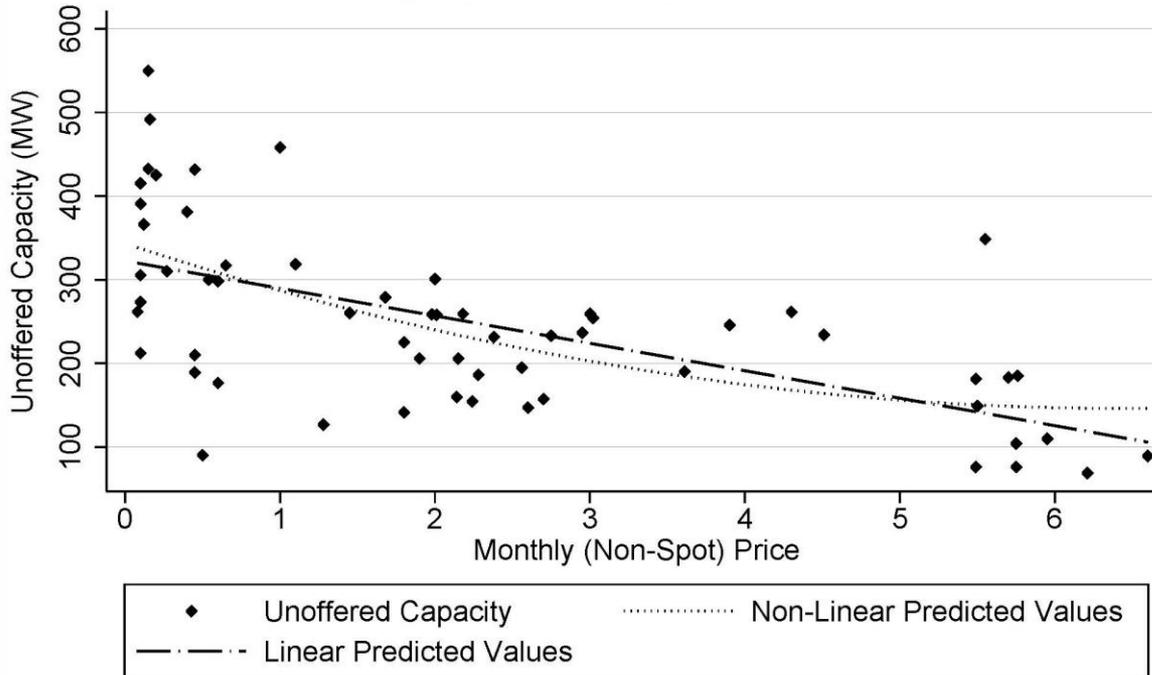
Overall conclusions about interregional elasticity

- *The sustained drop in NYCA capacity prices beginning in the autumn of 2010 shows that the interregional short-run elasticity of supply is too low to counterbalance sudden, unexpected price changes*
 - **Some factors that may impede the type of interregional sales that could otherwise respond to short-term fluctuations in capacity prices:**
 - The existence of differences in the market designs of the NYISO, PJM, and ISO-NE
 - The liquidity and elasticity of reconfiguration auctions

- *Long-term or expected changes in prices, such as those resulting from the addition of new generation, may spur a larger interregional response*
 - **This type of longer-term interregional response may be able to take advantage of neighboring Control Area's forward auctions and should therefore be less affected by the above factors**

Elasticity – Internal Supply

Uncovered Capacity and Monthly (Non-Spot) Capacity Price
Summer 2010 - Winter 2014/2015



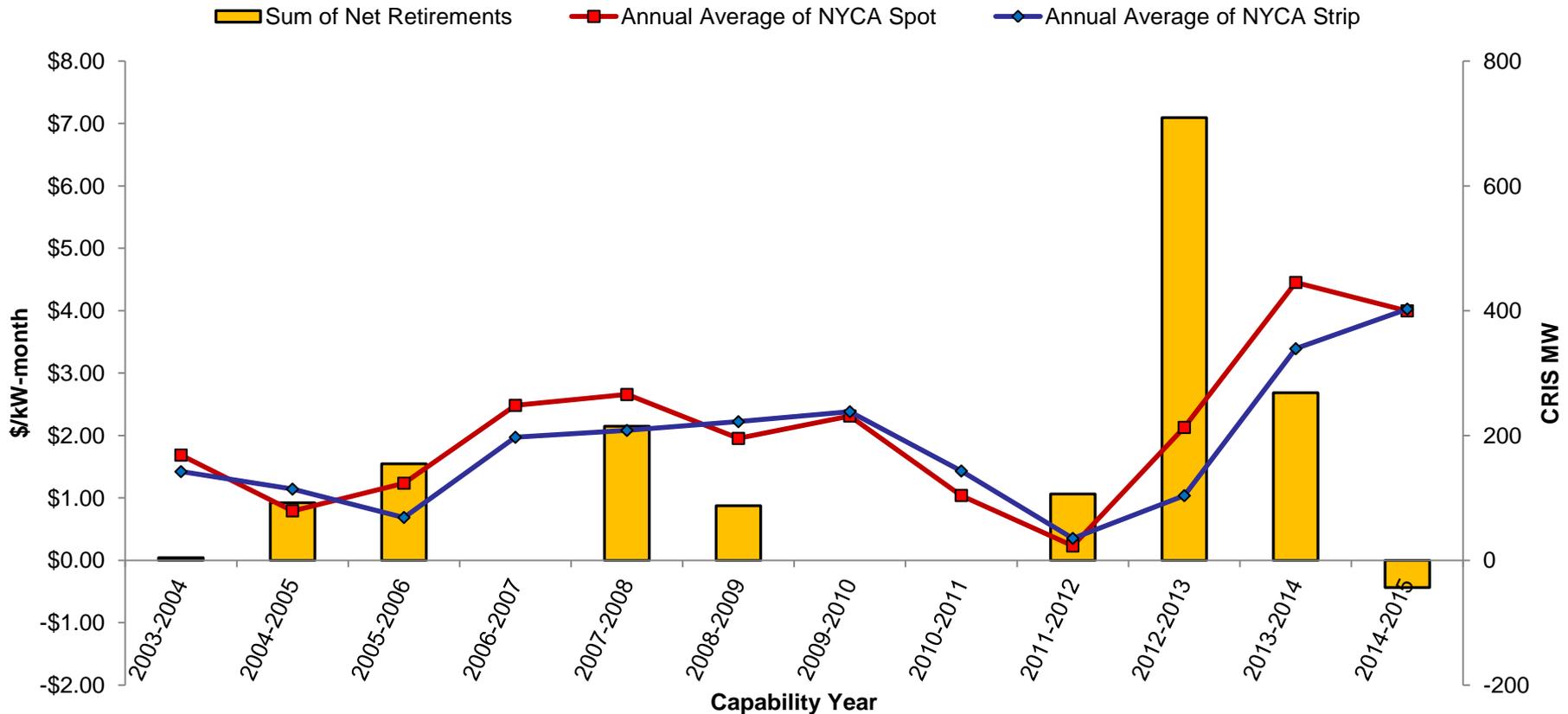
	Unoffered Capacity	
	OLS	Quadratic
Monthly	-32.843 (5.86)**	-61.103 (3.05)**
Monthly ²		4.731 (1.47)
Constant	322.581 (18.90)**	343.404 (15.57)**
R ²	0.37	0.39
N	60	60

Standard errors in parentheses. * $p < 0.05$; ** $p < 0.01$

Discussion

- The amount of capacity that is available at the time, but not offered in the Spot Auction shows an inverse relationship between the amount of unoffered capacity and the Monthly (not spot) Auction price
- Regression analysis indicates that a \$1/kW-month reduction in the Monthly Auction price is associated with an approximately 30 megawatt increase in unoffered capacity

NYCA ICAP Price and "Net" Retirements

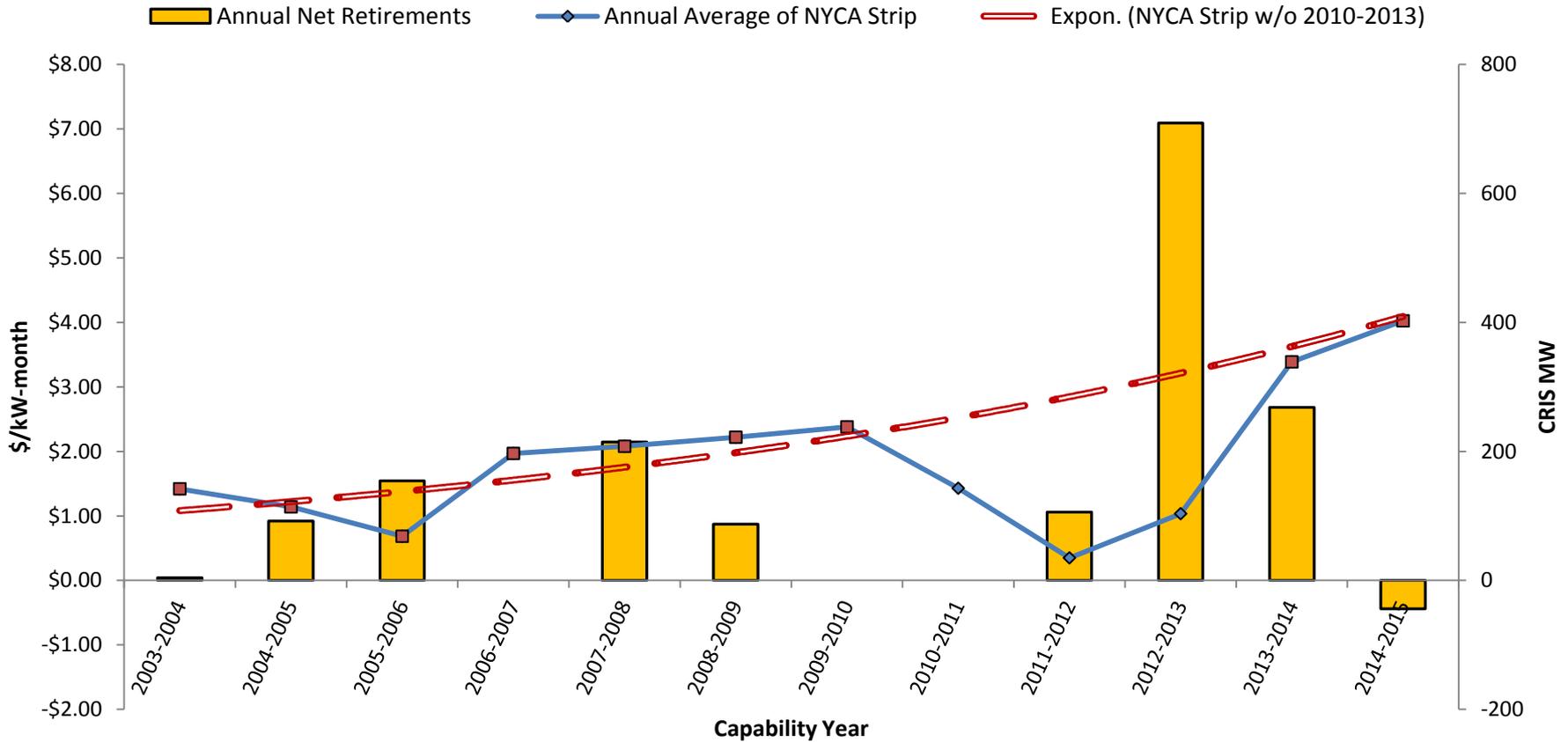


Discussion

- In our historical period, internal capacity appears to be responsive to price fluctuations, and is the primary restorative force
- Mothball and retirement decisions can be influenced by a number of factors, but low capacity market prices will be a key consideration

Elasticity – Restoration Time

NYCA ICAP Price Trend Restoration



Discussion

- **The time it takes the market to respond will dictate the longevity of any cost savings from price suppression**
 - The NYCA market is not at long-run equilibrium over our historic period, so it is appropriate to look at trend restoration
 - In our case study, we see this restoration occurring after 24-48 months

The NYISO is preparing ROS CONE estimates for use in this study

- *Based on estimates developed during the latest Demand Curve reset*
- *Analysis to include multiple engine type technologies for Zones C & F*
 - **Gas turbine applications**
 - GE LMS100
 - Siemens SGT6(s) with & without Selective Catalytic Reduction (SCR)
 - **Combined cycle applications**
 - 1x1x1 SGT6
- *The NYISO is considering updates & adjustments for:*
 - **Project financing structure & rates**
 - **Estimated Net Energy & Ancillary Services revenue**
 - **Inflation/Escalation**

Discussion

- ◆ **Comments and questions on the analysis presented today**
- ◆ **Comments, questions and suggestions regarding further analysis**

Next Steps

- ◆ The NYISO will continue its analysis and consider input received during today's meeting
- ◆ The NYISO will return to Stakeholders at an ICAP Working Group in late May or early June to further discuss and seek input on the results of the study
- ◆ Stakeholders are encouraged to provide comments and analysis in writing to deckels@nyiso.com
- ◆ Compliance report is due June 17

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.



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