



Frequently Mitigated Unit Adders Final Report

[Frequently Mitigated Unit Adders](#)

1. Issue Summary

Frequently Mitigated Units (FMU) and Associated Units (AU) are generating units in the PJM Energy Market that are allowed to include an adder in their cost-based offers based on the frequency with which they are offer capped. FMU adders were first implemented to help ensure that units that run primarily in a cost capped mode can cover their avoidable or going-forward costs. The FMU rules provide for a set of graduated adders associated with increasing levels of offer capping. Units capped for 60 percent or more of their run hours and less than 70 percent are entitled to an adder of \$20 per MWh. Units capped 70 percent or more of their run hours and less than 80 percent are entitled to an adder of either 15 percent of their cost-based offer (not to exceed \$40) or \$30 per MWh. Units capped 80 percent or more of their run hours are entitled to an adder of \$40 per MWh or the unit-specific, going-forward costs of the affected unit. These categories are designated Tier 1, Tier 2 and Tier 3 respectively.

An AU, or associated unit, is a unit that is physically, electrically and economically identical to an FMU, but does not qualify for the same FMU adder. The AU designation was implemented to ensure that the associated unit is not dispatched in place of the FMU, resulting in no effective adder for the FMU.

FMU adders were added to the market rules in 2005 in order to address concerns around revenue inadequacy. Since that time, PJM has undertaken major redesign of its market rules addressing revenue adequacy, including implementation of the RPM capacity market construct in 2007, and significant changes to the scarcity pricing rules in 2012. As such, stakeholders elected to re-examine the FMU adders and determine if they were still appropriate.

2. Issue History

[Problem Statement and Issue Charge](#)

Problem statement brought forward by: The Independent Market Monitor

Approved by: The Market Implementation Committee approved the problem statement at the May 2013 meeting and elected to address the issue itself at sub-group meetings.

Meeting history: Meetings began in November 2013, and there were nine meetings on this issue

3. Packages

Package G

Package G leave the adder levels for FMUs unchanged, but limits total recovery due to the adders within the rolling twelve month evaluation period. The recovery from the adders is capped at 12 percent of gross CONE for the unit's LDA x Unit ICAP. Once this level is reached the generator would only be allowed to include the normal ten percent adder. RMR units would not be eligible for adders in Package G. Package G differs from other packages in that it offers generation owners the ability to speak with PJM and the



MMU and proceed with a filing to FERC if they are not receiving adequate going forward costs for the generating unit. Package G received the most support in voting at the MIC and is the primary motion.

Package H

Package H is very similar to the current rules. Instead of the Tier 2 adder being \$30 or 15 percent of the cost based offer (not to exceed \$40), Package H would make this adder a flat \$30.

Package F prime

This package introduces specific adder amounts based on run hours, for any unit with greater than 500 run hours or if a unit is not a capacity resource (regardless of run hours).

Tier 3 adder: \$40 for units below 500 run hours, 25% of cost offer above 500 run hours;

Tier 2 adder: \$30 for units below 500 run hours, 20% of cost offer above 500 run hours;

Tier 1 adder: \$20 for units below 500 run hours, 15% of cost offer above 500 run hours;

AUs will receive the same adder level as the FMU they are similar to. Among a group of AUs, the highest run hours among them will be used to determine which adder level is allowed. RMR units would not be eligible for adders under Package F. FRR are eligible, capacity and non-capacity resources are eligible; if any of the unit's offer can be mitigated by PJM, then the generator is eligible for adders.

4. Comparative Summary

Key elements	Status Quo	Package F prime	Package G	Package H
Adder level	\$40/\$30*/\$20	\$40/\$30/\$20 for under 500 run hours. 25%/20%/15% if over 500 run hours	\$40/\$30/\$20 limited to 12% of gross CONE for that unit's LDA	\$40/\$30/\$20
RMR units eligible?	Yes	No	No	Yes
Adders for FRR units?	Yes	Yes	Yes	Yes
External units?	Yes	Yes	Yes	Yes
Additional screens?	No	No	No	No

5. Standing Committee Vote Results

MIC Vote May 2014				
	Package A	Package F prime	Package G	Package H
Yes	71	90	88	72



No	93	60	48	44
Abstain	14	21	31	50
Total	164	150	136	116
Level of Support	43%	60%	65%	62%

Appendix I: Voting and Polling Results

FMU Polling Results April 2014							
	Package A	Package D	Package E	Package F	Package G	Package H	Status Quo
Yes	37	0	34	94	98	98	77
No	100	138	103	44	40	40	52
Maybe	1	0	0	0	0	0	9
Total	138	138	137	138	138	138	138
Level of Support	27%	0%	25%	68%	71%	71%	56%

FMU Polling Results February 2014						
	Package A	Package B	Package C	Package D	Package E	Status Quo
Yes	20	34	19	51	30	52
No	65	52	67	35	56	34
Maybe	1	0	0	0	0	0
Total	86	86	86	86	86	86
Level of Support	23%	40%	22%	59%	35%	60%

FMU Polling Results February 2014			
	Tier 1	Tier 2	Tier 3
Yes	34	31	72
No	51	40	0
Maybe	1	15	14
Total	86	86	86
Level of Support	40%	36%	84%



Appendix II: Stakeholder Participation

Name	Company	Sector
Ainspan, Malcolm	Energy Curtailment Specialists, Inc.	Other Supplier
Anders, David	PJM Interconnection, LLC	Not Applicable
Applebaum, David	NextEra Energy Power Marketing, LLC	Generation Owner
Baran, Eric	Allegheny Electric Cooperative, Inc.	Electric Distributor
Barker, Jason	Exelon Business Services Company LLC	Transmission Owner
Bash, David	Enerwise Global Technologies, Inc.	Other Supplier
Bassett, Jeffrey	BP Energy Company	Other Supplier
Batta, Michael	Virginia Electric & Power Company	Transmission Owner
Benchek, Jim	FirstEnergy Solutions Corporation	Transmission Owner
Berger, Ken	Dominion Virginia Power	Not Applicable
Berlinski, Michael	Beacon Power, LLC	Other Supplier
Bhuiyan, Mashuur	PPL EnergyPlus, L.L.C.	Transmission Owner
Bloom, David	Baltimore Gas and Electric Company	Transmission Owner
Bolan, Martin	FirstEnergy Solutions Corporation	Transmission Owner
Bonanni, John	NRG Power Marketing LLC	Generation Owner
Borgatti, Michael	Gable and Associates	Not Applicable
Bowring, Joseph	Monitoring Analytics, LLC	Not Applicable
Breidenbaugh, Aaron	EnerNOC, Inc.	Other Supplier
Bresler, Stu	PJM Interconnection, LLC	Not Applicable
Brodbeck, John	Potomac Electric Power Company	Electric Distributor
Brown, Richard	PJM Interconnection, LLC	Not Applicable
Bruce, Susan	McNees, Wallace and Nurick, LLC	Not Applicable
Butler, James	NiSource Inc.	Not Applicable
Buttner, Sally	Energy Transition Consulting, L.L.C.	Other
Carbonneau, Andrew	Open Access Technology International, Inc.	Not Applicable
Carmean, Gregory	OPSI	Not Applicable
Carretta, Kenneth	PSEG Energy Resources and Trade LLC	Transmission Owner
Chen, Xu	Other	Not Applicable
Chin, Brian	Citigroup Energy, Inc.	Other Supplier
Ciabattoni, Joe	PJM Interconnection, LLC	Not Applicable
Citrolo, John	PSEG Energy Resources and Trade LLC	Transmission Owner
Coyle, Billy	Dominion Virginia Power	Not Applicable
Currier, Jeff	Dominion Virginia Power	Not Applicable
Dadourian, John	Monitoring Analytics, LLC	Not Applicable
De Geeter, Ralph	Maryland Public Service Commission	Not Applicable
Dessenger, Harry	Customized Energy Solutions, Ltd.*	Not Applicable
Dirani, Rami	PJM Interconnection, LLC	Not Applicable
Dorko, Keri	Monitoring Analytics, LLC	Not Applicable
Dosunmh, Ade	Capacity Market Partners, LLC	Other Supplier
Dugan, Bill	Customized Energy Solutions, Ltd.*	Not Applicable
Dugan, Chuck	East Kentucky Power Cooperative, Inc.	Transmission Owner



Dupeire, Michael	Ventyx	Not Applicable
Engle, Andrew	PJM Interconnection, LLC	Not Applicable
Erickson, Bruce	Allegheny Electric Cooperative, Inc.	Electric Distributor
Esposito, Pati	Atlantic Grid Operations A, LLC	Other Supplier
Etnoyer, Scott	Raven Power Marketing LLC	Generation Owner
Everngam, Scott	Federal Energy Regulatory Commission (The)	Not Applicable
Fabiano, Janell	PJM Interconnection, LLC	Not Applicable
Farber, John	DE Public Service Commission	Not Applicable
Fernandes, John	Baltimore Gas and Electric Company	Transmission Owner
Fernandez, Jonathan	Federal Energy Regulatory Commission (The)	Not Applicable
Filomena, Guy	Customized Energy Solutions, Ltd.*	Not Applicable
Fitch, Neal A.	GenOn Energy Management, LLC	Generation Owner
Flaherty, Dale	Duquesne Light Company	Transmission Owner
Foladare, Kenneth	Iron Mountain Generation LLC	Generation Owner
Ford, Adrien (Chair)	PJM Interconnection, LLC	Not Applicable
Freeman, Al	Michigan Public Service Commission	Not Applicable
Frost, Jodi	Moxie Liberty LLC	Other Supplier
Fuess, Jay	White Pine Energy Consulting	Not Applicable
Galicia, Louis	Ventyx	Not Applicable
Garbini, Marj	Potomac Electric Power Company	Electric Distributor
Gell, Richard	Ontario Power Generation Inc.	Other Supplier
Gilani, Rehan	ConEdison Energy, Inc.	Other Supplier
Godson, Gloria	Potomac Electric Power Company	Electric Distributor
Gorman, Kevin	Highlands Energy Group LLC (The)	Other Supplier
Greening, Michele	PPL EnergyPlus, L.L.C.	Transmission Owner
Griffiths, Dan	Pennsylvania Office of Consumer Advocate	End User Customer
Guilbault, Louis	H.Q. Energy Services (U.S.), Inc.	Other Supplier
Hanson, Mark	Illinois Commerce Commission	Not Applicable
Hastings, David	DhastCo, LLC	Not Applicable
Haynes, Greg	Energy Authority, Inc. (The)	Other Supplier
Heidorn, Rich	RTO Insider	Not Applicable
Heizer, Fred	Public Utilities Commission of Ohio	Not Applicable
Hirsch, Stephen	Downes Associates, Inc.	Other Supplier
Hoatson, Tom	Riverside Generating, LLC	Other Supplier
Holdbrook, Ruth	Northern Virginia Electric Cooperative	Electric Distributor
Holland, Risa	PJM Interconnection, LLC	Not Applicable
Horstmann, John	Dayton Power & Light Company (The)	Transmission Owner
Hsia, Eric	PJM Interconnection, LLC	Not Applicable
Hubbard, Lance	Allegheny Electric Cooperative, Inc.	Electric Distributor
Hugee, Jacquelynn	PJM Interconnection, LLC	Not Applicable
Hurwich, Mark	Elliott Bay Energy Trading, LLC	Other Supplier
Hyzinski, Tom	PPL EnergyPlus, L.L.C.	Transmission Owner
James, Eric	Appalachian Power Company (AEP Generation)	Transmission Owner
Janicki, Diane	Edison Mission Marketing & Trading, Inc.	Generation Owner
Jennings, Kenneth	Duke Energy Business Services LLC	Generation Owner
Jett, William	Duke Energy Business Services LLC	Generation Owner
Johnson, Carl	Customized Energy Solutions, Ltd.*	Not Applicable
Jostworth, Kimberly	RBC Energy Services LP	Other Supplier
Josyula, Siva	Monitoring Analytics, LLC	Not Applicable



Kazerooni, Hamid	PPL EnergyPlus, L.L.C.	Transmission Owner
Keech, Adam	PJM Interconnection, LLC	Not Applicable
Kerecman, Joseph	Calpine Energy Services, L.P.	Generation Owner
Kilgallen, Kevin	Emerald Energy	Not Applicable
Kirby, James	PJM Interconnection, LLC	Not Applicable
Knies, Heather	EDF Trading North America, LLC	Other Supplier
Kogut, George	New York Power Authority	Other Supplier
Lacy, Catharine	Dominion Virginia Power	Not Applicable
Levine, Jeffrey	IPR-GDF SUEZ Energy Marketing NA, Inc.	Other Supplier
Lieberman, Steven	Old Dominion Electric Cooperative	Electric Distributor
Logan, Sharon	Federal Energy Regulatory Commission (The)	Not Applicable
Long, Scott	Allegheny Electric Cooperative, Inc.	Electric Distributor
Luna, Joel	Monitoring Analytics, LLC	Not Applicable
Mabry, David	McNees Wallace & Nurick LLC	Not Applicable
Mahoney, Julieanne	New York State Electric & Gas Corporation	Other Supplier
Maloney, Peter	Platts	Not Applicable
Mancuso, Maria	Baltimore Gas and Electric Company	Transmission Owner
Manning, James	North Carolina Electric Membership Corporation	Electric Distributor
Mariam, Yohannes	Office of the Peoples Counsel for the District of Columbia	End User Customer
Marks, Lorrie	PJM Interconnection, LLC	Not Applicable
Martin, Valerie	Federal Energy Regulatory Commission (The)	Not Applicable
Marton, David	FirstEnergy Solutions Corporation	Transmission Owner
Marzewski, Skyler	Monitoring Analytics, LLC	Not Applicable
Maucher, Andrea	State of Delaware, Div. of the Public Advocate	End User Customer
McAlister, Lisa	American Municipal Power, Inc.	Electric Distributor
McNamara, Sean	PJM Interconnection, LLC	Not Applicable
Miller, John	Commonwealth Edison Company	Transmission Owner
Minalga, Jason	Invenergy LLC	Generation Owner
Mok, Alan	Duke Energy Kentucky, Inc.	Transmission Owner
Mount, Colin	FirstEnergy Solutions Corp.	Transmission Owner
Mueller, Ron	Twin Eagle Resource Management, LLC	Other Supplier
Murti, Prashant	DB Energy Trading LLC	Other Supplier
Nobile, Joe	Richland-Stryker Generation LLC	Generation Owner
Norton, Chris	American Municipal Power, Inc.	Electric Distributor
O'Connell, Robert	JPMorgan Ventures Energy Corporation	Other Supplier
Ondayko, Brock	Appalachain Power Company	Transmission Owner
Owens, Christina	North Carolina Electric Membership Corporation	Electric Distributor
Pakela, Greg	DTE Energy Trading, Inc.	Other Supplier
Parker, Seth	Levitan Associates	Not Applicable
Patel, Munjal	NRG Power Marketing LLC	Generation Owner
Patten, Kevin	Appalachain Power Company	Transmission Owner
Peoples, John	Duquesne Light Company	Transmission Owner
Portray, Annaka (Secretary)	PJM Interconnection, LLC	Not Applicable
Pratzon, David	GT Power Group	Not Applicable
Rajan, Abhijit	Dominion Resources	Not Applicable
Razze, Scott	Potomac Electric Power Company	Electric Distributor
Robson, Matt	SESCO Enterprises LLC	Other Supplier
Rohrbach, John	Southern Maryland Electric Cooperative	Electric Distributor



Rothman, Rich	PJM Interconnection, LLC	Not Applicable
Salaneck, Alexandra	Monitoring Analytics, LLC	Not Applicable
Scarpignato, David	Direct Energy Business, LLC	Other Supplier
Schmitt, Jeff	PJM Interconnection, LLC	Not Applicable
Schofield, William	Customized Energy Solutions, Ltd.*	Not Applicable
Scoglietti, Barbara	Tangent Energy Solutions, Inc.	Other Supplier
Scott, Charles	DC Energy LLC	Other Supplier
Seymour, Melissa	IBERDROLA RENEWABLES, LLC	Generation Owner
Shadle, David	Power Advance LLC	Not Applicable
Shparber, Steven	PJM Interconnection, LLC	Not Applicable
Sillin, John	Federal Energy Regulatory Commission (The)	Not Applicable
Siva, J.	Monitoring Analytics, LLC	Not Applicable
Skucas, Ruta	Pierce Atwood	Not Applicable
Smoots, Carol	Pierce Atwood	Not Applicable
Snow, Robert	Federal Energy Regulatory Commission (The)	Not Applicable
Snyder, Sue	PJM Interconnection, LLC	Not Applicable
Stadelmeyer, Rebecca	Exelon Business Services Company, LLC	Transmission Owner
Staska, Stephanie	Twin Cities Power, LLC	Other Supplier
Stuchell, Jeff	FirstEnergy Solutions Corporation	Transmission Owner
Sudhakara, Raghu	Rockland Electric Company	Transmission Owner
Suh, Jung	Noble Americas Energy Solutions LLC	Other Supplier
Summe, Martin	North Carolina Municipal Power Agency # 1	Other Supplier
Summers, Theodore	PSEG Energy Resources and Trade LLC	Transmission Owner
Swalwell, Brad	Tangent Energy Solutions, Inc.	Other Supplier
Terry, Jonathan	Allegheny Electric Cooperative, Inc.	Electric Distributor
Trayers, Barry	Citigroup Energy, Inc.	Other Supplier
Trevino, Rita	Siemens Industry, Inc.	Other Supplier
Tribulski, Jennifer	PJM Interconnection, LLC	Not Applicable
Two, User	XO Energy MA, LP	Other Supplier
Wadsworth, Joseph	Vitol Inc.	Other Supplier
Walter, Laura	PJM Interconnection, LLC	Not Applicable
Weiss, Glenn	PJM Interconnection, LLC	Not Applicable
Wellborn, Sam	Division of the Public Advocate of State of Delaware	End User Customer
Wilkins, James	North Carolina Electric Membership Corporation	Electric Distributor
Williams, Stanley	PJM Interconnection, LLC	Not Applicable
Wilson, James	Wilson Energy Economics	Not Applicable
Wingfield, Amy	Raven Power Marketing LLC	Generation owner
Wisersky, Megan	Madison Gas & Electric Company	Other Supplier
Woodyard, Phillip	Washington Gas Energy Services, Inc.	Other Supplier
Xenopoulos, Damon	Brickfield, Burchett, Ritts, and Stone, PC	Not Applicable
Zadlo, Thomas	PJM Interconnection, LLC	Not Applicable



Appendix III: Proposals Not Meeting The Threshold

Package A

This package is a combined effort of PJM and the Independent Market Monitor. The level of the FMU adders would be similar to today at \$20, \$30, and \$40 for Tier 1, Tier 2, and Tier 3 respectively. However in addition to the rolling twelve month screen on the levels of offer capping, there will be an additional check to determine if the net revenues of the generator in that period were adequate to cover their going forward costs (as measured by the Avoidable Cost Rate). Only those frequently mitigated generators that did not receive adequate revenues to cover their going forward costs will be eligible to receive FMU adders. Units that are receiving compensation for going forward costs outside the RPM Capacity Market (such as FRR units) would not be eligible to receive FMU adders. External units would also not be eligible. RMR units would not be eligible for FMU adders.