



Gas Unit Commitment Coordination

2014/2015 Winter Scope Proposal Review

11/6/14 v4

Please Note: Items in green front are updates from the 10/22/14 Meeting.

Date	Item
10/17/14	GUCC Meeting- Review Proposed 2014/2015 Winter Scope
10/22/14	GUCC Meeting- Finalize 2014/2015 Winter Scope
10/30/14	MRC 1 st Read 2014/2015 Winter Scope
11/7/14	MIC Review of 2014/2015 Winter Scope
11/6/14	(OC) GUCC Vote of 2014/2015 Winter Scope
11/18/14	GUCC Mtg.
11/20/14	MRC Endorsement of 2014/2015 Winter Scope
11/24/14	Winter Webinar training
December 2014	Target Vendor Delivery of Required Software Changes
January 2015	Target Production Release of Required Software Changes

- When?
 - Monday, November 24, 2014 1000-1400 EST
- What?
 - Review Cold Weather Procedures
 - Introduce new procedures/processes for this winter's operation
 - Including GUCC, ERPIV, Cold Weather Resource Performance Improvement initiatives
- Who?
 - Mainly targeted to Generation and MOC operators
 - Limited information for TO operators
- How?
 - Webinar format (register at pjm.com/training.aspx)
 - Will also be recorded, segmented and posted for those that miss the webinar
 - CEH credit available





Gas Unit Commitment Coordination Proposed 2014/2015 Winter Scope

Data Accuracy for Existing Fields

New Data Fields

File Upload Capability

Fuel Policy Updates

Last Updated Information

Notification Time Change Alert

Reinforce Critical Information and
Reporting Requirements

Units Committed In Advance of the
DA Market Posting

Operator Communication Clarification

Intraday Cost Schedule Updating

Existing Data Fields- Ensure data reflects unit's actual parameters

Emergency Min/Max
Economic Min/Max
Notification Times
Minimum Run Times
Maximum Run Times
Unit Status

Current Practice

- Updates to existing fields are sometimes provided verbally to dispatch



Proposed Change

- Generation Owners are responsible for ensuring data accuracy in eMKT for next X days (up to 7 days) with emphasis during Hot and Cold Weather alert periods
- Reference= Manual 11, 13, All Call, Winter webinar training

PJM is requesting to ensure the unit's actuals parameters are documented in eMKT to ensure dispatch decisions are based on accurate information.

What if the approved PLS parameters are not reflective of the unit's actual parameters?

- Generation owners are encouraged to contact the MMU and PJM **IN ADVANCE** so we can explore available options to try to minimize the negative impacts of gas procurement limitations either through actions gen owners can do now, through limited documented exceptions to parameters, or any other valid option.
 - *Benefits to doing this are:*
 - 1) gen owners are proactive so we can be prepared and not surprised by their situations, and
 - 2) gen owners get a consolidated response from PJM and MA of what would be considered an appropriate behavior.
- The exception process in Manual 11 defines the Temporary Exception Process

Operational Restrictions- Entered in Schedule (Daily)

of Operational Restrictions- Select from dropdown of numbers

What is the Operational Restriction- Select from dropdown of pre-populated options and open text fields

Hours at Full Load Remaining for Next 7 Days- Enter hour value

Current Practice

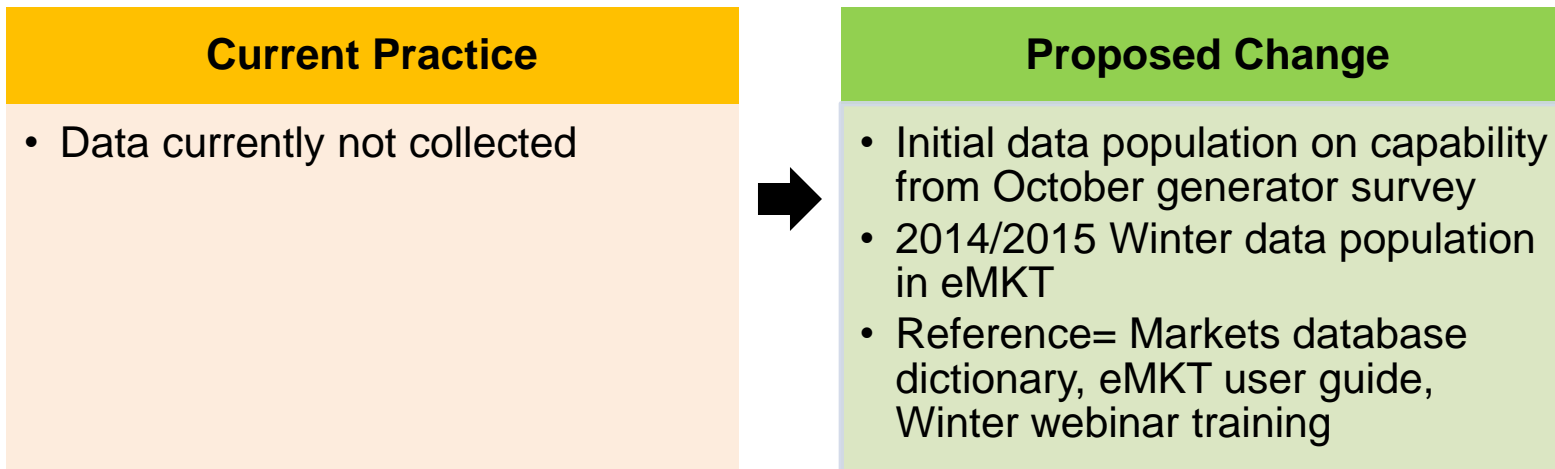
- Data currently not collected



Proposed Change

- Initial data population from October generator survey
- 2014/2015 Winter data population in eMKT
- Reference= Markets database dictionary, eMKT user guide, Winter Webinar training

Fuel
Dual Fuel Capability- Select Yes/No (Unit Level)
Dual Fuel Availability- Select Yes/No (Schedule Level)
Time to Transition- Enter minute value (Schedule Level)
MW Output During Fuel Transition- Enter MW value (Schedule Level)
Fuel Type- Required (Schedule Level)
Start Up Fuel- Required (Schedule Level)



File Upload Capability

eMKT users will have the ability to submit updates for the new data fields via an XML upload.

Current Practice

- Generation owners can currently submit updates to existing data fields in eMKT via an XML upload.



Proposed Change

- eMKT users will have the ability to submit updates for the new data fields via an XML upload.
- Implemented for 2014/2015 Winter
- Reference= eMKT user guide

Note: Current Fuel Policies to be reviewed at the 11/7 MIC

Fuel Policy for Inter-Day Cost Offers

Fuel policy for intra-day offers (updated during operating day) based on actual/expected intra-day costs

Current Practice

- Fuel policy for day ahead offers (submitted before the operating day, day ahead or rebid) based on actual/expected day ahead/intra-day fuel costs submitted by members in MIRA (Member Information Reporting Application) tool



Proposed Change

- Update fuel policy for intra-day offers (updated during operating day) based on actual/expected intra-day costs submitted in MIRA (Member Information Reporting Application) tool.

Last Updated Information

Last Updated field added on the top of two pages:

- Unit Hourly Update page
- Schedule Detail page

Current Practice

- Data currently not displayed



Proposed Change

- Last updated field will be displayed on the top of the Unit Hourly Update page and Schedule Detail page.
- Reference= eMKT user guide, Winter webinar training



Last Updated Field- eMKT Screen



> Logout > E-mail

- Unit
- Schedules
- Dispatch Lambda
- Market Results
- Regulation Market
- Synchronized Reserve Market
- Nonsynchronized Reserve Market
- DA Scheduling Reserve Market
- Parameter Limits
- Interface Pricing
- Opportunity Cost Calculator

- Schedule Offers
- Schedule Detail
- Schedule Manager
- Schedule Selection

Schedule Detail Search

Portfolio: Unit: Date: 10/10/2014

Schedule:

Schedule Detail Screen

Last Updated Date, Time

Schedule Detail Result on 10/10/2014

Name	Value	Name	Value
Description	(null)	Schedule Available	No
Market Type	DayAhead	Fuel Type	(null)
Use Startup No Load	No	Max Runtime (Hour)	(null)
Hot Startup Cost(\$)	(null)	Maximum Daily Starts	(null)
Inter Startup Cost(\$)	(null)	Max Weekly Energy(MW)	(null)
Cold Startup Cost(\$)	(null)	Maximum Weekly Starts	(null)
No Load Cost(\$)	(null)	Hot To Cold Time(Hour)	(null)
Emergency Max(MW)	(null)	Hot To Inter Time(Hour)	(null)
Economic Max(MW)	(null)	Hot Notification Time(Hour)	(null)
Economic Min(MW)	(null)	Inter Notification Time(Hour)	(null)
Emergency Min(MW)	(null)	Cold Notification Time(Hour)	(null)
Minimum Downtime(Hour)	(null)	Hot Startup Time(Hour)	(null)
Minimum Runtime(Hour)	(null)	Inter Startup Time(Hour)	(null)
		Cold Startup Time(Hour)	(null)
		TTS Tolerance	(null)
CIR	(null)	Extended Cold Notification Time(Hour)	(null)
		Extended Cold Startup Time(Hour)	(null)
		Extended Cold Reason	(null)
		Extended Cold Reason End Day (mm/dd/yyyy)	(null)



> Logout > E-mail

- Unit
- Schedules
- Dispatch Lambda
- Market Results
- Regulation Market
- Synchronized Reserve Market
- Nonsynchronized Reserve Market
- DA Scheduling Reserve Market
- Parameter Limits
- Interface Pricing
- Opportunity Cost Calculator

- Unit Hourly Updates
- Unit Detail
- Energy Ramp Rates
- SyncRes Ramp Rates
- Weather Forecast
- Wind Forecast

Unit Hourly Updates Search

Portfolio:

Defaults: Economic No

Emergency Min Economic Min Economic Max Emergency Max Commit Status Fixed Gen

Unit Hourly Update Screen

Last Updated Date, Time

Unit Hourly Updates on 10/10/2014

Hour Ending	Em. Min. Def	Em. Min. MW	Ec. Min. Def	Ec. Min. MW	CIR	Ec. Max. Def	Ec. Max. MW	Em. Max. Def	Em. Max. MW	Commit Status	Fixed Gen.	Notification Time
01	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
02	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
03	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
04	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
05	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
06	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
07	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
08	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
09	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
10	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
11	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
12	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
13	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
14	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
15	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
16	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)
17	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Not Available	No	(null)

Notification Time Field Change Alert

Internal- Provide PJM Dispatch ability to receive notification and assess impacts to Notification Time field changes

Current Practice

- Alert and information is currently not provided



Proposed Change

- Additional column added to DMT for next hour TTS (notification + Start up time)
- Run CTO more frequently
- Reference= Training, DMT

Reinforce Critical Information and Reporting Requirements

Manual 14D Section 7.3 Critical Information and Reporting Requirements

7.3.1 Planned Outage

7.3.2 Maintenance Outage

7.3.3 Unplanned Outage

<http://www.pjm.com/~media/documents/manuals/m14D.ashx>

Current Practice

- Manual 14D Section 7.3 Critical Information and Reporting Requirements



Proposed Change

- Reinforcement Manual 14D Section 7.3 Critical Information and Reporting Requirements
- Reference= Training

Units Committed In Advance of the DA Market Posting

Units called on by PJM in advance of the DA Market Posting, in anticipation of a Cold/Hot Weather Alert, Max Emergency, Generation Alert, Weather/Environment Emergency, Sabotage/Terrorism Emergencies will be:

- Committed into the DA Market with the cost and unit parameters communicated to PJM at the time of the commitment
- Offer-capped at the cost offer provided to PJM
- Generators committed under this procedure will be run for the hours scheduled and will be included in the DA Market as indicated in Manual M-11
- Will run for either the maximum of their min run time or the profile provided by PJM at the time of the commitment

Current Practice

- M11



Proposed Change

- New manual language in M11(ERPIV) and M13

Operator Communication Clarification

- Reminder to Generation Owners to update unit parameters in eMKT
- Clarification for natural gas and non-natural gas units on process followed by PJM to commit generation in advance of the DA market if sufficient generation cannot be cleared in the DA market (as referenced in Manual 13)

Current Practice

- General reference in Manual 13



Proposed Change

- Proposed Manual revisions to Manual 13
- Reference= M13, training, All Call

Intraday Cost Schedule Updating

1. Generators utilize the current 79 Cost-based schedules to reflect possible costs of generation (Schedules 1-69, 80-89)
 - a) Schedules are cost-based and must conform to PJM M-15 Cost Development Guidelines
 - b) Cost-based Schedules values will be locked at 1800 prior day (following rebid period)
 - i. Following values can be changed hourly through Unit Hourly Update: Emerg Min/Max; Economic Min/Max, Commit Status, Fixed Gen and Notification Time
 - ii. Cost-schedule Availability will be able to be changed on an hourly basis under certain cases
2. Selecting “Use Cost Schedule in Real-Time” flag will make Price schedule unavailable for operating day selected
 - a) Unit would be a “cost-based” unit for the next day if this decision is made
 - b) This is done by selecting “Yes” to the “Use Cost Schedule in Real Time” Flag on the Schedule Availability Update tab of eMKT for the appropriate day

3. Schedules for uncommitted generators can be made available or unavailable hourly to more accurately reflect the resources cost
 - a) Sliding lock out
 - i. Can only change schedule availability three plus hours in advance of operating hour
4. Committed resources are unable to change Cost Schedule availability for Day-ahead or RAC Committed hours
 - a) Units may change cost schedule availability for hours *after* the *last DA/RAC committed* hour
 - b) For RAC committed units, PJM Dispatch will provide a run profile and log Start/End times on the Scheduling tab of DMT
5. Units committed in Real Time are unable to change Cost Schedules until released
6. Only 1 Cost Schedule (per fuel type) can be made available each hour

	DA Commitment	RAC Commitment	No Commitment
CT	Cost Switching after the end of last DA committed Hour	N/A	Change hourly. Fixed on Schedule when committed
Steam	Cost Switching after the end of last DA committed Hour	Cost Switching after the end of last RAC committed Hour	Change hourly. Fixed on Schedule when committed

Note: Cost switch flag must be selected between 1800-2100 day prior to operating day.

- “Use Cost Schedule in Real Time Flag” (New Schedule Availability Update Tab)
- **Must be selected between 1800 - 21:00 Day Prior**
 - Yes
 - No Price Schedules will be available in Real-Time (except DA commitments)
 - Option to make cost Schedules Available/Unavailable intraday (1 available cost schedule per fuel type, per hour)
 - No
 - Unit is not able to change Cost Schedule Availability in Real Time
 - 1 Price Schedule is available
 - 1 Cost Schedule (per fuel type) is available – Cheapest
 - Normal Offer Capping is applied
 - Status Quo to today

Schedule Offers

Schedule Detail

Schedule Manager

Schedule Offers

Schedule Availability Update

Schedule Offers Search

Portfolio: Unit: Date: 10/21/2014

Schedule: Hour: 01

1) Change date to desired day (tomorrow)

2) Select Change Date

Selection must be made between 1800 - 2100 day prior

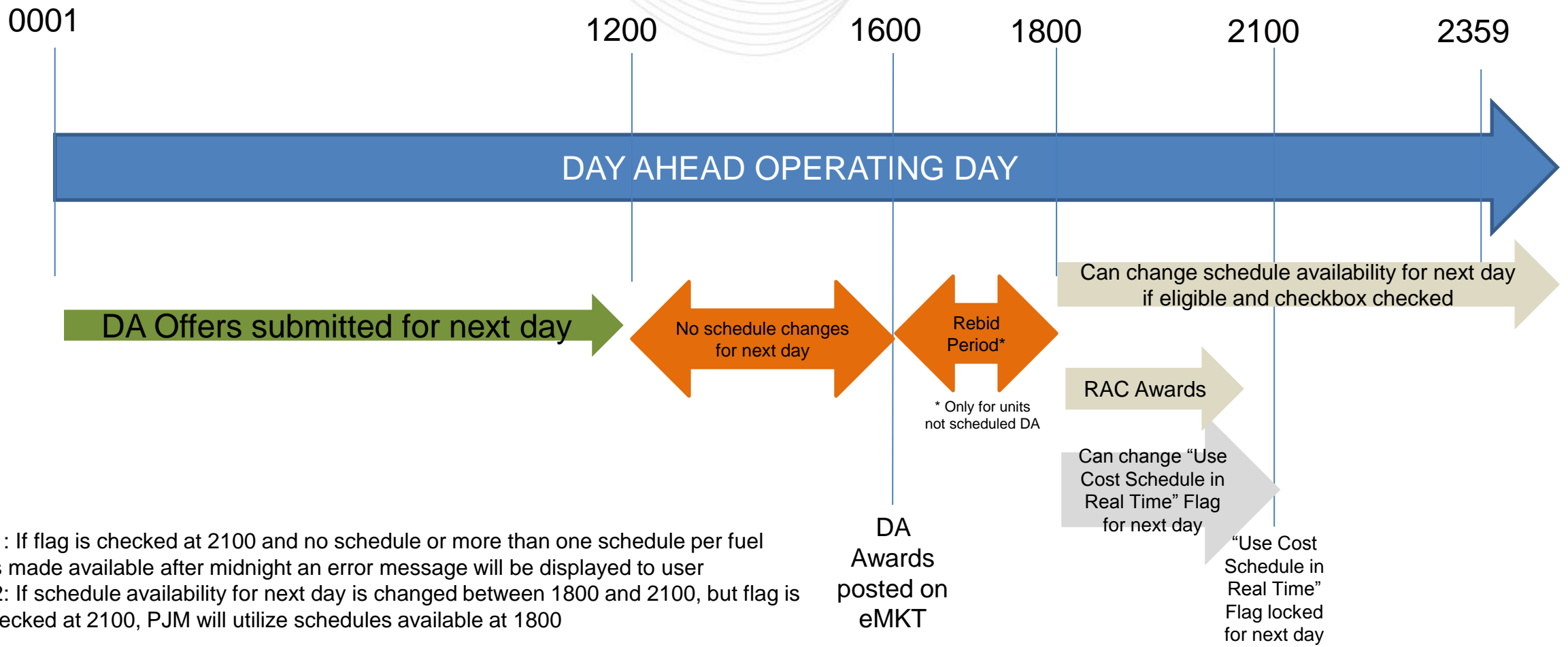
Generator Schedule Updates For Unit: XYZ and Schedule: PLS

Use Cost Schedule In Real-Time:

Hour End	Schedule Name	Schedule Description	Schedule Type	Fuel Type	Available	Notification
	S GAS	CT S GAS	15-COST-PLS	Gas	Not Available	
	C GAS	CT C GAS	16-COST-PLS	Coal	Available	
01	PLS	PLS	77-PRICE-PLS	Gas	Not Available	13
01	Price	CT PRICE	99-PRICE	Gas	Not Available	null

4) Select Submit

3) Select flag



Note 1: If flag is checked at 2100 and no schedule or more than one schedule per fuel type is made available after midnight an error message will be displayed to user
 Note 2: If schedule availability for next day is changed between 1800 and 2100, but flag is not checked at 2100, PJM will utilize schedules available at 1800

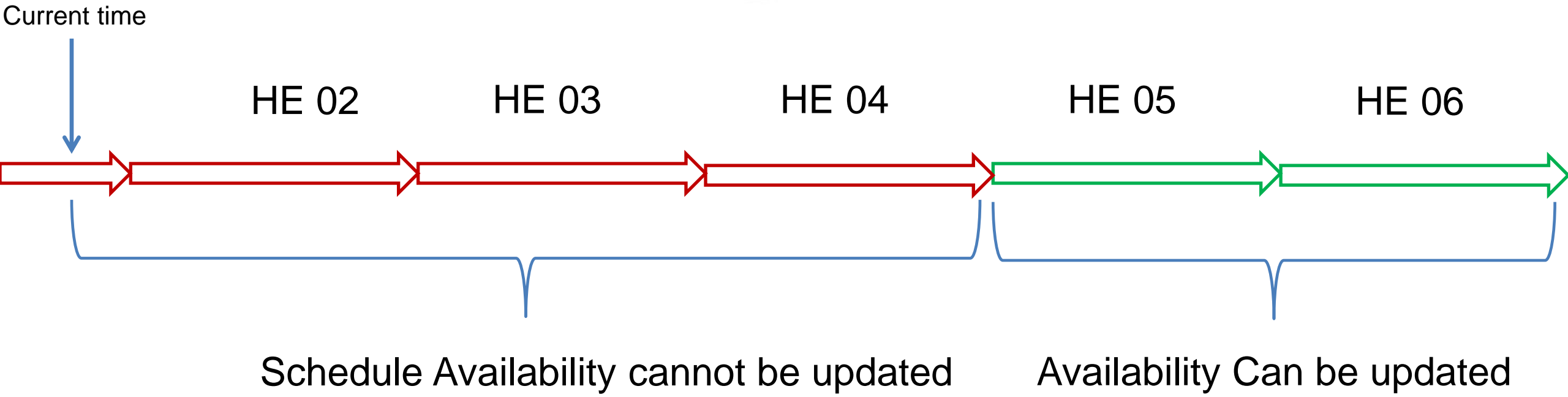
Unit Hourly Updates Search

Portfolio: Unit: Date:

Unit Hourly Updates on 10/22/2014

Hour Ending	Em. Min. Def.	Em. Min. MW	Ec. Min. Def.	Ec. Min. MW	CIR	Ec. Max. Def.	Ec. Max. MW	Em. Max. Def.	Em. Max. MW	Commit Status	Fixed Gen.	Notification Time.
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- Emergency Minimum Default
- Emergency Minimum MW
- Economic Minimum Default
- Economic Minimum MW
- Economic Maximum Default
- Economic Maximum MW
- Emergency Maximum Default
- Emergency Maximum MW
- Commitment Status
- Fixed Generation
- Notification Time



Availability in current hour and next 3 full hours cannot be changed

Example assumes unit is not currently running or current commitment ends at 0400



Proposed Design- Unit Schedule Availability

Only 1 schedule per fuel type can be made available each hour. An error message would be displayed if more than 1 schedule per fuel type is made available.

Fuel	Schedule	Hr. Ending 01	Hr. Ending 02	Hr. Ending 03	Hr. Ending 04	Hr. Ending 05
Oil	\$72	Unavailable	Unavailable	Unavailable	AVAILABLE	AVAILABLE
Oil	\$71	AVAILABLE	AVAILABLE	AVAILABLE	Unavailable	Unavailable
Gas	\$70	Unavailable	AVAILABLE	AVAILABLE	Unavailable	Unavailable
Gas	\$69	AVAILABLE	Unavailable	Unavailable	Unavailable	Unavailable
Gas	\$68	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
Gas	\$67	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
Proposed Design		1 Gas and 1 Oil Schedule is Available	1 Gas and 1 Oil Schedule is Available	1 Gas and 1 Oil Schedule is Available	Only 1 Oil schedule Available	Only 1 Oil schedule Available

Schedule Offers

Schedule Detail

Schedule Manager

Schedule Offers

Schedule Availability Update

Schedule Offers Search

Portfolio: Unit: Date: 10/21/2014

Fuel Type: Hour: 01

1) Select Date/Hour

2) Make at most one cost schedule per fuel type available

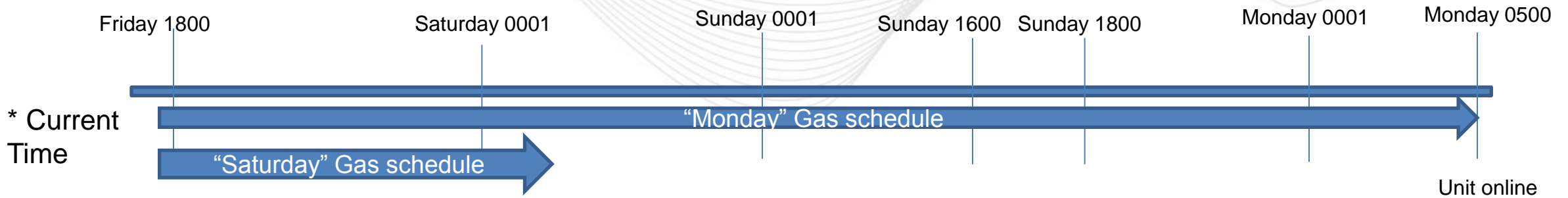
Generator Schedule Updates For Unit: XYZ and Schedule: MySchedule

Submit

3) Submit

Use Cost Schedule In...

Hour Ending	Schedule Name	Schedule Description	Schedule Type	Fuel Type	Available	Notification Time
01	S GAS	CT S GAS	15-COST-PLS	Gas	Not Available	10
01	C GAS	CT C GAS	16-COST-PLS	Coal	Available	24
01	PLS	PLS	77-PRICE-PLS	Gas	Not Available	13
01	Price	CT PRICE	99-PRICE	Gas	Not Available	null



- Unit needs to be notified of intent to run on Monday by 1800 on Friday due to gas restrictions
- Unit can get gas for Saturday
- Unit uses Schedule Name to denote which schedule represents which day
- Unit extends Notification Time on "Monday" Gas Schedule (available on Friday) to a value sufficient enough to allow for this advanced notification (i.e. 72 hours)
- Time To Start pushes unit out of DA Market window
- Unit represents shorter Notification Time on "Saturday" Gas Schedule
- PJM would see on Friday that they could schedule the unit for Saturday with a 1 hour Notification Time and for Monday with a 72 hour Notification Time

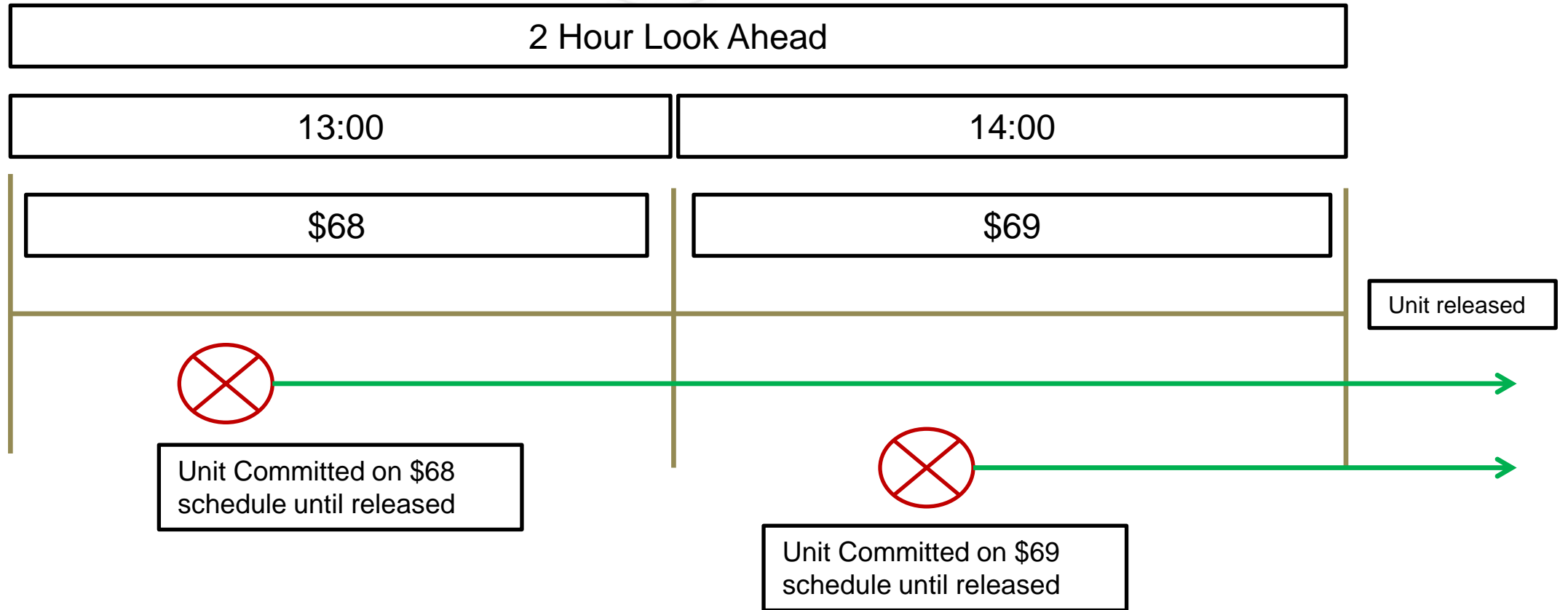
"Saturday" Schedule Parameters:
 Start Time = 4 hours
 Notification Time = 1 hour

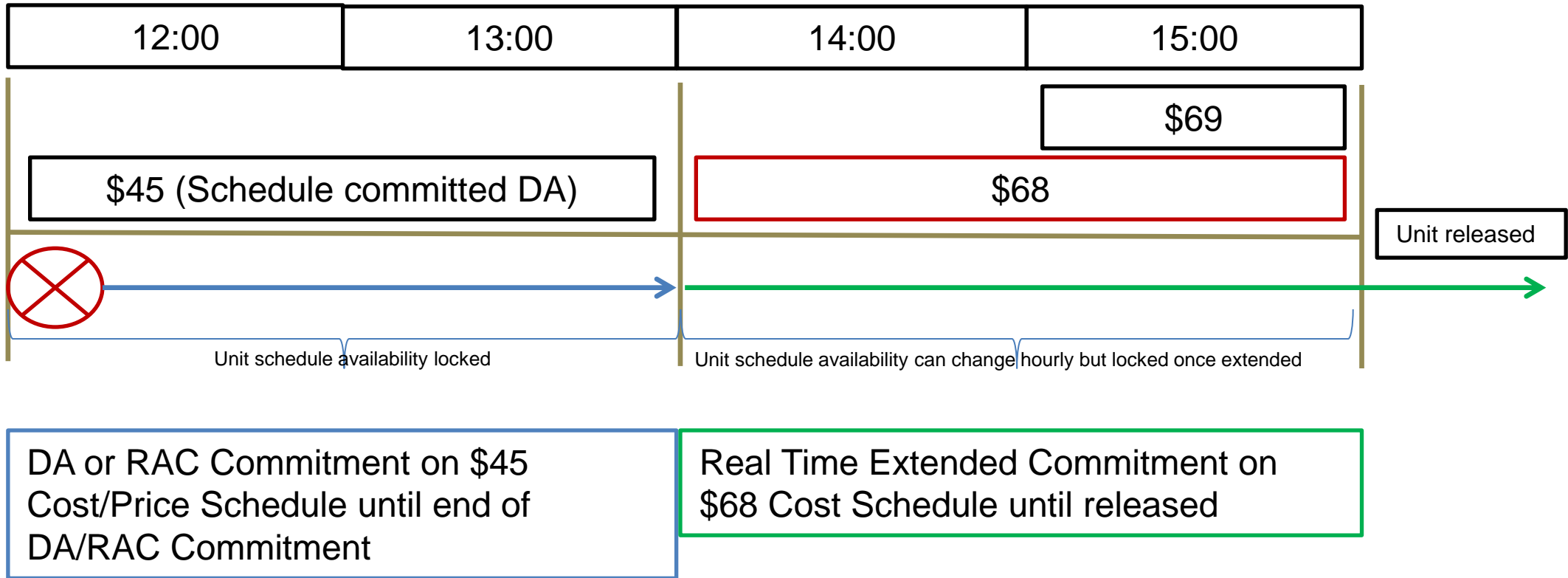
"Monday" Schedule Parameters:
 Start Time = 4 hours
 Notification Time = 72 hours

- Gas Generators should have discussions with MMU now concerning fuel policies in use for Winter 2015
- Generators should use Cost-based Schedules to reflect range of possible costs
 - Include sufficient granularity to adequately approximate costs
 - Select schedule which best represents true costs
 - Define sufficient granularity between schedules to reflect expected cost
 - Schedule granularity subject to MMU review
 - Actual costs may need to be justified after-the-fact
- Recommendation is to use Schedule Name to describe Schedule parameters and day available (discussed earlier)
 - Example Schedule Names: “Monday \$40 Gas Schedule”; “Saturday \$50 Oil Schedule”; “Everyday \$30 Gas Schedule”; “Everyday Nuclear Schedule”



Example 1: IT SCED or Real Time Committed Resources







M11: Energy & Ancillary Services Market Operations Edits

To Be Added