Local Considerations in the Development of Net Cost of New Entry (CONE)

EDUCATION

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Market Implementation Committee
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Agenda

Provide education on the following topics:

a. Current Tariff, Operating Agreement and Manual requirements regarding the development and use of Net CONE

b. Examples of current local considerations, such as state or local policy and regulations, that may need to be accounted for when developing Net CONE

c. How other ISOs/RTOs who have capacity markets account for local considerations.

3.3.1	*Cost of New Entry*
3.3.3	*Net Cost of New Entry*
3.4	*Plotting the VRR Curve*
4.8.3	*Auction Credit Rate*
4.8.4	*Price Responsive Demand*
5.3	*RPM Auction Parameters*
5.4.3	*New Entry Pricing Adjustment*
5.4.8.3	*Unit Specific Exception Process for MOPR Floor Offer Prices*
5.4.8.4A	*Default New Entry MOPR Floor Offer Price*
8.4A	*Non-Performance Assessment*
9.1.9	*Non-Performance Charge/Bonus Performance Credit*
11.1.3	*Participation in the FRR Alternative*

- Attachment DD, Reliability Pricing Model
  - 5.10 – Auction Clearing Requirements
  - 5.12 – Conduct of RPM Auctions
  - 5.14 – Clearing Prices and Charges
  - 6.5 – Mitigation
  - 6.8 – Avoidable Cost Definition
  - 10A – Charges for Non-Performance and Credits for Performance
- Schedule 6A – Black Start Service

Base Residual Auction (Planning) Parameters

Zone/LDA	2023/2024 BRA CONE: Levelized Revenue Requirement, $/MW-Year *	Escalation	2024/2025 BRA CONE: Levelized Revenue Requirement, $/MW-Year	Gross CONE, $/MW-Day, UCAP Price	Historic Net Energy Revenue Offset, $/MW-Year	Ancillary Services Offset, $/MW-Year per Tariff	Net E&AS Revenue Offset, $/MW-Year	Net CONE, $/MW-Day, ICAP Price	Net CONE, $/MW-Day, UCAP Price	LDA Modeled with VRR Curve
CONE Area 1	$115,311	1.068	$123,118	$355.14						
AE				$355.14	$9,847	$2,199	$12,046	$304.30	$320.39	
DPL				$355.14	$22,422	$2,199	$24,621	$269.85	$284.11	DPL SOUTH
JCPL				$355.14	$9,798	$2,199	$11,997	$304.44	$320.53	
PE				$355.14	$9,906	$2,199	$12,105	$304.14	$320.22	
PSEG				$355.14	$9,563	$2,199	$11,762	$305.08	$321.21	PS, PSEG NORTH
RECO				$355.14	$14,195	$2,199	$16,394	$292.39	$307.85	
EMAAC				$355.14				$296.71	$312.39	EMAAC
CONE Area 2	$116,593	1.063	$123,920	$357.45						
BGE				$357.45	$40,573	$2,199	$42,772	$222.32	$234.07	BGE
PEPCO				$357.45	$21,853	$2,199	$24,052	$273.61	$288.07	PEPCO
SWMAAC				$357.45				$247.96	$261.07	SWMAAC
CONE Area 4	$111,814	1.060	$118,505	$341.83						
METED				$341.83	$20,831	$2,199	$23,030	$261.58	$275.40	
PENELEC				$341.83	$24,251	$2,199	$26,450	$252.21	$265.54	
PPL				$341.83	$13,256	$2,199	$15,455	$282.33	$297.25	PPL
MAAC				$351.93				$279.30	$294.06	MAAC
CONE Area 3	$111,731	1.059	$118,330	$341.33						
AEP				$341.33	$24,383	$2,199	$26,582	$251.36	$264.65	
APS				$341.33	$29,846	$2,199	$32,045	$236.40	$248.89	
ATSI				$341.33	$19,286	$2,199	$21,485	$265.33	$279.35	ATSI, ATSI CLEVELAND
COMED				$341.33	$11,172	$2,199	$13,371	$287.56	$302.76	COMED
DAYTON				$341.33	$25,244	$2,199	$27,443	$249.00	$262.17	DAYTON
DEOK				$341.33	$23,131	$2,199	$25,330	$254.79	$268.26	DEOK
DLCO				$341.33	$22,847	$2,199	$25,046	$255.57	$269.08	
DOM				$341.33	$22,540	$2,199	$24,739	$256.41	$269.96	
EKPC				$341.33	$17,126	$2,199	$19,325	$271.24	$285.58	
OVEC				$341.33	$21,325	$2,199	$23,524	$259.74	$273.47	
RTO	$113,862		$120,968	$348.94	$17,128	$2,199	$19,327	$278.47	$293.19	RTO

* The 2023/2024 BRA CONE values are based on PJM's Quadrennial Review filing (Docket No. ER19-105) which was FERC approved on April 15, 2019.

Gross CONE

- **Cost of New Entry (CONE)** – Levelized annual cost in ICAP $/MW-Day of a reference combustion turbine to be built in a specific location

Net E&AS

- **Net Energy & Ancillary Services (E&AS) Offset** – is used to offset the value of Cost of New Entry (CONE) to determine the net value of CONE. This value is calculated using the historical averages of energy revenue data for a reference combustion turbine and an assumed value for ancillary services revenues as set forth in OATT.

Net CONE

- The Net Cost of New Entry (Net CONE) for the PJM Region is the gross Cost of New Entry for the PJM Region minus the Net E&AS Revenue Offset for the PJM Region.

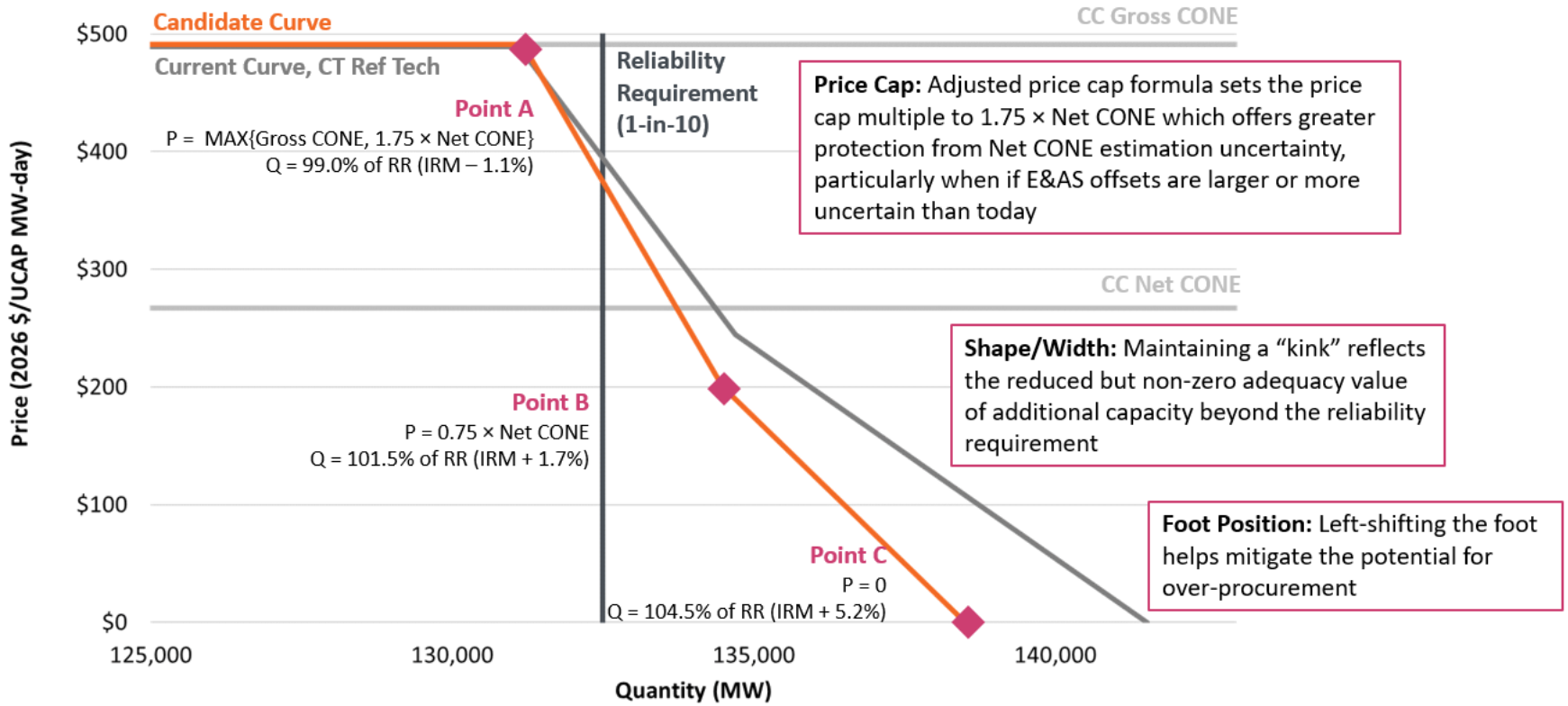
- PJM shall determine the Net Cost of New Entry for each Zone that comprises the modeled LDA. The Net Cost of New Entry for a Zone is the applicable gross Cost of Net Entry value for such Zone minus the Net E&AS Revenue Offset for such Zone. The Net Cost of New Entry for the Zone is used for a sub-zonal LDA. The Net Cost of New Entry for a modeled LDA shall be the average of the Net CONE values of all zones within the modeled LDA.

Variable Resource Requirement Curve

- **Variable Resource Requirement Curve (VRR)** – defines the maximum price for a given level of Capacity Resource commitment relative to the applicable reliability requirement. VRR Curves are defined for the PJM Region and each of the constrained LDAs within the PJM region.

Use of Net CONE to Set VRR Curve

Candidate VRR curve formula



Note: Current Curve, CT has a price cap at 1.5 × CT Net CONE (greater than CC Gross CONE); Candidate Curve has a price cap at CC Gross CONE (greater than 1.75 × CC Net CONE). The VRR curve price caps appear equal because 1.5 × CT Net CONE and CC Gross CONE are very similar numbers by coincidence. Gross and Net CONE values are in 2026 dollars and are from the concurrent Brattle CONE study.

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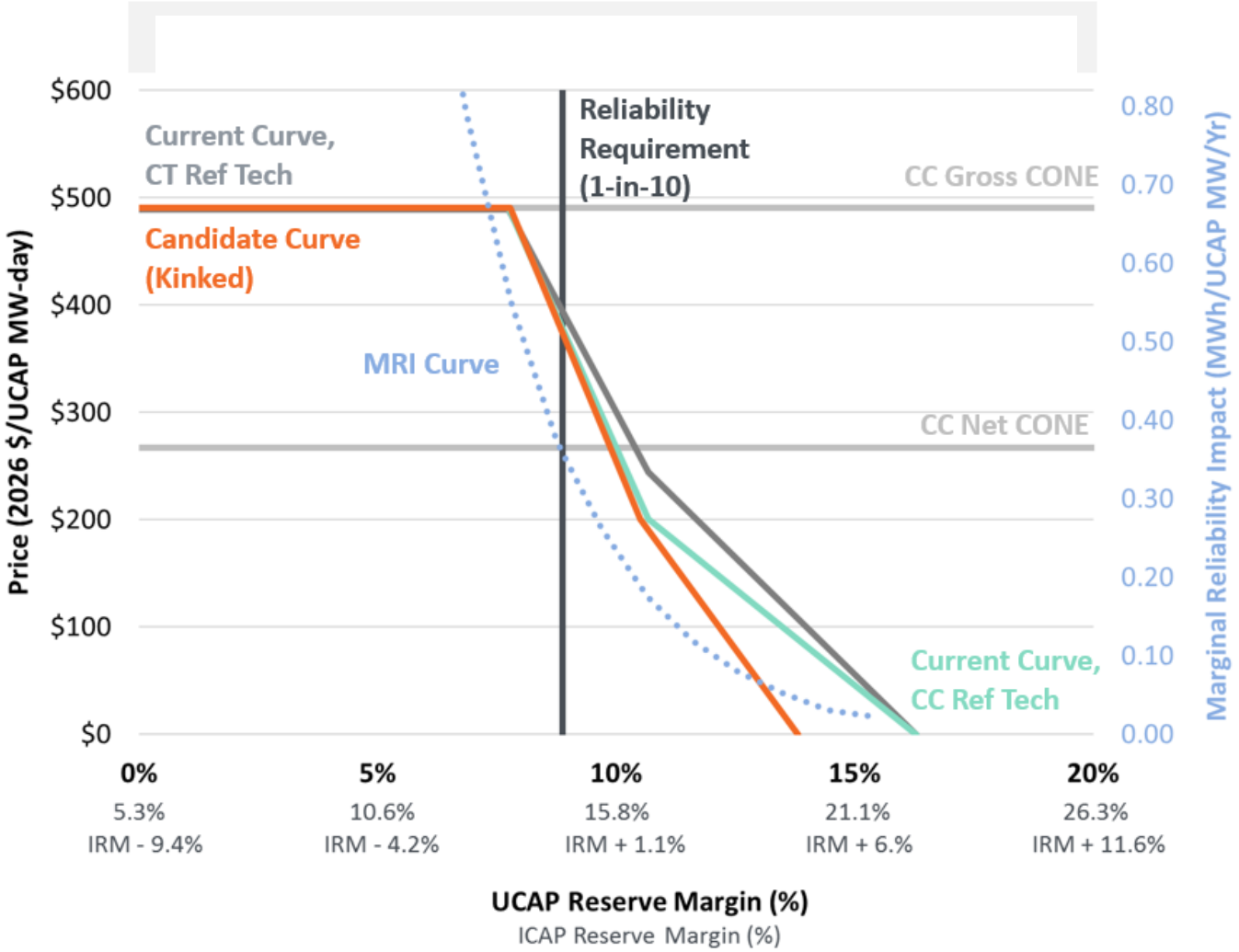
Impact of Reference Technology (Net CONE) on VRR Curve



Impact of Net CONE on Reliability

Performance managing Net CONE uncertainties

Demand Curve	Measured After the 3-Year Forward BRA								
	Price			Reliability					Cost
	Average ($/MW-d)	Standard Deviation ($/MW-d)	Frequency at Cap (%)	Average LOLE (events/yr)	Average Excess (Deficit) (MW)	Average Excess (Deficit) (IRM + X %)	Frequency Below Reliability Requirement (%)	Frequency Below IRM - 1% (%)	Average Procurement Cost ($ mln/yr)
Current Curve, CT									
True Net CONE = 0.6 x CC Net CONE	$160	$53	0.0%	0.026	4,547	4.0%	0.0%	0.0%	$8,030
True Net CONE = CC	**$267**	**$76**	**1.8%**	**0.059**	**2,032**	**1.8%**	**7.9%**	**2.1%**	**$13,170**
True Net CONE = CT	$326	$87	8.1%	0.086	913	0.8%	24.0%	9.5%	$15,940
True Net CONE = 1.4 x CC Net CONE	$374	$88	18.6%	0.119	-53	0.0%	44.0%	21.8%	$18,129
Current Curve, CC									
True Net CONE = 0.6 x CC Net CONE	$160	$52	0.0%	0.034	3,717	3.2%	0.0%	0.0%	$7,979
True Net CONE = CC	**$267**	**$83**	**2.5%**	**0.070**	**1,435**	**1.3%**	**10.2%**	**3.3%**	**$13,119**
True Net CONE = CT	$326	$94	9.6%	0.096	498	0.5%	29.5%	11.4%	$15,898
True Net CONE = 1.4 x CC Net CONE	$374	$94	20.6%	0.128	-347	-0.3%	48.1%	25.4%	$18,096
Candidate Curve									
True Net CONE = 0.6 x CC Net CONE	$160	$58	0.0%	0.043	2,862	2.5%	0.0%	0.0%	$7,940
True Net CONE = CC	**$267**	**$87**	**3.1%**	**0.074**	**1,220**	**1.1%**	**11.4%**	**3.9%**	**$13,104**
True Net CONE = CT	$326	$96	10.6%	0.099	375	0.4%	31.3%	11.9%	$15,887
True Net CONE = 1.4 x CC Net CONE	$374	$96	22.2%	0.131	-423	-0.3%	50.0%	25.9%	$18,088

Candidate Curve provides acceptable reliability even if Net CONE is substantially underestimated

Candidate Curve will reduce the potential for over-procurement by bringing in the "foot", even if Net CONE is substantially over-estimated

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Related Information

- NYISO 17-yr period proposal
- Dominion CONE Area
- Reference Resource Technical Specifications

NYISO Proposal to Implement 17-yr Amortization Period

- NYISO proposed 17-yr period
  - New York's Climate Leadership and Community Protection Act (CLCPA) requires electricity demand to be served by 100% zero-emission resources by January 1, 2040
- FERC rejects as "speculative"
  - CLCPA's compliance criteria not final, could be modified
- DC Circuit Court vacates FERC Order and remands
  - FERC did not provide adequate justification of "speculative" finding
- FERC affirms previous decision
  - Commission precedent requires that demand curve resets take into account currently effective laws and regulations and "avoid speculating" about laws and regulations in the future

Dominion case

- 2009 – Dominion moved out of CONE Area 3
  - Differences in expected energy revenues

- 2014 –Dominion moved back into CONE Area 3
  - Dominion was never a modeled LDA, so its CONE estimate was never used for determining a locational VRR curve
  - Tariff was also changed to use E&AS Revenue Offset from each Zone to determine Net CONE

Reference Resource Technical Specifications

- 2011
  - Did not include NOx control (SCR) in CONE Area 5
- 2014
  - Did not include Dual Fuel in CONE Area 3
  - Included Firm Gas contract only in CONE Area 2 for CC

Contact

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Local Considerations in the Development of Net Cost of New Entry (CONE) - Education

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