

Uneconomic trading as transactional fraud: EU compliance lessons from the US

Presented to:

AIGET

Presented by:

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What is market manipulation?

Three types of behavior can trigger a manipulation

- Recent FERC, CFTC and SEC anti-manipulation cases focus on the use of uneconomic behavior:
 - **FERC:** *Energy Transfer Partners, Amaranth Advisors and Brian Hunter, Deutsche Bank Energy Trading, Constellation Energy Commodities Group, Barclays Bank PLC, J.P. Morgan & Company, Louis Dreyfus Energy Services*
 - **CFTC:** *DiPlacido, Optiver, Parnon Energy*
 - **SEC:** Various cases involving “banging the close”, “framing the open”, or other cases where transactions were used to create a fraudulent outcome
- The DOJ and EU antitrust authorities also prosecute manipulation caused by the exercise of market power:
 - **DOJ:** *KeySpan-Ravenswood* decision found a market manipulation triggered by an act of withholding; insider trading (front-running) a concern in FOREX
 - **EU:** *E.ON Energy* prosecuted for withholding (antitrust claim) to the benefit of a downstream affiliate (could be prosecuted as a market manipulation); FOREX and other cases allege collusion or exclusory arrangements
- Other FERC, CFTC, SEC and EU cases allege outright fraud:
 - **FERC:** *Rumford Paper Company, Gila River Power*
 - **CFTC:** *Panther Energy Trading* (“spoofing”); Libor
- There is need for a common analytical construct across these cases, agencies, statutes, and (given REMIT and MAD II) continents

What is “uneconomic” trading?

- **Uneconomic trading is:**
 - The intentional accrual of losses;
 - To bias a market outcome;
 - To benefit the value of positions tied to that outcome
- **Losses are measured relative to opportunity costs**
- **Significant problem of proving manipulative intent:**
 - Concern of false positives, as losses are a normal market event
 - Must overcome presumption of transactional legitimacy
 - Need evidence of repeated or anomalous losses in addition to objective evidence of intent
- **Behavior is as old as competition, but is only recently more prosecutable due to the enactment of fraud-based market manipulation rules**

Example 1: Manipulation of a London apartment market

- A trader owns one apartment, but wants to buy many more
- The market price of equivalent apartments is £500,000, based on a price index that uses the last 30 days' average sales price
- Hundreds of identical apartments for sale in this market, all offered at or near the £500,000 index price
- **Assume the trader offers its apartment to the market at £100,000:**
 - The sale executes immediately, and the trader incurs an opportunity cost-based loss of £400,000
 - Note that **any** seller in a bilateral market can execute trades below the competitive price at will and without the need for market power
 - Likewise, **any** buyer can execute trades above the competitive price without market power
- **Loss-based sale is observable evidence of anomalous market behavior and raises a question of the trader's intent**

Apartment market example (continued)

- **Once the trader's sale is recorded, it will register on the index and lower the average market price (*i.e.*, the sale is “price-making”)**
- **Assume 19 prior sales set the apartment index at £500,000:**
 - Trader's £100,000 sale lowers the average index price to £480,000
 - Everyone who owns an apartment takes a potential £20,000 loss
- **Trader next buys 50 apartments at the lower index price:**
 - These purchases are as a *price-taker* to the index
 - Trader saves £20,000 on 50 apartments = £1,000,000 by this strategy
 - Net profit of £600,000 (£1,000,000 – its £400,000 opportunity loss)
- **These transactions are separable by cause and effect:**
 - The trader used an uneconomic price-making transaction (a *trigger*)
 - To move an indexed price to benefit a price-taking position (a *target*)
 - By exploiting a *nexus* that exists between the trigger and target

Market power is not needed to move market prices

- **Market power is not needed to manipulate a market:**
 - The trader in the apartment example was 1 of 20 index sellers
 - Manipulation needed 5% market share of all price-making trades
- **Greater market liquidity impedes manipulation by reducing the price effect of the trigger**
- **More volume in the targeted price-taking position adds leverage to make the manipulation more profitable**
- **Uneconomic transactions can trigger a manipulation:**
 - Sellers posting offers well below market or selling in large volumes
 - Buyers posting bids well above market or buying in large volumes
 - Issue is whether the trading serves a legitimate business purpose, evidenced by the intentional accumulation of losses
- **Behavior creates a fraudulent scheme and an artificial price**

Example 2: Manipulation of natural gas derivatives

- **Consider natural gas trader who owns a large derivatives position that is short to a daily settlement price. Assume the market price is currently 40 €/MWh:**
 - Scenario 1: Trader issues a false storage report predicting a large surplus of natural gas, causing the market price to fall to 35 €/MWh, benefiting its short derivatives position (outright fraud)
 - Scenario 2: Trader makes no statements, but sells large volumes of gas as a price-taker during the daily settlement period. The market price falls to 35 €/MWh, benefiting its short derivatives position (transactional fraud)
- **Only difference between Scenarios 1 and 2 is who bears the loss of the manipulative trades:**
 - Scenario 1: Other sellers in the natural gas market bear the entire cost of the manipulation caused by the false report
 - Scenario 2: The manipulator bears some (but not all) of this loss
- **Thus, uneconomic behavior is actionable under REMIT and MAD:**
 - Intentional behavior is fraudulent and creates an artificial price

Example 3: A market “corner”

- **A corner is executed by buying more of a commodity than the market can physically deliver (price-making trades):**
 - Trader’s increasingly high-priced purchases induce other traders to short sell the commodity
 - As the trader continues to buy, prices rise quickly putting the existing shorts under pressure to cover their positions (a “squeeze”)
- **Once the price is high enough, the trader sells to the shorts at the artificially high market price (price-taking trades):**
 - Trader profits on units bought low and sold at artificially high prices
 - Price will eventually collapse, causing the trader to lose money on any units it holds after the manipulation
- **Difference across examples is timing of loss relative to the gain:**
 - Loss is taken prior to the gain in the apartment example
 - Loss is contemporaneous with the gain in the derivatives example
 - Loss incurred after the gain for the corner
- **By intentionally incurring losses, a trader injects false information into the market**

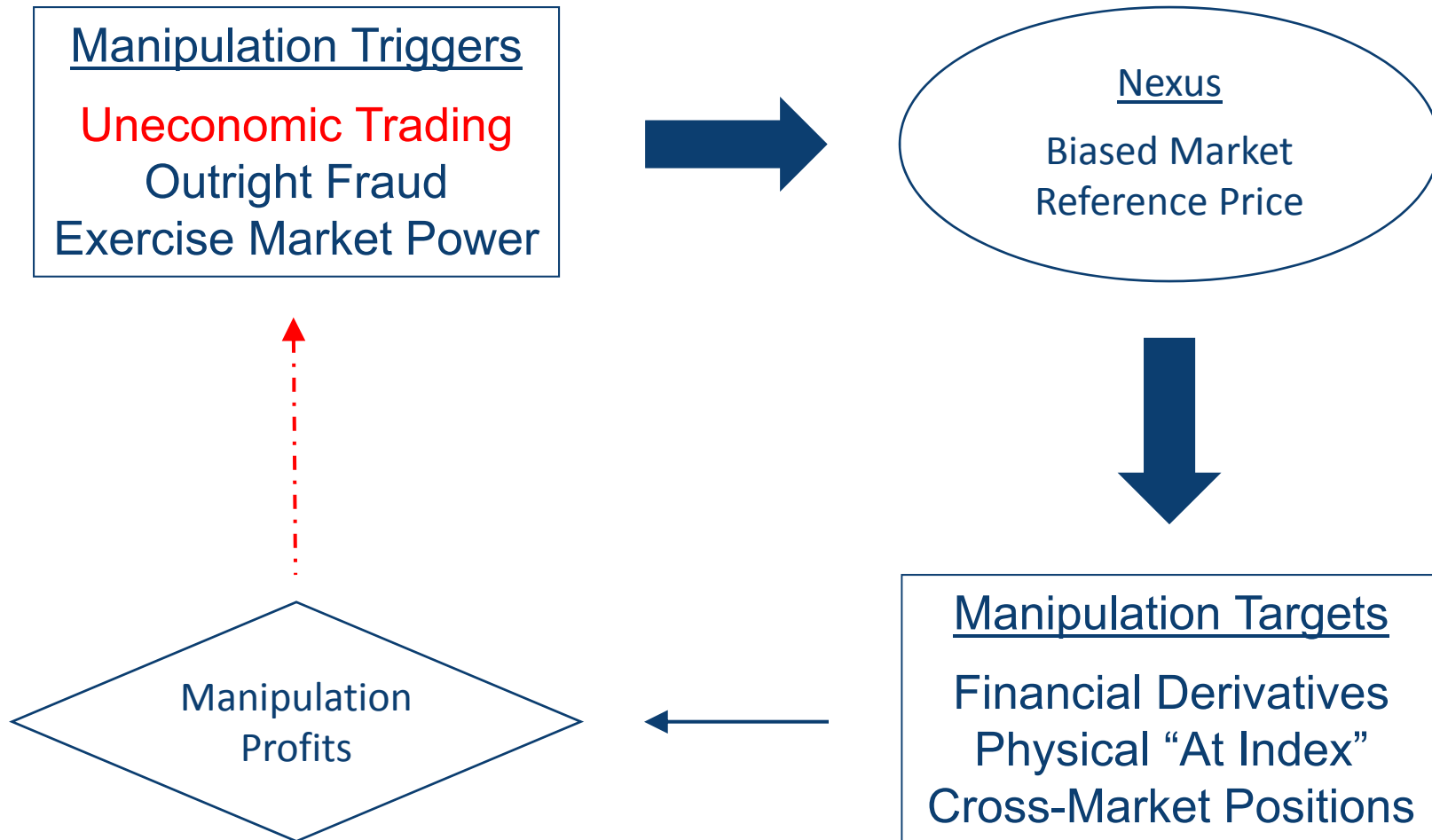


A framework for the analysis of market manipulation

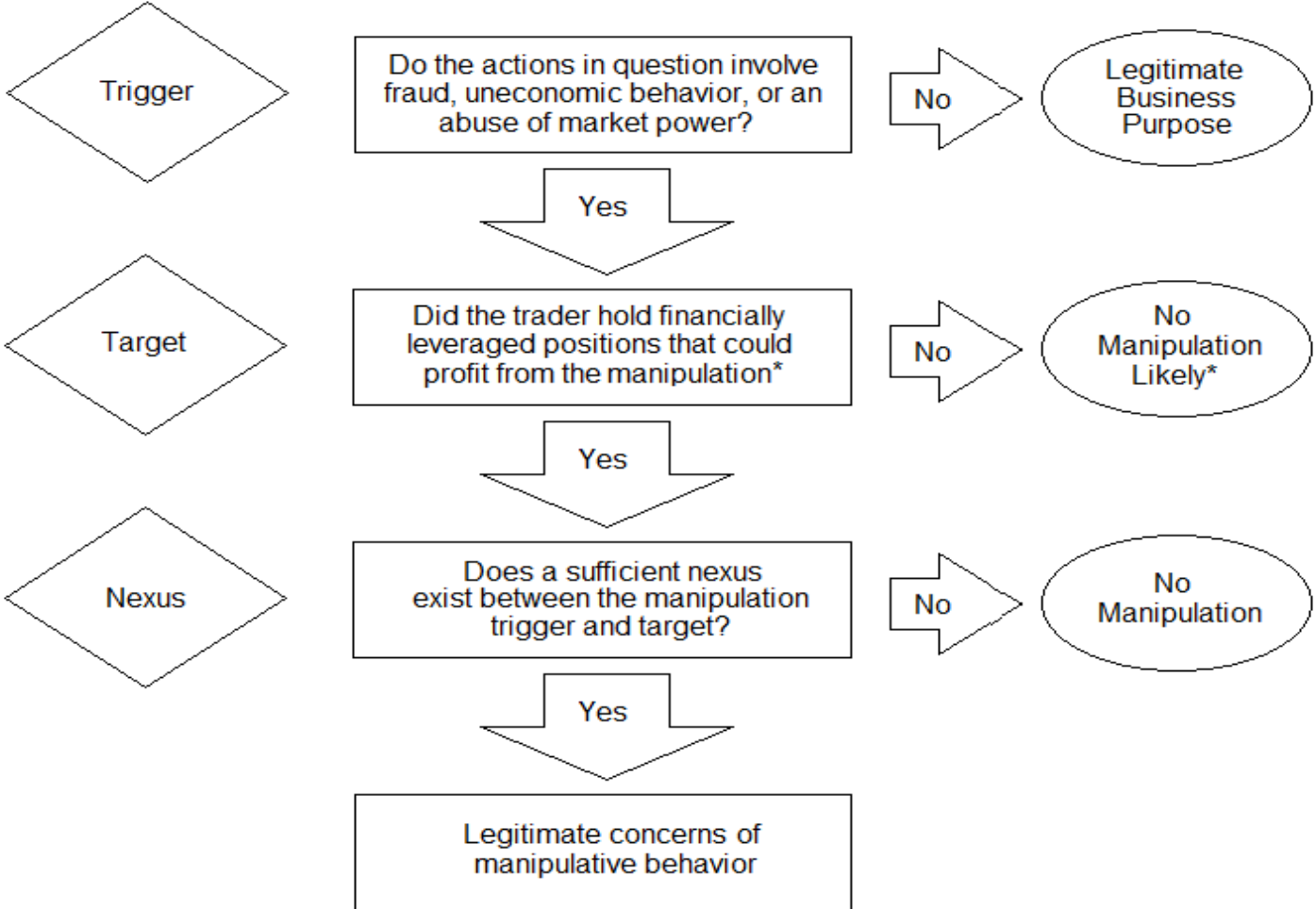
A framework to analyze manipulation

- **One way to explain the cause and effect of manipulation is to separate the analysis into a framework of three pieces:**
 - A trigger – Acts intended to directionally bias a market outcome
 - A target – One or more position(s) that benefit from that bias
 - A nexus – A provable linkage between the trigger and target
- **For example, triggers of a price-based manipulation are:**
 - Transactions that intentionally lose money to alter a price
 - Statements or actions that misrepresent value to alter a price
 - Use of market power to alter a price
- **Targets of a price-based manipulation could be:**
 - Physical commodity priced “at index”
 - Financial derivatives positions
 - Other related market positions
- **The nexus of the manipulation could be any reference price, including a price determined from an index or auction**

A framework to analyze price-based manipulation



Real-world analysis of an alleged manipulation



*Not all financial positions may be observable



Some US manipulation cases



Amaranth Advisors/Brian Hunter: Alleged uneconomic trading of natural gas

Background of the Amaranth Advisors case

- **Amaranth Advisors LLC (Amaranth) was a hedge fund management company based in the United States**
- **By 2005, the majority of the company's investments were tied to speculative positions in energy markets, mainly:**
 - New York Mercantile Exchange (NYMEX) monthly natural gas futures contracts
 - Associated 'look-alike' swaps contracts traded on NYMEX ClearPort and InterContinental Exchange (ICE)
- **Led by trader Brian Hunter, the energy trading segment of Amaranth made big profits in the autumn of 2005 from the placement of large, net long speculative positions in advance of Hurricanes Katrina and Rita**
- **The profits drove additional capital into Amaranth, emboldening Hunter to attempt an 'experiment' beginning in February 2006**

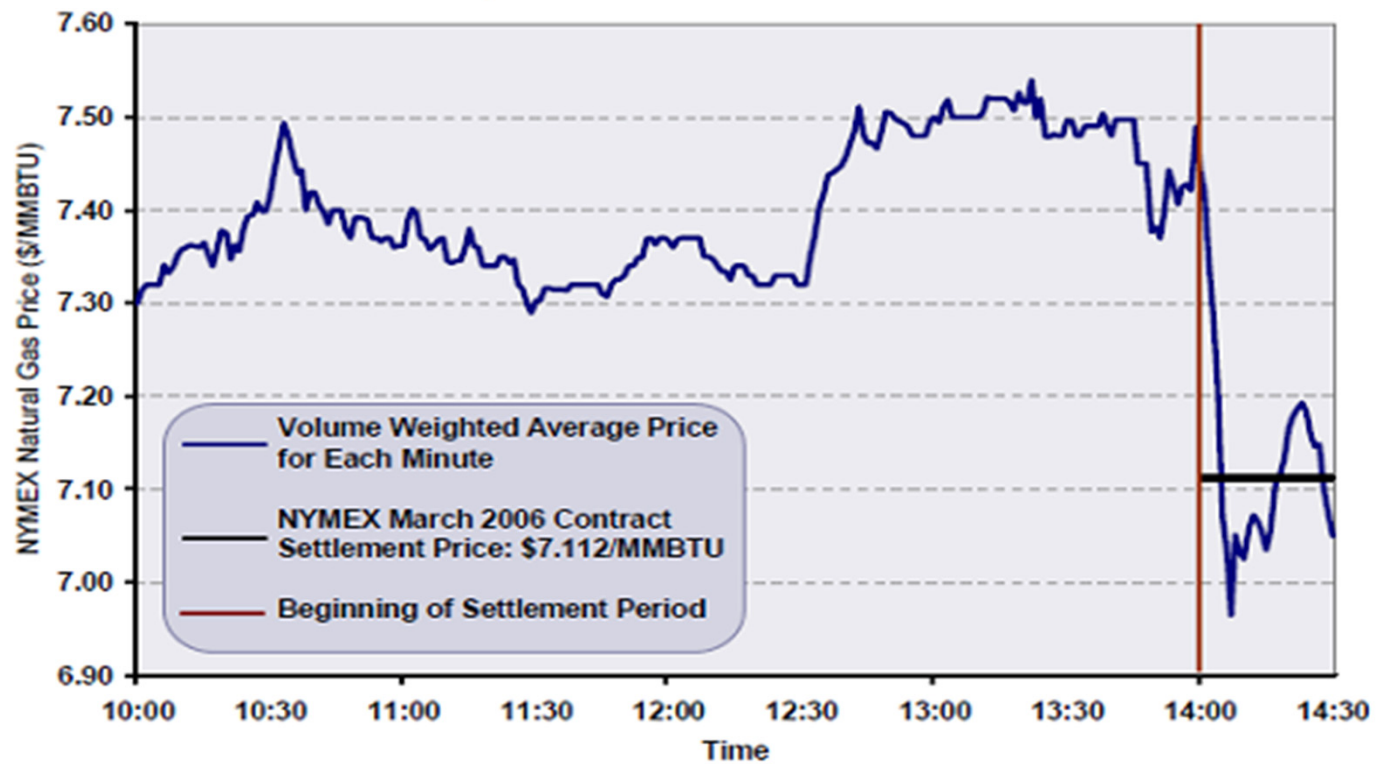
Manipulation of the March 2006 NYMEX NG Contract

- **Brian Hunter entered February 24, 2006 short 1,729 March 2006 NYMEX Natural Gas Futures Contracts**
- **Before the settlement period, Hunter purchased about 5,000 futures contracts to swing long ~3,000 contracts:**
 - By itself, this behavior was not price-making, but was used to arm the trigger for the manipulation
- **Hunter sold all of these contracts at the beginning of the 30 minute settlement period, biasing the index price down:**
 - This behavior was uneconomic, especially relative to the prices he paid for the futures during the day
- **Later analysis revealed that Hunter had a large position in financial swaps, equivalent to ~14,000 NYMEX contracts that were short to the settlement price of the March contract:**
 - Leverage of the target relative to the trigger was about 5:1
- **FERC assessed a civil penalty of \$30 million for this manipulation across three months (case later dismissed for lack of jurisdiction)**

Amaranth manipulation: February 24, 2006

1
2

Figure V: NYMEX Trading on March 2006 Contract Termination, February 24, 2006



3

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5

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Source: NYMEX_00003 (NYMEX NG Futures Contract trade data) (contained in Exhibit S1-5).

Takeaways from Amaranth

- **The Amaranth case contained the three manipulation elements:**
 - Two types of price-making behavior used as the trigger:
 - *Outfight fraud* (Brian Hunter’s behavior in the pit); and
 - *Uneconomic trading* (intentional loss on futures sold into the close)
 - Target was a price-taking position used as a manipulative device:
 - Options/swaps were short to the NYMEX settlement
 - Derivatives leveraged 5-to-1 against the price-making trades
 - Nexus to the NYMEX settlement was a source of dispute:
 - CFTC has exclusive jurisdiction over trigger, target and nexus
 - FERC argued “in connection with” language of its anti-manipulation rule gave it jurisdiction as well
 - Appellate court disagreed with FERC and dismissed the case
- **Key takeaways from Amaranth are:**
 - Statements, recordings, emails, etc. are hard evidence of fraud
 - Agencies can differentiate price-making vs. price-taking trades
 - Agencies can tell the difference between a hedge vs. leverage



**Panther Energy Trading, LLC:
Outright fraud (spoofing) in crude oil, gas,
metals, agricultural, interest rates, stock
index, and FOREX futures**

Allegations in the Panther Energy case

- **Panther Energy Trading and trader Michael Coscia were alleged to have used algorithmic trading programs (algos) for “spoofing” in eighteen futures contract markets from August to October 2011**
- **Spoofing is “bidding or offering with the intent to cancel the bid or offer before execution”:**
 - Traders can “see” the price and volumes of the ten best bids and offers around the current bid-ask spread
- **Panther allegedly executed algos that would place a small bid or offer near the bid/ask spread, then place large “spoon” bids on the other side of the market to suggest market interest:**
 - For example, a small sell order would be put above the ask, with several large “spoon” buy orders then put below the bid price
 - The buy orders would suggest buy-side interest, making it more likely that the sell order would execute at a relatively “high” price
- **Panther would then reverse the process by using large false algo offers above the ask to suggest selling interest, giving it the ability to “buy low” using a small buy order set below the bid**

A different example of “spoofing” to move a price

<u>Price</u>	<u>Volume</u>	<u>Stack</u>	
\$50.55	25	250	
\$50.50	25	225	
\$50.45	50	200	Offers
\$50.40	75	150	
\$50.35	75	75	
Bid/Ask Spread			
\$50.25	75	75	
\$50.20	50	125	
\$50.15	50	175	Bids
\$50.10	25	200	
\$50.05	25	225	

Typical Stack:

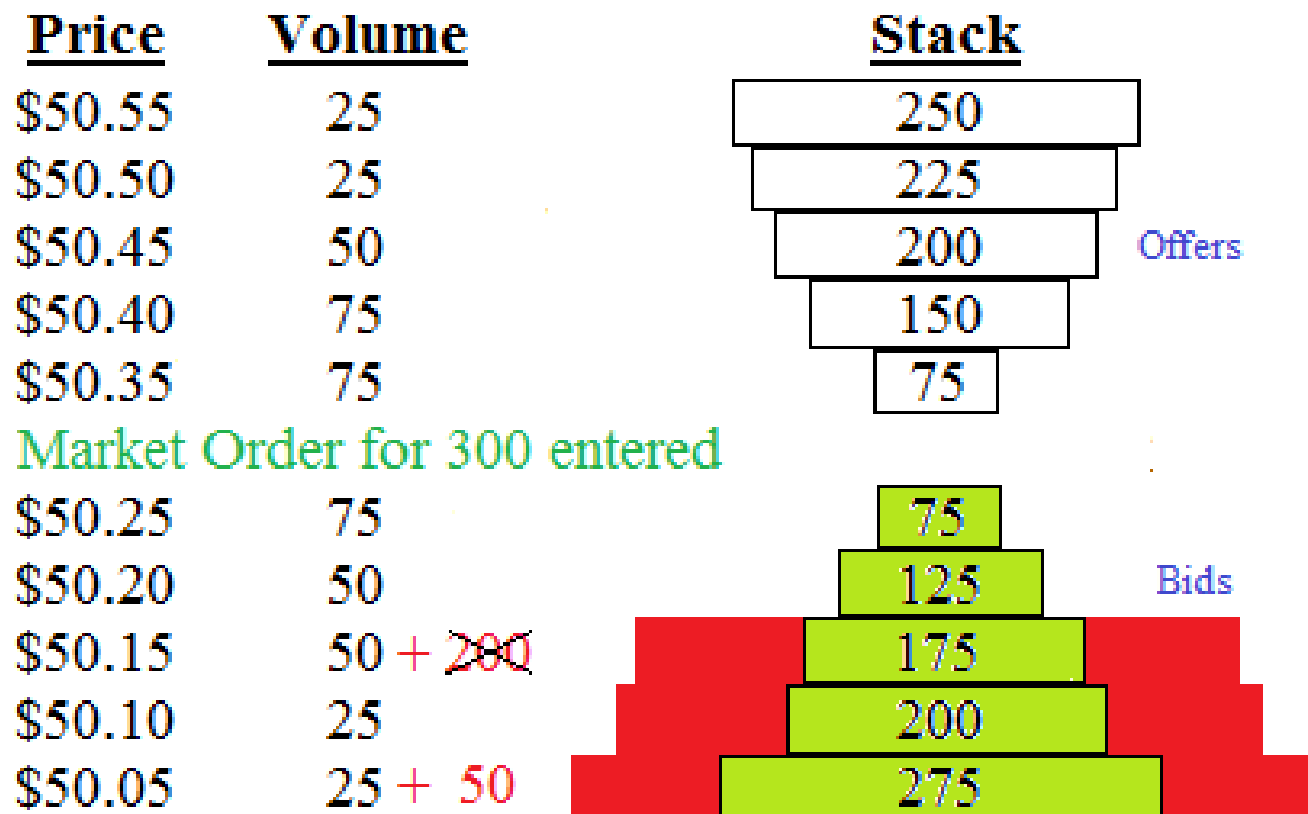
- Assume the market shows the top five bids and offers to all participants
- One participant wants to sell 300 units, but not below \$50.15
- Seller would prefer to execute the sale in a single lot to avoid transaction charges
- Seller is waiting for more buy interest

Spoofering again inserts false information into the market

<u>Price</u>	<u>Volume</u>	<u>Stack</u>	
\$50.55	25	250	
\$50.50	25	225	
\$50.45	50	200	Offers
\$50.40	75	150	
\$50.35	75	75	
Bid/Ask Spread			
\$50.25	75	75	
\$50.20	50	125	Bids
\$50.15	50 + 200	375	Spoofer Bid
\$50.10	25	400	
\$50.05	25 + 50	450	Target

- The manipulator places a 200 lot “spoofer” bid at \$50.15 and another 50 lot real bid at \$50.05
- Spoofer bid will cancel automatically if the price hits \$50.20

Spoofer bid could cause prices to increase or decrease



- When spoof bid cancels, market order falls through the false support at \$50.15
- Manipulator buys 50 lots at artificially low price of \$50.05

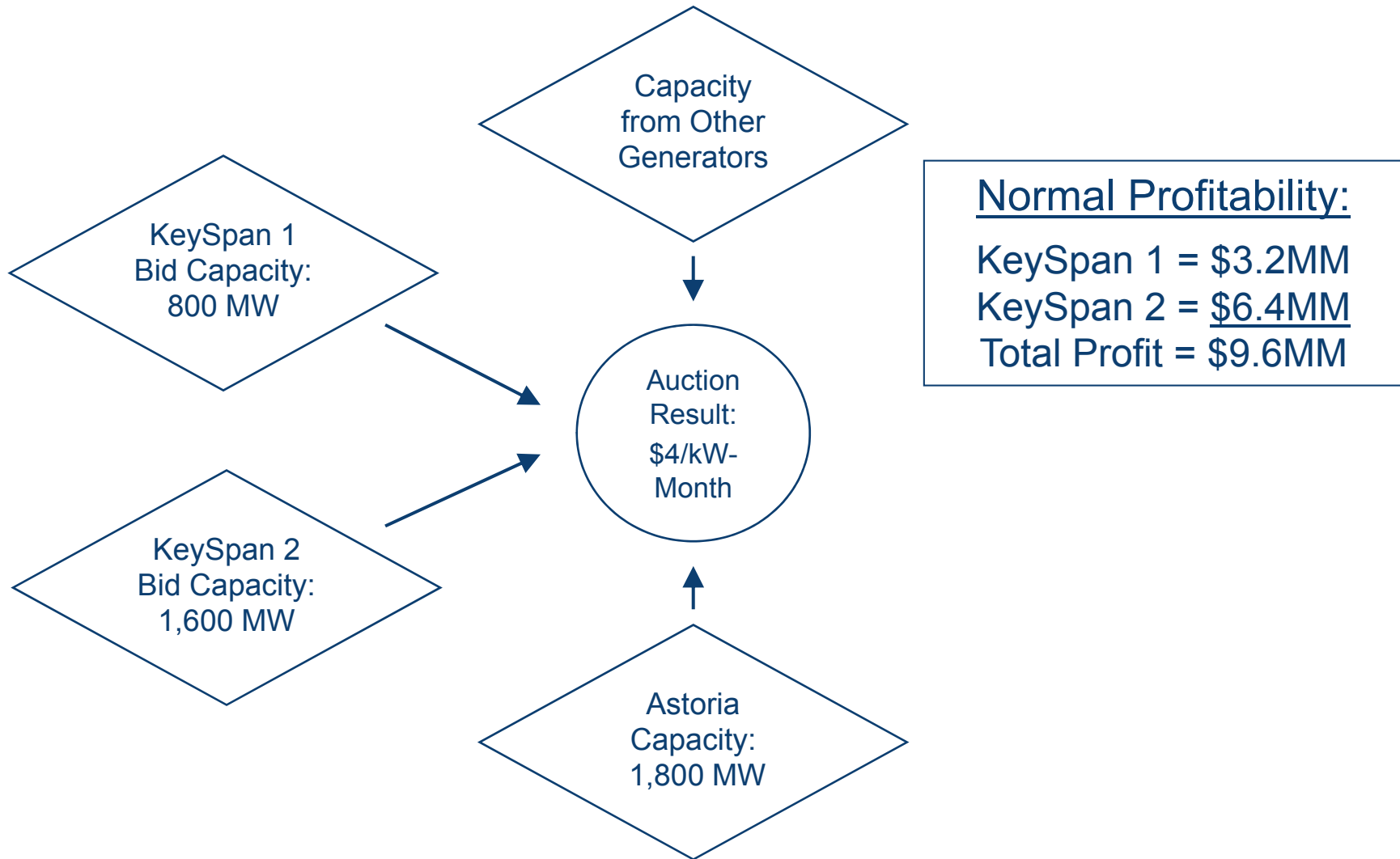


**KeySpan Ravenswood, *et al.*:
Alleged exercise of market power in
electric capacity market**

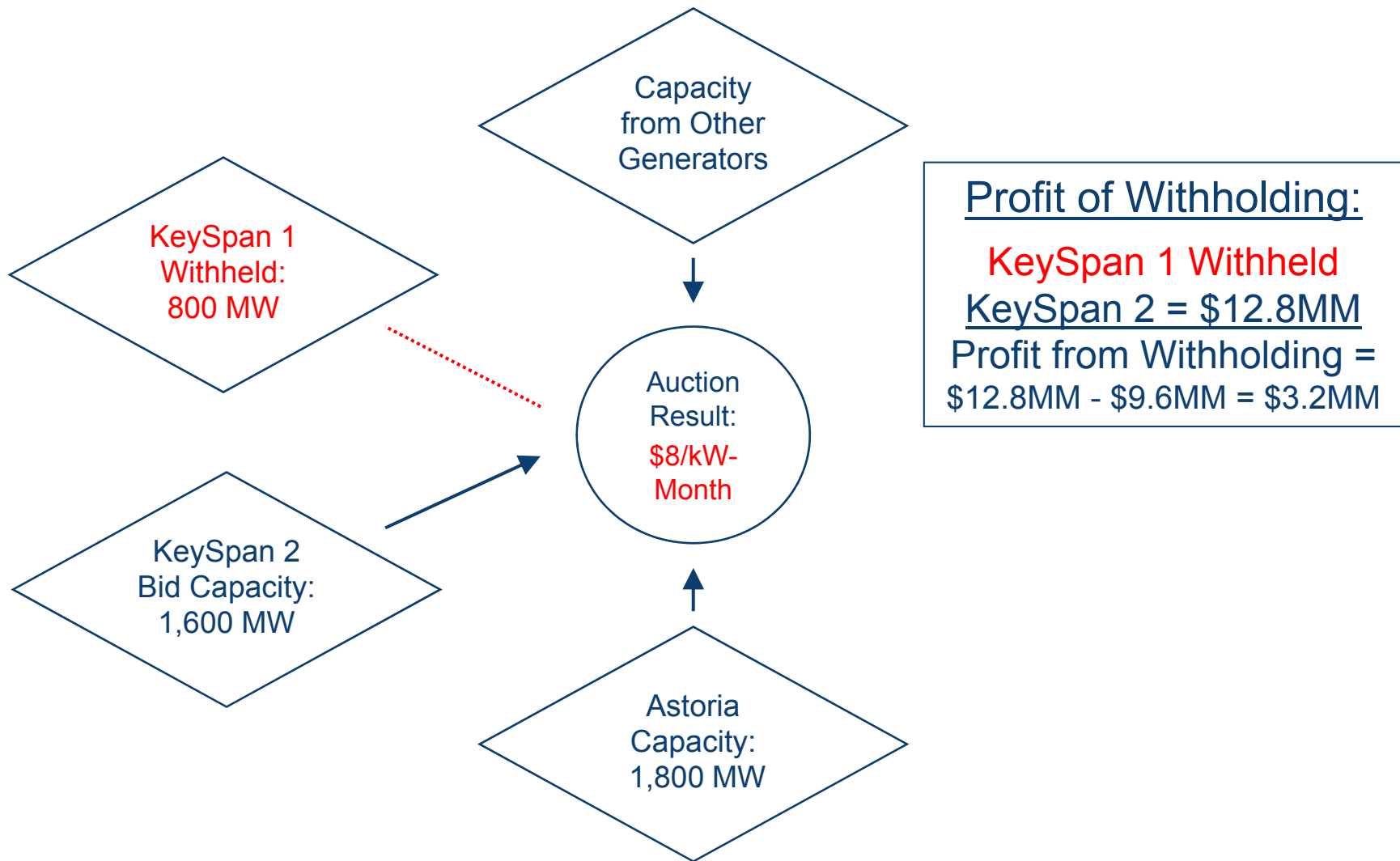
Background of the KeySpan case

- **Several market participants filed a complaint with the FERC that KeySpan Ravenswood, Astoria Generation and Morgan Stanley manipulated the New York City Installed Capacity (ICAP) market:**
 - KeySpan Ravenswood and Astoria Generation were the two largest owners of generation into NYC
 - KeySpan consistently bid its generation into the ICAP market at its bid cap, usually with some capacity not accepted:
 - Market participants claimed this was economic withholding
 - The result was that the majority of KeySpan Ravenswood's 2,400 MW cleared at the bid cap for 2003-2006
- **1,000 MW of new generation entered the ICAP market in 2006:**
 - Additional capacity would require KeySpan to withhold a much larger amount of capacity from the market, leaving less to clear at the bid cap
- **KeySpan considered acquiring the assets of Astoria Generation to maintain the profitability of its strategy, but determined that the acquisition would raise too many market power issues**

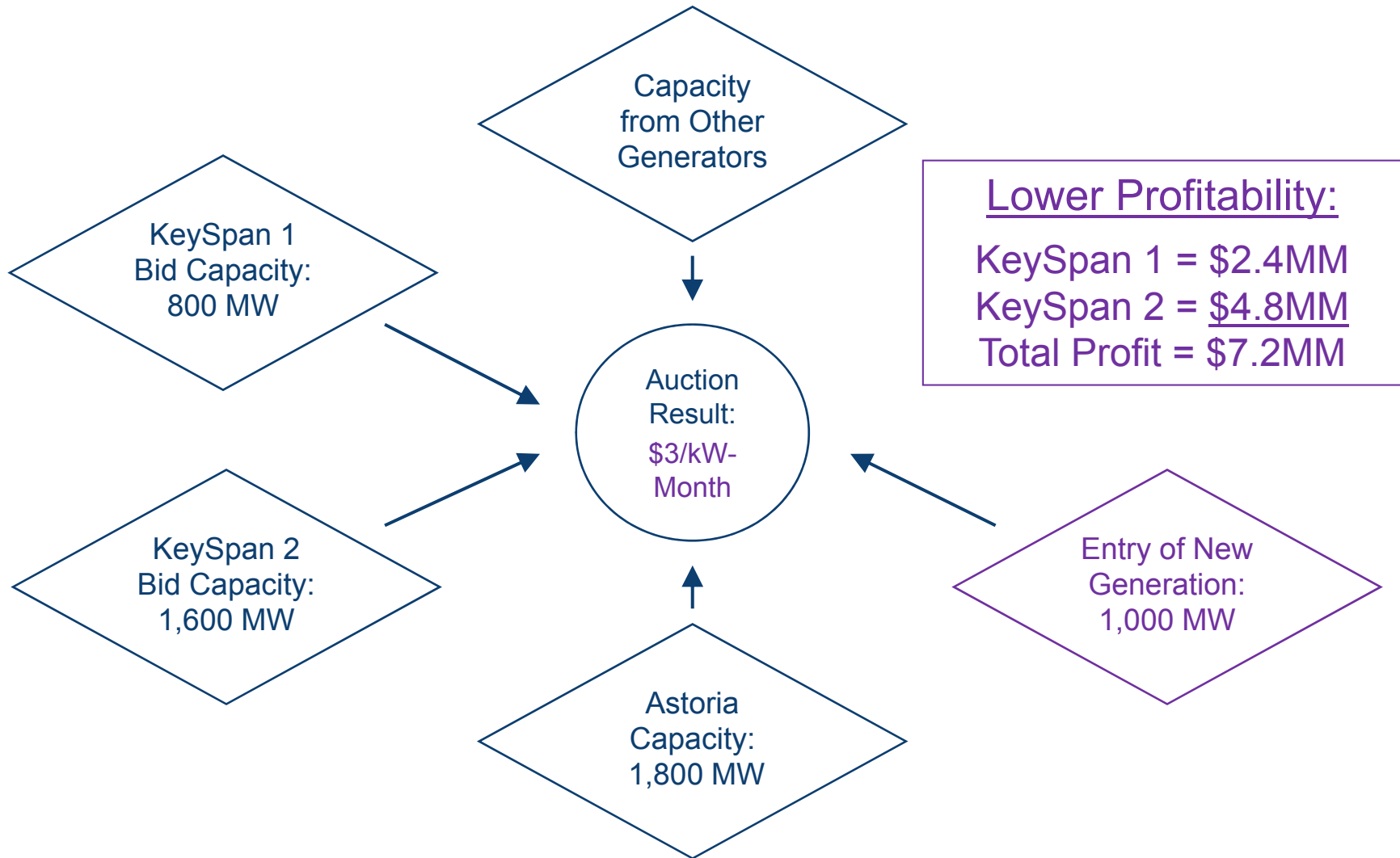
Hypothetical example based on the KeySpan case



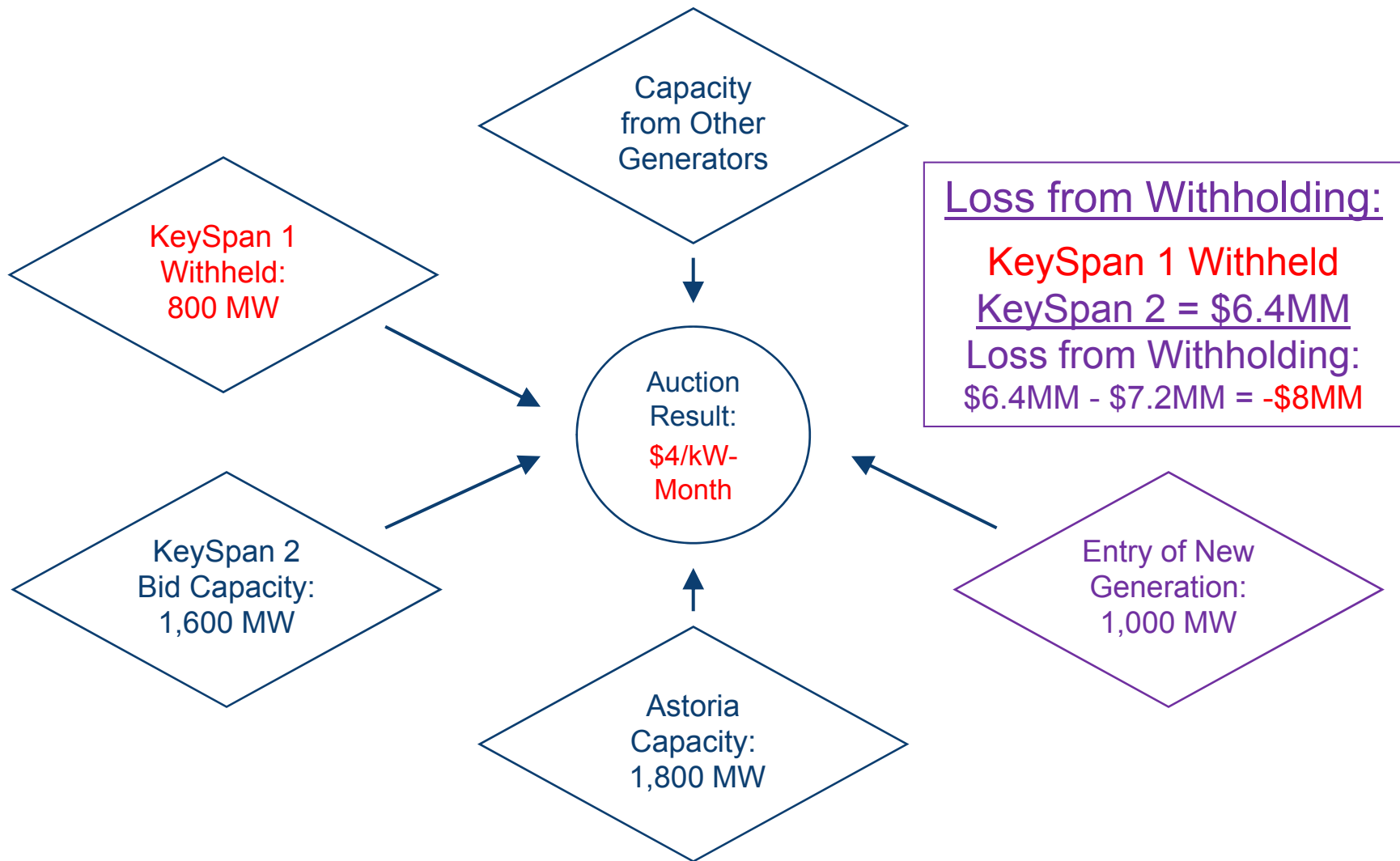
Hypothetical withholding of 800 MW



KeySpan hypothetical: Effect of new entry



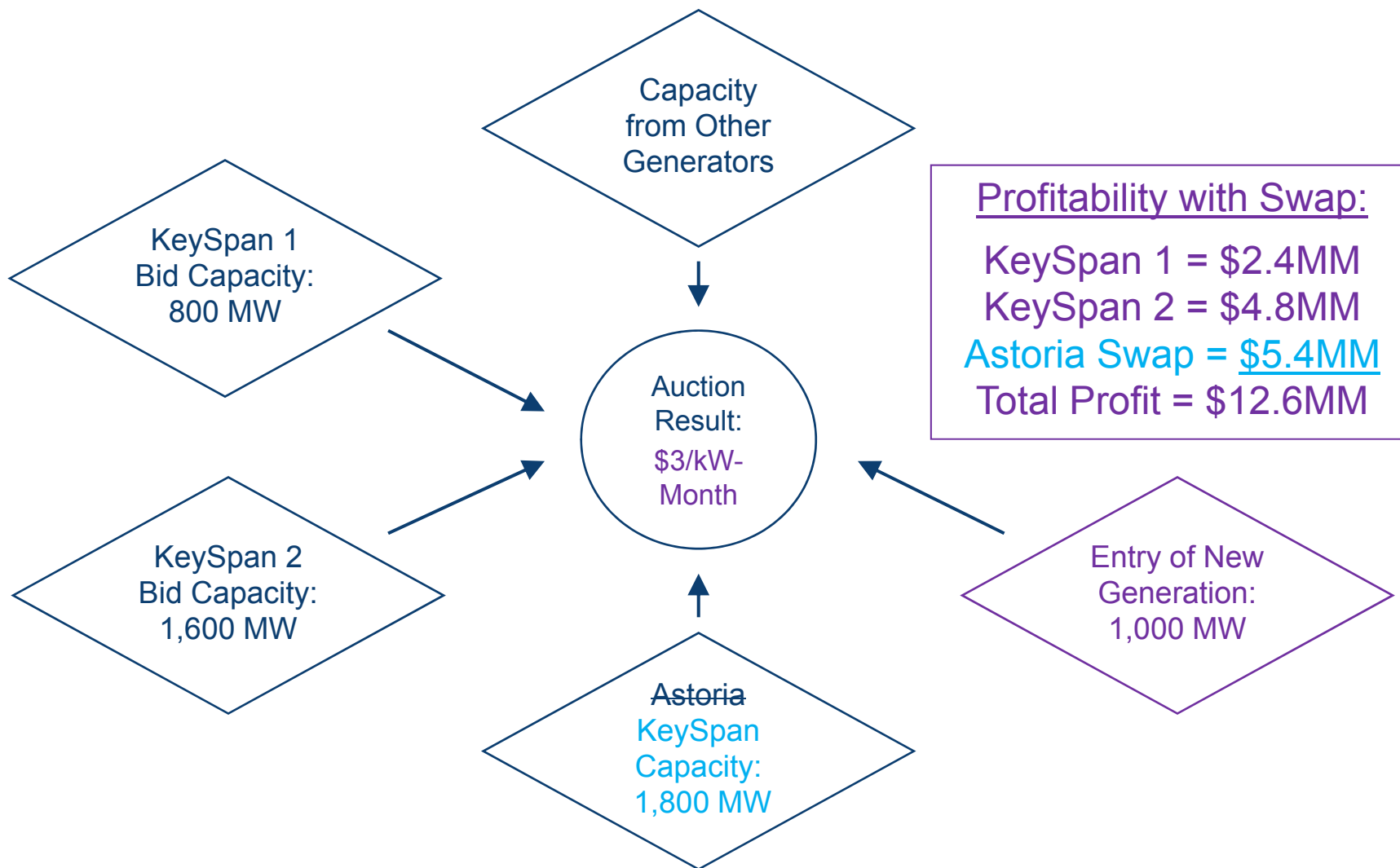
Withholding of 800 MW now has little effect



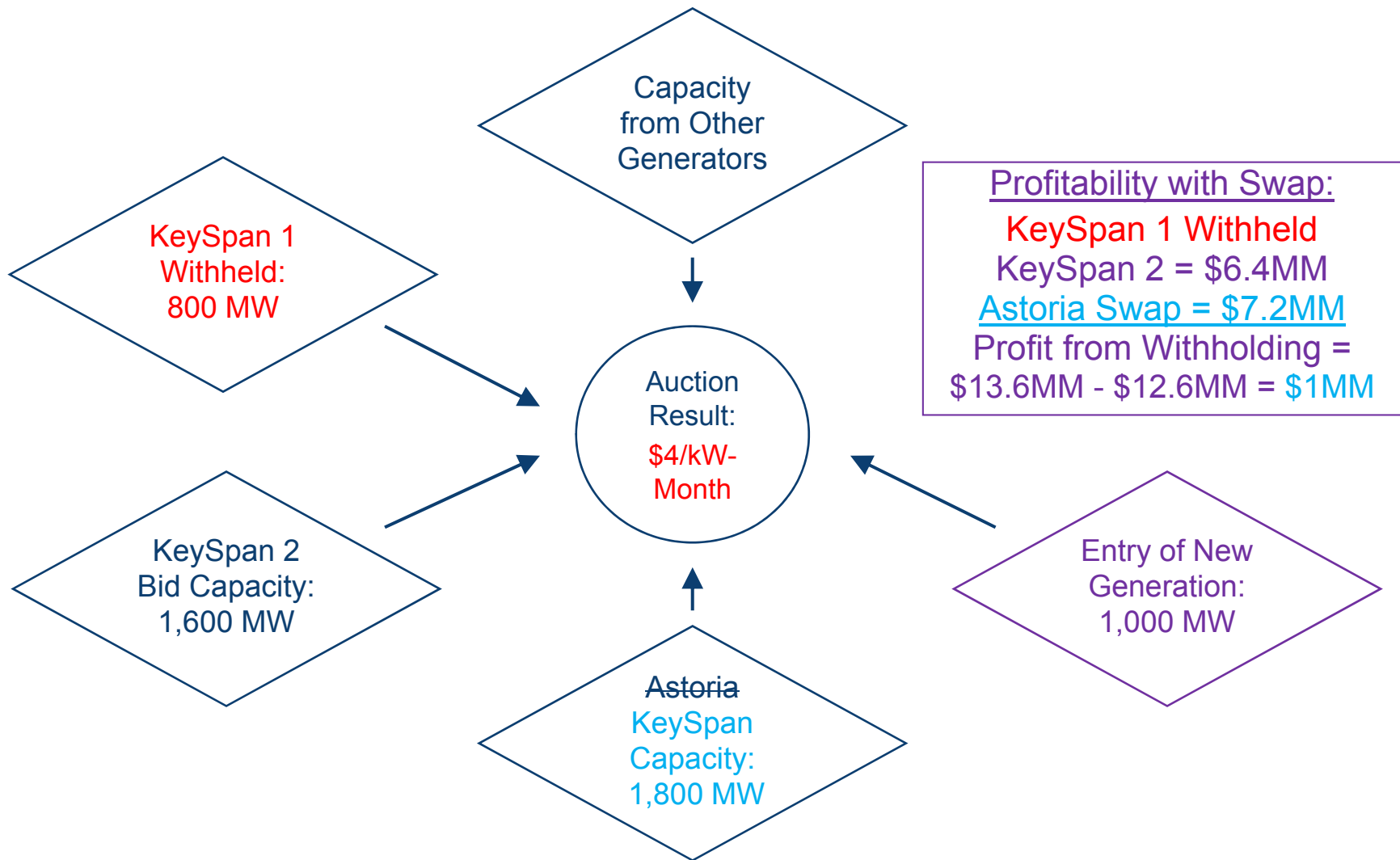
Background of the KeySpan case, continued

- **KeySpan entered into an agreement with Morgan Stanley to acquire a financial interest in Astoria Generation's entire fleet:**
 - The “KeySpan Swap” paid Morgan Stanley a fixed fee for a floating financial interest in 1,800 MW of capacity (equal to the size of Astoria Generation's fleet) tied to the cleared NYC ICAP price
 - This gave KeySpan Ravenswood the ability to profit from high ICAP prices across a broader portfolio of assets, giving it greater ability to economically withhold a larger number of MW
- **Morgan Stanley then executed the “Astoria Hedge”, which paid Astoria Generation a fixed price for its 1,800 MW of capacity in return for the profits it made from the ICAP auction**
 - Transaction left Morgan Stanley perfectly hedged
- **FERC did not rule on this arrangement:**
 - 2008 investigation found that this behavior did not violate any rules of the Commission
 - Because the FERC took no action, the plaintiffs were able to bring suit in private court

KeySpan hypothetical: Effect of the swap



Withholding 800 MW is again profitable given the swap



Outcome of the KeySpan case

- **The DOJ joined the case in 2010, alleging:**
 - The result of the “KeySpan Swap” was to keep the ICAP market price at KeySpan’s bid cap throughout 2007, despite the entry of the 1,000 MW of new generation into the market
 - In August 2007, the State of New York required KeySpan to bid at \$0/MW Month as a condition for the sale of its Ravenswood plant:
 - The order took effect in March 2008
 - The market price declined immediately as a result
- **The DOJ settled the case in 2010 for \$12 million in disgorgement:**
 - First time ever an award of disgorgement was used as an antitrust remedy by the DOJ
- **Takeaways from the KeySpan Ravenswood case:**
 - Case demonstrates the DOJ’s willingness to jump into the market manipulation arena when market power is used as the trigger
 - DOJ backstop intervention raises additional concerns that criminal liability could follow from FERC/CFTC/FTC manipulation cases



Implications for traders in the Italian energy markets

Lessons for Italy

- **Prior scrutiny of abusive market behavior tended to focus on the exercise of market power:**
 - Key concern of large market players with substantial market shares and which controlled critical assets (*e.g.*, Eni, Enel)
 - Main concern is whether such firms can profit from withholding or by inappropriately using inside information
- **Given the fraud-based anti-manipulation rules contained in REMIT and MAD (soon MAD II), the US experience suggests a change in regulatory scrutiny toward uneconomic activity:**
 - Screens will be put in place to detect anomalous losses and patterns of losses over time
 - Greater visibility into physical and financial positions will allow for better identification of potential cross-market manipulations over time
- **This puts individual traders at significantly greater risk:**
 - Key takeaway is that small market players (*i.e.*, individual traders) can now be prosecuted for market abuse for behavior that was previously legal
 - Best defense is to be compliant from the start

Additional Resources

- “Using Virtual Bids to Manipulate the Value of Financial Transmission Rights,” coauthored with Hannes Pfeifenberger. *The Electricity Journal*, vol. 26, issue 9, pp. 9-25 (November 2013).
- “Uneconomic trading and market manipulation.” *Energy Risk Magazine*, p. 32 (July 2013).
- “A Framework for Analyzing Market Manipulation,” coauthored with Paul Carpenter. *Review of Law & Economics*, vol. 8, issue 1, pp. 253–295, ISSN (Online) 1555-5879, DOI: 10.1515/1555-5879.1577 (September 2012).
- “Rummaging through the Bottom of Pandora’s Box: Funding Predatory Pricing through Contemporaneous Recoupment,” coauthored with Wesley Health. *Virginia Law and Business Review*, v. 6, No. 3, pp. 509-568 (April 2012).
- “A Comparison of Anti-Manipulation Rules in U.S. and EU Electricity and Natural Gas Markets: A Proposal for a Common Standard,” coauthored with Dan Harris, *Energy Law Journal*, vol. 33, p.1 (April 2012).
- Other documents are available at www.brattle.com.



Speaker and company information

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Mr. Dan Harris is a Principal of The Brattle Group based in Rome, Italy. Mr. Harris's practise is focused on gas and electricity markets, and his clients include energy regulators, competition authorities, gas and electricity network companies, gas buyers and sellers, and electricity generators. He has acted as an expert witness in gas contract disputes during both the negotiation and arbitration phases, and has contributed testimony on damages in the context of International Chamber of Commerce (ICC) and International Centre for Settlement of Investment Disputes (ICSID) arbitrations. Mr. Harris is a regular speaker at gas and electricity conferences, and lectures at the Florence School of Regulation and the London Business School. Prior to joining The Brattle Group in 2002, he worked for Shell for five years in a variety of roles.

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Dr. Ledgerwood specializes in issues of market competitiveness with an emphasis on the economic analysis of market manipulation. He previously served as an economist and attorney for the FERC in its enforcement proceedings involving Energy Transfer Partners, L.P., Amaranth Advisors, LLC, and several other cases. He has built upon these experiences to develop a framework for defining, detecting and analyzing manipulative behavior. He has worked as a professor, economic consultant, attorney, and market advisor to the regulated industries for over twenty years, focusing on issues including ratemaking, power supply, resource planning, and electric asset valuations. In his broader practice, he specializes on issues in the analysis of liability and damages for actions based in tort, contract or fraud. He has testified as an expert witness before state utility commissions and in federal court.

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you may want to move this to the front so that you can introduce yourself again. Or else we will give this bio to paolo at AIGET to read out.

Dan Harris, 4/16/2014

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