



DATE: October 24, 2011
TO: MIC
FROM: Joe Bowring; Bill Dugan
SUBJECT: Report on MIC-PLS

The Markets and Reliability Committee charged the Market Implementation Committee on February 16, 2011 to meet in special sessions to discuss Parameter-Limited Schedule issues raised by the PJM Market Monitor. The special sessions of the Markets Implementation Committee met on April 1, June 1, July 18, and September 30, 2011 to discuss issues related to parameter limited schedules. These sessions addressed possible market power issues associated with parameter limited schedule rules and other parameter limited schedule rules issues raised by stakeholders.

During these stakeholder meetings a number of consensus design criteria were identified in order to discuss the issues with parameter limited schedules raised by the market monitor and other stakeholders. These issues included:

- 1) The appropriate cost-based parameter when price-based schedule parameters are more flexible than cost-based schedule parameters.
 - a. Example 1: Price schedule minimum run time of 4 hours vs. cost schedule minimum run time of 5 hours.
 - b. Example 2: Price schedule minimum down time of 3 hours vs. cost schedule minimum down time of 4 hours.
- 2) Price-based schedule parameters are not governed by parameter limited schedule rules.
- 3) The review of parameter limited schedules is twice yearly and lacks flexibility.
- 4) The daily exception process is not well defined.
- 5) Sub-critical Coal Plant parameters may not reflect current operating experience.
- 6) Medium-Large and Large Frame Combustion Turbine parameters may not reflect current operating experience.
- 7) Pre-1985 and Post-1985 oil/gas steam unit parameters may not reflect current operating experience.
- 8) Determination of least-cost schedule in the Three-Pivotal Supplier test is flawed.

After extensive discussion, two packages addressing the issues were proposed, with neither receiving consensus. This report summarizes the positions and the supporting rationales for each.

Package 1:

For package 1, in the latest special session on September 30, 2011, the straw polling was:

Yes – 55 votes

No - 10 votes

Not opposed – 4 votes

Abstain – 5 votes

- 1) No change to current methodology regarding cost-based parameter limits.
 - a. The rationale as proposed by stakeholders was that in order to run a combustion turbine with a shorter minimum run time, the generation owner must incur additional costs that often are not quantifiable and currently not included in Cost Development guidelines (Manual 15). In addition, the overhaul lifetime of a turbine is dependent on starts or run hours, and under the current guidelines of 10 or 20 year escalation factors, the VOM adder on a \$/MWh basis may under-recover the appropriate costs for units if minimum run times are lowered.
 - b. For market based offers, generators may modify offers in order to account for the degradation that occurs when a unit is run for fewer hours than its cost-based minimum runtime. Market-based offers are not limited by parameters and PLS parameters should not change based on those offered on market parameters, as market-based offers may reflect costs and competitive aspects that are not allowed in cost-based offers. Market-based offers of shorter run times are also configured to incent PJM to take the unit.
 - c. Very short run times are infeasible on large machines that need to reach thermal equilibrium.
 - d. Offers cannot be broken into individual parts and reconfigured, as the offer parameters are part of a set of related offer criteria.

- 2) No change to current methodology regarding whether price schedules are subject to parameter limits. In addition, the PJM dispatch tool should be more forward looking in order to capture the operation of base-load units that were not designed to cycle daily.
 - a. The rationale for this position is that cycling can cause significant wear and tear in units that may not be seen or quantified until years later, and cycling units daily can result in higher start-up costs. On market-based offers, units need to be able to reflect their designed operation, and turning units off and on daily or even weekly can result in the unit owner absorbing startup risks and added maintenance costs the following day or week. The cost can exceed margins obtained through the previous weeks and may imply the unit should not have been scheduled in the first place. The alternative to avoiding cycling these units is to raise cost offers (if cost development guidelines allowed) and be paid the costs for additional cycling, if this cost were quantifiable.
 - b. Generators should be able to compete on market based offers in order to indicate to PJM what parameters they would like to run on.
 - c. When units are cycled off-line, they need to be inspected and made ready for the next startup. This process can take several days on a base-load design unit.
- 3) The exception process should:
 - a. Become an annual process. The biannual process is excessive, and evaluating exceptions annually is more reasonable.
 - b. Exceptions based on 2006 offer data should be grandfathered, and continue to be allowed unless unit conditions change. As the Manual 11 rules allow units exceptions based on 2006 offer data, exceptions from this period should continue to be accepted without resubmission.
 - c. Allow longer term than annual exceptions, if requested. If exceptions are continually approved based on acceptable reasons, and unit conditions do not change, these exceptions should not need resubmission.
 - d. An exception approved for two consecutive periods should continue to be approved unless unit conditions change.
- 4) The daily exception process should not be changed, however any daily exception that is not approved or denied by the MMU or PJM should be considered conditionally approved. This allows the resource owner to recover costs and

operate their unit to their submitted daily exception parameters. If a daily exception is denied by the MMU, PJM has the right to overrule and approve the daily exception. In the event PJM denies the exception, the unit owner retains the right to utilize the dispute resolution process to recoup opportunity costs incurred. It is felt that existing provisions are appropriate and these provisions allow the MMU an opportunity oversee the daily exception process.

- 5) Subcritical coal parameters should be re-evaluated. In particular, the maximum weekly starts parameter should be reduced, and the minimum downtime parameter should be increased. PJM should also examine longer-term scheduling decisions to reflect economic weekly operation, in order to better schedule units with less flexible parameters. This was proposed as it has been observed that sub-critical coal requirements are based on 2006 and earlier data, which may be out of date. These parameters may not reflect the current operation of base-load units which were not designed to cycle. This was a consensus opinion.
- 6) Current Medium-large and Large Frame CT parameters should be maintained.
- 7) Pre-1985 and Post-1985 oil/gas steam unit parameters should be re-evaluated, in order to better classify these parameters if necessary.
- 8) TPS test modification should be considered to add a minimum runtime expectation for the transmission constraint when evaluating the lowest cost offer to be selected when the unit is offer-capped.

Package 2:

This proposal was proposed by the Market Monitor.

For package 2, in the latest special session on September 30, 2011, the straw polling was as follows;

Yes – 15 votes

No - 57 votes

Abstain – 2 votes

- 1) The cost-based offer should reflect the most flexible parameters made available for the unit. Cost-based parameters should not be less flexible than price-based parameters, as this indicates the unit is physically capable of being more flexible. Parameter limited schedules are intended to reflect the most flexible

parameters of units based on their physical characteristics. If cost-based schedules are less flexible than price-based schedules on the minimum run time parameter, there can be additional issues when interacting with the three-pivotal supplier test. The issue is the result of the interaction between scheduling decisions and the three-pivotal supplier test parameters, but the total cost to the market is greater when the cost-based schedule is chosen, due to a longer minimum run time. This allows a generator to circumvent the consequences of the TPS test and results in the selection of a schedule with a higher total cost, and increases payments to the generator. The proposed solution for this item is to include an additional clause in Manual 11 rules at 2.3.4, stating “For all offer parameters, the Parameter-Limited Schedule shall be the less limiting of (a) the defined Parameter-Limited Schedule or (b) the submitted offer parameters of any other schedule.

- 2) It is recommended that the PJM dispatch tool attempt to become more forward looking in order to better capture the operation of base-load units that were not designed to cycle daily. This is in order to capture the operations of older units that have longer and less flexible physical operating parameters. In addition, both cost-based and price-based schedules should be governed by parameter limited schedule rules. The rationale is that price-based units can offer inflexible parameters to avoid being turned off when the unit is not economic. As a result, the generator can force PJM to run it when not economic, in order to avoid cycling, which reduces prices for other generating units as a result of increased, uneconomic supply. In addition, this can increase operating reserve credits to the unit, while increasing operating reserve charges paid by other participants.
- 3) The exception process should;
 - a. Be an annual process. Evaluating exceptions annually is more reasonable.
 - b. Exceptions based on 2006 offer data should be grandfathered, and continue to be allowed unless unit conditions change. As the Manual 11 rules allow units exceptions based on 2006 offer data, offers from this period should continue to be accepted without resubmission, unless unit conditions change.
 - c. Allow longer term than annual exceptions, if requested. If exceptions are continually approved based on acceptable reasons, and unit

conditions do not change, these exceptions should not need resubmission.

d. Allow longer term than annual exceptions, if requested.

- 4) The daily exception process should allow daily exceptions for a maximum of 7 days with the same exception during the year. However, if a unit owner wishes to extend a daily exception for the balance of the annual period, the daily exception may be renewed for up to 30 days while the annual exception process is used to review the appropriateness of the exception request. This is proposed because the daily exception process has been used at times to circumvent the biannual exception process, in the case where a generator has its exception request denied. As the daily exception process is only reviewable after the fact, this allows resource owners to put in inappropriate daily exceptions every day for the same exception.
- 5) Subcritical coal parameters should be re-evaluated. In particular, the maximum weekly starts parameter should be reduced, and the minimum downtime parameter should be increased. PJM should also examine longer-term scheduling decisions to reflect economic weekly operation, in order to better schedule units with less flexible parameters. This was a consensus opinion.
- 6) Medium-Large and Large frame combustion turbine parameters should be re-evaluated, particularly to increase maximum daily and weekly starts, as well as decrease minimum down times. It was suggested by some stakeholders that combustion turbines are often able to operate more flexibly than the parameter limits the matrix indicates.
- 7) Pre-1985 and Post-1985 oil/gas steam unit parameters should be re-evaluated, in order to better classify these parameters if necessary.
- 8) The determination of the least-cost schedule in the three-pivotal supplier test should be modified in order to include the Minimum Run Time parameter in all components when making scheduling decisions. This was recommended as units that have differing parameters on the price-based and cost-based schedules do not currently always result in selection of the least-cost schedule for solving a contingency.



If your name does not appear on the registered list of attendees, please add it in one of the blank spaces provided. Thank you.

09/30/2011 10:00AM to 09/30/2011 2:00PM

PJM Interconnection, 955 Jefferson Avenue, Valley Forge Corporate Center, Service Center, S-1, Norristown, PA - 19403-2497, USA, (610) 666-8980

Dial In: 866-398-2885

Passcode: 750466

WebEx Link: <https://pjm.webex.com>

WebEx Passcode: pls0930pim

Attendees - In Person

Present	Last Name	First Name	Company Name	Sector	Email Address	Phone Number
✓	Brodbeck	John	Shell Energy North America (US), LP	Other Supplier	john.brodbeck@shell.com	267-568-2814
✓	Dugan	William	Monitoring Analytics, LLC	Not Applicable	william.dugan@monitoringanalytics.com	610-271-8050
	Esposito	Pati	NRG Power Marketing, L.L.C.	Generation Owner	Pati.esposito@nrgenergy.com	908-658-3065
	Frellich	Jessica	Integrus Energy Services, Inc.	Other Supplier	jafrellich@integrusenergy.com	920-617-6116
✓	Long	Kathleen	Solular, LLC	Not Applicable	klong@solularenrgy.com	609-268-8880
✓	Stadelmeyer	Rebecca	Exelon Generation Co., LLC	Transmission Owner	rebecca.stadelmeyer@exeloncorp.com	610-765-6761
✓	Steigewald	David	Customized Energy Solutions, Ltd. *	Not Applicable	dsteigewald@ces-ltd.com	646-228-1414
	Waller	Laura	PJM Interconnection	Not Applicable	waller@pjm.com	610-666-4625
✓	Modi	Vikram	Montgomery Analytics	NA		
✓	Siegelist	HAC	GenOn	Gen	HAC.Siegelist@GenOn.com	202 359944
✓	Bourliss	JOE				

Dem HAL SLIZGIST @ Canada.com 202 359 9469

[illegible]

Attendees - Teleconference

Present	Last Name	First Name	Company Name	Sector	Email Address	Phone Number
✓	Anders	David	PJM Interconnection	Not Applicable	andersd@pjm.com	610-698-5633
	Barker	Jason	Constellation NewEnergy, Inc.	Transmissi on Owner	jason.barker@constellation.com	410-470-5824
	Bearden	Joel	Cargill Power Markets LLC	Other Supplier	joel_bearden@cargill.com	612-824-0834
	Benchek	Jim	Monongahela Power Company d/b/a Allegheny Power	Transmissi on Owner	jpbenchek@firstenergycorp.com	330-761-4108
	Burner	Bob	Duke Energy Carolinas, LLC	Generation Owner	g.burner@duke-energy.com	704-382-6889
✓	Carretta	Kenneth	PSEG Energy Resources and Trade LLC	Transmissi on Owner	kenneth.carretta@pseg.com	973-430-6462
	Chapman	Mike	Magnolia Energy L.P.	Generation Owner	mike.chapman@keelsonenergy.com	443-542-5123
	Citrolo	John	Calpine Energy Services, L.P.	Generation Owner	john.citrolo@calpine.com	302-319-0169
	Donovan	Brendan	Northern Indiana Public Service Company	Other Supplier	bdonovan@nsource.com	219-853-6982
	Ellis	Jeff	Edison Mission Marketing and Trading, Inc.	Generation Owner	jellis@edisonmission.com	617-912-6037
✓	Filomena	Guy	Customized Energy Solutions, Ltd. *	Not Applicable	gfilomena@ces-ltd.com	240-280-1199
	Flaherty	Dale	Duquesne Light Company	Transmissi on Owner	dflaherty@duqlight.com	412-393-6237
	francis	franklin	Brookfield Energy Marketing LP	Other Supplier	franklin.francis@brookfieldpower.com	518-729-4002
	Gilani	Rehan	ConEdison Energy, Inc.	Other Supplier	gilanir@conedoss.com	914-993-2183
	Greening	Michele	PPL Energy Plus, LLC	Transmissi on Owner	mhgreening@pplweb.com	610-774-5849
	Hamilton	T.L.	Platts	Not Applicable	tiffany_hamilton@platts.com	713-658-3217

	Hauske	Thomas	PJM Interconnection	Not Applicable	hauskt@pjm.com	610-666-4766
✓	Hebert	Damase	Covanta Energy Group, Inc.	Generation Owner	damase.hebert@gabellassociates.com	732-296-0770
	Heizer	Fred	Ohio Public Utilities Commission	Not Applicable	fred.heizer@puc.state.oh.us	614-644-7692
✓	Hoatson	Thomas	Riverside Generating, LLC	Generation Owner	thoatson@ispower.com	732-867-5911
✓	Horstmann	John	Dayton Power & Light Company (The)	Transmissi on Owner	john.horstmann@dpinc.com	610-933-3170
	Jeremko	Steven	New York State Electric & Gas Corporation	Other Supplier	stjeremko@nyseg.com	607-762-8836
	Kimmel	Elizabeth	Kimmel Energy Associates*	Other Supplier	ekimmel@comcast.net	610-389-3072
	Kremer	Kathleen	Commonwealth Edison Company	Transmissi on Owner	kathleen.kremer@comed.com	630-684-3574
✓	Lindeman	Tony	FirstEnergy Solutions Corp.	Transmissi on Owner	lindemana@firstenergycorp.com	330-436-2731
	Lopez	Johny	PSEG Energy Resources and Trade LLC	Generation Owner	Johny.Lopez@pseg.com	973-430-8083
✓	Mabry	David	McNees Wallace	Not Applicable	dmabry@mwn.com	717-237-5334
	Manion	Evelyn	PJM Interconnection	Not Applicable	manioe@pjm.com	610-666-4491
	Markiewicz	Cindy	Monongahela Power Company db/a Allegheny Power	Generation Owner	cmarkie@alleghenyenergy.com	724-838-6777
	Martin	Valerie	Federal Energy Regulatory Commission	Not Applicable	valerie.martin@ferc.gov	(202) 502-6139
	Marton	Dave	FirstEnergy Solutions Corp.	Transmissi on Owner	dpmarton@firstenergycorp.com	330-315-7420
	Meekins	Alan	Virginia Electric & Power Company	Generation Owner	alan.meekins@dom.com	804-273-4452
	Meridionale	Kevin	Jersey Central Power & Light Company	Transmissi on Owner	kmeridionale@firstenergycorp.com	610-921-6868
✓	Miller	Don	FirstEnergy Solutions Corp.	Transmissi on Owner	domiller@firstenergycorp.com	610-921-6285
✓	Norton	Chris	American Municipal Power, Inc.	Generation Owner	cnorton@amppartners.org	614-540-6417
✓	O'Connell	Robert	J.P. Morgan Ventures Energy Corporation	Other Supplier	robert.oconnell@jpmorgan.com	484-844-2528

