

Exelon's Price-Based Materiality Screen

PJM CCPSTF
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Agenda

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- Exelon Proposal Mechanics
 - Defining “Actionable Subsidies”
 - Decision Tree for Triggering Repricing
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Principles

Reforms are unnecessary at this time

- The PJM capacity market is competitive and promoting resource adequacy
 - Reserve margins significantly exceed targets
 - Capacity prices are significantly below Net CONE
 - Significant entry and exit has occurred
 - All auctions have been declared competitive despite the effect of many different government cost and revenue preferences
 - There is no evidence of a reliability problem
- Imposing capacity repricing under such conditions and needlessly increases prices for customers

Legitimate state carbon valuation programs should not be subject to repricing/mitigation

- PJM markets have not evolved to value carbon externalities, despite significant favorable consensus
- State programs that replicate for nuclear units the outcome of a regional carbon market and promote legitimate state environmental goals are not “actionable subsidies” that require capacity market offer mitigation in the context of PJM’s capacity repricing proposal. Such programs are a bridge to broader carbon pricing to maintain the massive carbon-free benefit of nuclear power production.

Administrative determinations of generator offers should only supplant owner offers if there is a demonstrable threat to reliability and competitive outcomes

- A price-based materiality screen should be instituted to objectively assess whether market outcomes will threaten RPM’s reliability aims
- If warranted, repricing should be applied to most subsidized resources to avoid discrimination
 - Exelon proposes application to all resources for which “actionable subsidies” are > 1% of revenues
 - Exception for state environmental programs
- Repricing for all resources should be set at Net CONE *B

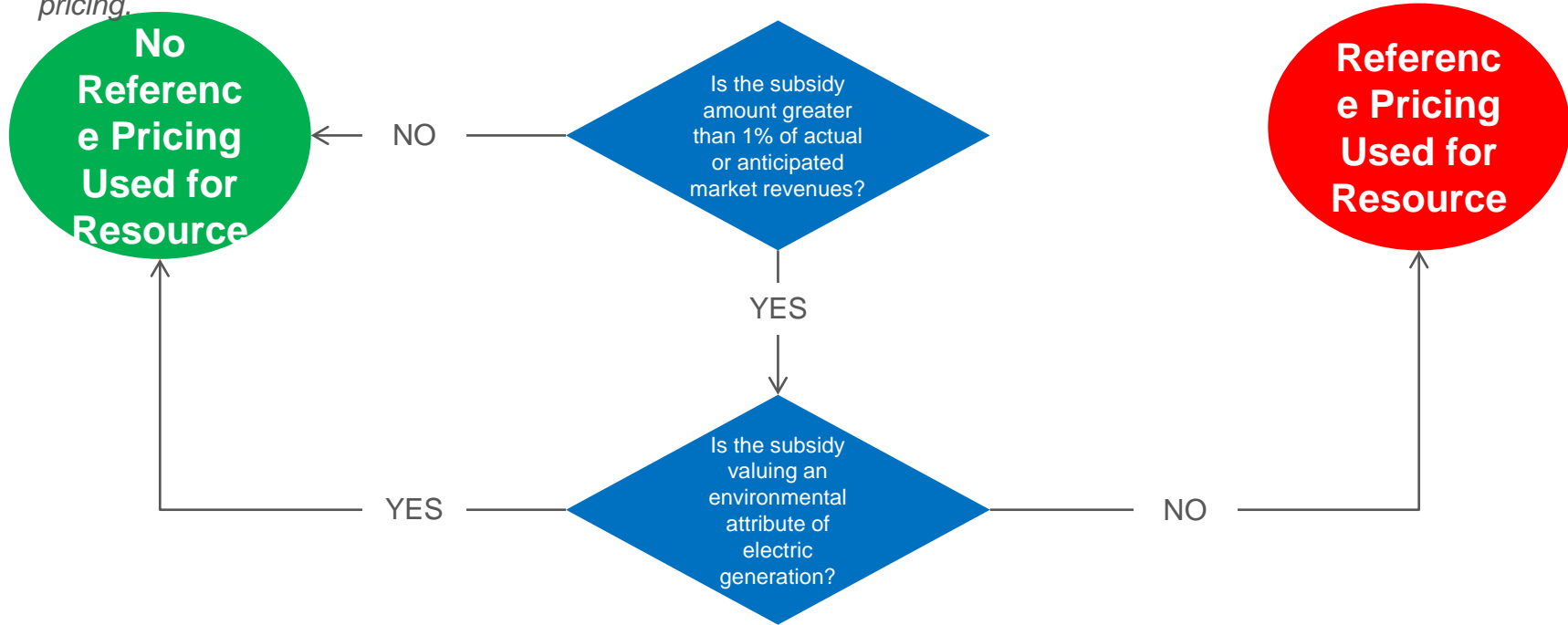
Defining “Actionable Subsidies”

- Repricing, if warranted based on the price-based materiality screen, should apply broadly to offered capacity resources with government cost or revenue advantages
 - State programs valuing positive environmental attributes of electric generation should be exempt
 - State programs that replicate for nuclear units the outcome of a regional carbon market and promote legitimate state environmental goals are not “actionable subsidies” that require capacity market offer mitigation in the context of PJM’s capacity repricing proposal.
- Application of capacity repricing should be based on economically-meaningful criteria, not distinguished by attributes like government source, nominal size of the government preference, or class characteristics.
 - The economic effect of subsidies on auction outcomes - on a \$/MW basis - is identical
 - Balance administrative burden of identifying and mitigating de minimus subsidies

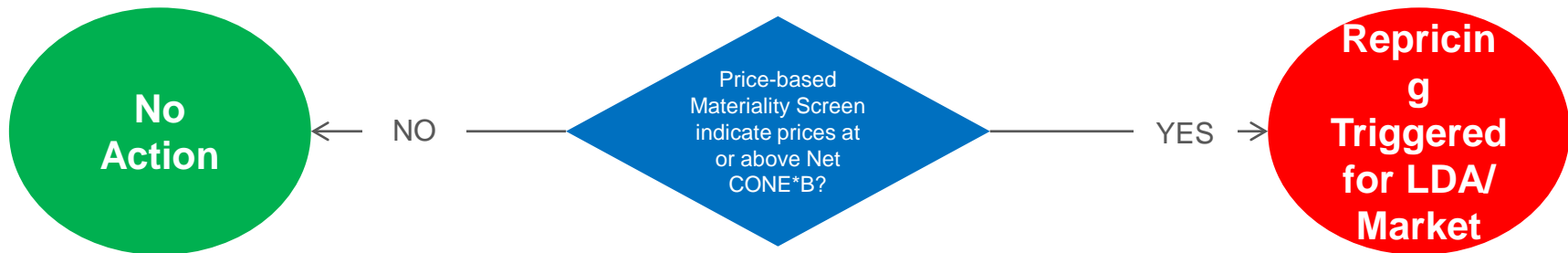
Undue discrimination can be avoided by applying repricing to all resources for which “actionable subsidies” are > 1% of the resource’s revenues

Decision Tree for Triggering Repricing

Step 1: Determine what resources have “actionable” payments and may need to use reference pricing.



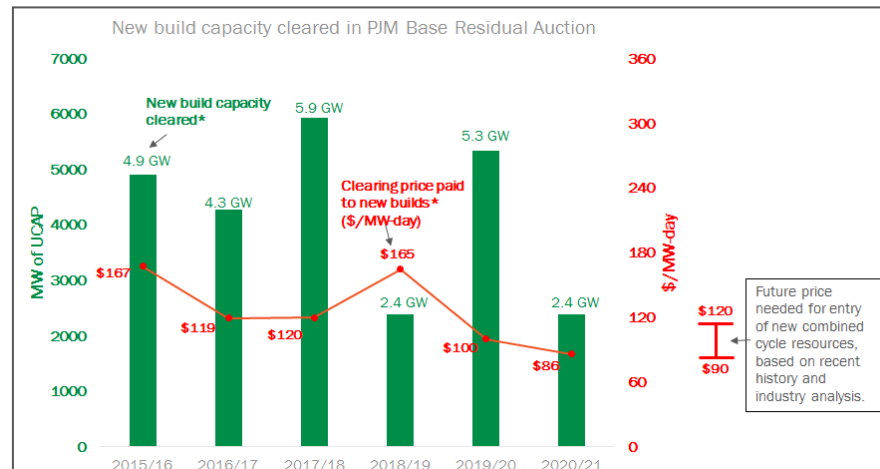
Step 2: Evaluate Price-based Materiality Screen using outputs from Step 1.



Rationale for Price-Based Materiality Screen

PJM Market Outcomes Can Indicate if Repricing is Warranted

- PJM and the IMM have established Net CONE *B as the indifference or “competitive” price for generators to participate in the capacity market
- Prices below Net CONE *B indicate sufficient “headroom” for new entrants.
 - Over 20,000 MWs of new capacity entered over the past six auctions despite the impact significant governmental preferences
 - Existing generation can offer up to Net CONE *B to express value needed to cover cost and risk of providing capacity
- State pricing of unbundled carbon attribute provides a positive economic distinction between generators receiving such payment and competing marginal capacity resources (likely older, less efficient, and much higher polluting). Integration of carbon pricing into PJM market structures would produce a similar outcome.



A “price-based materiality screen” should precede any capacity repricing auction clearing process to ensure that capacity repricing is only applied when capacity with “actionable subsidies,” in aggregate, results in a price at or above

Rationale for Price-Based Materiality Screen

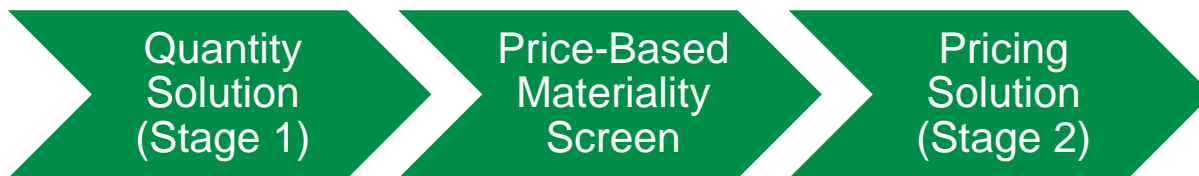
- Capacity resources can offer up to their opportunity cost, Net CONE x B, which FERC and the IMM have determined to be competitive and which forms the basis for the Capacity Performance market seller offer cap.
- Therefore, a resulting clearing price below Net CONE x B, subsequent to application of capacity repricing, indicates that:
 - Non-subsidized resources are, in the aggregate, bidding in a competitive enough fashion to eliminate any concerns about the competitiveness of the auction; and
 - There are no reliability concerns driven by participation from subsidized resources because a clearing price below Net CONE x B implies a cleared reserve margin greater than the target reserve margin, per the mechanics of the demand curve; and
 - The “subsidized” resources are not significant enough in the aggregate to drive any potential reliability concerns
- Thus, capacity repricing with auction results under Net CONE x B is unnecessary and serves only to needlessly inflate the prices paid by consumers
- All resources that cleared are receiving at least the price that they offered

Mechanics of Exelon Proposal

1. **Quantity Solution (Stage 1)** - PJM develops an auction solution with original market participant offers
 - A. Determines cleared resources, but does not determine price paid

2. **Price-Based Materiality Screen**
 - A. PJM assesses resources offering into an RPM auction for “actionable subsidies” of over 1% of the resources’ revenues, excluding unbundled government payments valuing an environmental attribute of electric generation
 - B. Resources with “actionable subsidies” are initially repriced to Net CONE *B for the relevant LDA
 - C. PJM develops a “screening auction” solution reflecting the initial repricing
 - i. If the clearing price from the “screening auction” equals or exceeds Net CONE x B in an LDA, then offers of resources in that LDA with actionable subsidies will be adjusted to the reference price offer level in the final market-clearing run
 - ii. If the restated capacity price from the preliminary auction solution is below Net CONE x B in an LDA, then repricing is not applied in that LDA

3. **Pricing Solution (Stage 2)** - Final market clearing run with offers from resources with “actionable subsidies” modified to the Reference Price (if warranted) in LDAs
 1. Settlement will utilize the clearing prices from the Pricing auction results (Stage 2) and the resource commitments from the Quantity auction results (Stage 1)
 2. Only resources that clear the Quantity auction will receive a capacity obligation



Illustrative Price-Based Materiality Screen Example

		Quantity Solution			Price-Based Materiality Screen				Pricing Solution	
	Resources	(a) Actionable Subsidy? (1)	(b) Offer Price	(c) Does resource clear stage 1 and get committed? (2)	(d) "Screening Solution" Stage 2 Adjusted Offer (3)	(e) Net CONE x B for LDA	(f) "Screening Solution" Stage 2 Clearing Price (4)	(g) Repricing Triggered for LDA resources? (5)	(h) Final Run Stage 2 Adjusted Offer (6)	(i) Final Run Stage 2 Clearing Price (7)
LDA 1 (30MW load)	A (10MW)	Yes	\$0	Yes	\$250	\$250	\$250	Yes	\$250	\$250
	B (10MW)	Yes	\$20	Yes	\$250	\$250	\$250	Yes	\$250	\$250
	C (10MW)	No	\$100	Yes	\$100	\$250	\$250	Yes	\$100	\$250
	D (10MW)	No	\$150	No	\$150	\$250	N/A	Yes	\$150	N/A
LDA 2 (30MW load)	E (10MW)	Yes	\$10	Yes	\$270	\$270	\$80	No	\$10	\$60
	F (10MW)	No	\$30	Yes	\$30	\$270	\$80	No	\$30	\$60
	G (10MW)	No	\$60	Yes	\$60	\$270	\$80	No	\$60	\$60
	H (10MW)	No	\$80	No	\$80	\$270	N/A	No	\$80	N/A

Notes:

- Based on methodology chosen for determining "actionable subsidies" subject to re-pricing. Specifics of methodology is unimportant for this example.
- Assumes no transfer capacity between LDA 1 and LDA 2. Because each LDA has 30 MW of load and four 10 MW resources, the resource with the highest offer price does not clear stage 1 and does not receive a capacity obligation, consistent with the status quo.
- Offers with "actionable subsidies" are adjusted to default offer cap of Net CONE x B for purposes of determining price in the second stage of PJM's two-stage methodology. Values shown are illustrative.
- Assumes no transfer capacity between LDA 1 and LDA 2. Because each LDA has 30 MW of load and four 10 MW resources, the second highest-priced resource will set the stage 2 clearing price.
- Repricing is triggered in final run for LDA 1 because LDA 1 "screening run" clearing price \geq LDA 1 Net CONE x B, but not for LDA 2 because LDA 2 "screening run" clearing price $<$ Net CONE x B
- Offers with "actionable subsidies" are adjusted to Net CONE x B in LDA 1, but are not adjusted in LDA 2.
- Assumes no transfer capacity between LDA 1 and LDA 2. Because each LDA has 30 MW of load and four 10 MW resources, the second highest-priced resource will set the stage 2 clearing price.

Summary

- Exelon’s proposal toggles between the status quo and the PJM repricing structure due to the price-based materiality screen. PJM’s package is superior to other repricing proposals.
- Exelon’s proposal simplifies PJM’s proposed application of repricing.
 - “Actionable Subsidy” defined as government revenue or cost preferences greater than 1% of the resource’s revenues
 - Reference price set to Net CONE *B for any repriced resource
- Exelon’s proposal maintains the integrity of RPM aims and mechanics, while minimizing impacts to customers and unwarranted administrative intervention.
- The proposal accommodates state actions by not subjecting offers from resources with payments for unbundled environmental attributes to administrative repricing.
- The proposal maintains existing incentives for resources in the capacity market. The proposal does not scale down capacity commitments which in other proposals may lead to overstating of capacity capability.
- The proposal does not award capacity commitments to resources that are “out of the money” after accounting for state programs that price the environmental externality of power production.
- Not committing of “in between” resources, as PJM proposes, lessens energy market impact.
- The proposal does not result in discriminatory prices for resources that are providing the same capacity performance commitment.