

Market Seller Offer Cap (MSOC)

MIC Special Session
September 23, 2021

IMM



Monitoring Analytics

Data and Documentation Submission

- Data is entered or uploaded for purposes of calculating MSOCs in the RPM/ACR Module in the MIRA application.
 - Refer to the [RPM/ACR in MIRA User Guide](#) for details.
- MSOC documentation is submitted in the RPM Requests module in the MIRA application.
 - Refer to the [RPM Requests in MIRA User Guide](#) for details.

Default ACRs

Technology Type	Default Gross ACR (\$ per MW-Day)
Nuclear - single	\$715.05
Nuclear - dual	\$456.53
Coal	\$82.07
Combined Cycle	\$57.45
Combustion Turbine	\$51.30
Solar PV (fixed and tracking)	\$41.04
Wind Onshore	\$85.15

Default ACRs

- **If a Capacity Market Seller intends to offer greater than \$0 per MW-day for an Existing Generation Capacity Resource which has no defined default gross ACR for its technology, a unit specific ACR should be requested.**
- **To facilitate the offer cap application process and to ensure the clear communication of the Seller's intended resource specific applicable offer cap, Capacity Market Sellers should indicate their intent to use the default ACR in the RPM/ACR module no later than Friday, October 1, 2021.**

Example MSOC Calculation

Example MSOC Calculation

Gross ACR (\$ per MW-Day)	\$51.30	A
Projected Net E&AS Revenues (\$ per MW-Year)	\$14,000	B
Projected Net E&AS Revenues (\$ per MW-Day)	\$38.36	C=B/365
Offer Cap (\$ per MW-Day ICAP)	\$12.94	D=A-C
Sell Offer EFORD	0.06000	E
Offer Cap (\$ per MW-Day UCAP)	\$13.77	F=D/(1-E)



Example MSOC Calculation (ELCC Resource)

Example MSOC Calculation (Wind Onshore)¹

Gross ACR (\$ per MW-Day ICAP)	\$85.15 A
Projected Net E&AS Revenues (\$ per MW-Year)	\$30,000 B
Projected Net E&AS Revenues (\$ per MW-Day)	\$82.19 C=B/365
Offer Cap (\$ per MW-Day ICAP)	\$2.96 D=A-C
Effective Nameplate (MW) ¹	100.0 E
Class Rating ¹	15% F
Performance Adjustment ¹	1.02 G
CIRs (MW) ¹	17.0 H
Accredited UCAP (MW) ¹	15.3 I = E x F x G
Lesser of CIRs and Accredited UCAP (MW)	15.3 J = Lesser of (H,I)
Sell Offer Capacity Value Factor	0.15300 K = J/E
Offer Cap (\$ per MW-Day UCAP)	\$19.33 L = D/K

Unit Specific MSOC Process

- **During the review period, the IMM will review data and documentation, evaluate the requested MSOCs, and work with Capacity Market Sellers to reach agreement.**
- **If the Capacity Market Seller indicates disagreement with the MMU MSOC values, the Market Monitor will evaluate whether it must bring the matter to the attention of the Federal Energy Regulatory Commission.**

Unit Specific MSOC Requests

- The [RPM/ACR Template](#) is available for Capacity Market Sellers to use to support unit specific offer cap requests.
- Refer to the [RPM/ACR Template Instructions](#) for details.
- For guidance on escalating current cost data to the relevant delivery year, please see the [ACR Escalation Guidelines](#).

Unit Specific MSOC Requests

- Any costs that can be included in a unit's cost based energy market offer (e.g. major maintenance) cannot be included in the ACR.
- For details on documentation to support a unit specific MSOC, please see [Supporting Documentation Requirements](#).
- For an example APIR calculation for multiple projects with varying start dates, please see the [APIR Example](#).

Unit Specific MSOC Requests: APIR

Project	Starting Delivery Year	Remaining Life of Plant	CRF	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028
Example Project 1	2021/2022	5	0.363	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000		
Example Project 2	2022/2023	5	0.246		\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	
Example Project 3	2022/2023	5	0.246		\$1,250,000	\$1,250,000	\$1,250,000	\$1,250,000	\$1,250,000	
Example Project 4	2023/2024	5	0.258			\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Total Project Investment				\$750,000	\$3,000,000	\$3,500,000	\$3,500,000	\$3,500,000	\$2,750,000	\$500,000
APIR (\$ per year)				\$272,250	\$825,375	\$954,533	\$954,533	\$954,533	\$682,283	\$129,159
ICAP (MW)				100.0	100.0	100.0	100.0	100.0	100.0	100.0
APIR (\$ per MW-day)				\$7.46	\$22.61	\$26.08	\$26.15	\$26.15	\$18.69	\$3.53

Values Entered in ACR Template	
Delivery Year	2023/2024
Remaining Life of Plant	5
CRF Value	0.258
Total Project Investment to Enter	\$3,695,193.31

Unit Specific MSOC Requests: APIR

Project	Government Requirement	Project Completion Date	Total Project Investment	Mandatory CapEx Eligibility ¹	40 Plus Alternative Eligibility ²	Remaining Life of Plant	CRF	APIR Recovery Period		2023/2024 Total Project Investment
								Starting Delivery Year	Ending Delivery Year	
Example Project 1	No	May 31, 2023	\$5,000,000	No	No	5	0.258	2023/2024	2027/2028	\$5,000,000
Example Project 2	Yes	June 1, 2024	\$1,000,000	No	No	10	0.164	2025/2026	2034/2035	\$0
Example Project 3	Select One			No	No	Select One	0.000			\$0
Example Project 4	Select One			No	No	Select One	0.000			\$0
Example Project 5	Select One			No	No	Select One	0.000			\$0
Example Project 6	Select One			No	No	Select One	0.000			\$0
Example Project 7	Select One			No	No	Select One	0.000			\$0
Example Project 8	Select One			No	No	Select One	0.000			\$0
Example Project 9	Select One			No	No	Select One	0.000			\$0
Example Project 10	Select One			No	No	Select One	0.000			\$0

Net Revenues

- **MMU calculated net revenues for in service units can be viewed in MIRA by clicking the Export button in the RPM/ACR module (ACR Calculation screen).**
- **For information on the projected net revenue process, please see the [Projected Net E&AS Revenue Options](#).**

Capacity Performance Competitive Offer

- **Unit specific competitive offer for a CP resource:**
 $p = \text{Net ACR} + \text{Net (Expected Penalties} - \text{Expected Bonuses)}$

- **Conceptual equation using expected values:**

$$\text{or, } p = \begin{cases} \text{Net ACR} + \text{CPBR} \times H \times (\bar{B} - \bar{A}), & \text{if } \bar{B} < \bar{A} \\ \text{Net ACR} + \text{PPR} \times H \times (\bar{B} - \bar{A}), & \text{if } \bar{A} < \bar{B} \end{cases}$$

- **Where:**

- Net ACR = ACR (including CPQR) – Net E&AS revenues
- CPBR is the average bonus payment rate during PAI
- PPR is the average nonperformance charge rate during PAI (tariff defined).
- H is the expected number of PAI divided by 12
- \bar{A} is the expected unit performance during PAI
- \bar{B} is the expected balancing ratio during PAI

Expected Bonuses and Penalties

- **The competitive offer includes the net of the expected nonperformance charges and bonuses earned.**
- **A unit with expected low forced outage rates during PAI is expected to earn more bonuses than penalties, so its competitive offer is less than its Net ACR.**
- **A unit with expected high forced outage rates during PAI is expected to incur more penalties than bonuses, so its competitive offer is more than its Net ACR.**

Expected Bonuses and Penalties

- It is possible that a unit is expected to experience a mix of over and underperformance during a delivery year.
- Depends on expected number of PAI, and expected B during the PAI where the resource is located, and unit specific performance during each PAI.
- Detailed derivation is included in PJM's response to the FERC deficiency letter, Appendix 1 (April 10, 2015).
 - Also in IMM Complaint.

Expected \neq Extreme

Capacity Performance Quantifiable Risk (CPQR)

- Premium to cover only the risk associated with capacity non-performance charges or bonuses (risk associated with the second term in the equation below).
 - Risk that nonperformance charges could be greater than the expected value used in the equation.
 - Risk that bonuses could be less than the expected value used in the equation.

$$p = \text{Net ACR} + \text{Net (Expected Penalties - Expected Bonuses)}$$

- Energy market risks not includable in CPQR.

Sources of Risk

- **The specific variables used in the calculation of nonperformance charges and bonuses that are the sources of uncertainty:**
 - **The number of PAI (H).**
 - **Unit specific performance during PAI (A).**
 - **Balancing Ratio during PAI (B).**
 - **Capacity performance bonus rate (CPBR).**
- **The bonus payment rate (CPBR) depends on the amount of MW excused during a PAI.**
- **Dilution of bonus payment rate is a source of uncertainty for units expected to perform and expected to recover some of the avoidable costs through CP bonus payments.**

CPQR Documentation

- The Supporting Documentation Requirements includes a section on general documentation to support CPQR for IMM review.
- If CPQR is an insurance premium quote from a third party, the supporting documentation should include a statement to certify that the coverage does not include energy market risks.
- Statement should specify the unit, the period (delivery year), the liability covered.
- Market sellers should explain the choice for the liability amount in the insurance quote.

Links to Filings

- **PJM response to FERC deficiency letter, Docket No. ER15 – 623 (April 10, 2015):**

[PJM Deficiency Letter Response \(eLibrary link\)](#)

- **IMM complaint with the derivation of competitive CP offers (refer to High ACR case):**

[IMM Complaint re MSOC \(February 21, 2019\)](#)

MOPR Floor > MSOC

- If the MOPR floor price is greater than the MSOC, the MOPR floor price is the lowest allowable offer.
- This can occur for units with a MOPR floor price determined by a net CONE calculation rather than a net ACR calculation.
- This is less likely to occur for units with a MOPR floor price determined by a net ACR calculation.

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