

Gas Unit Commitment Coordination

2014/2015 Winter Scope Proposal Review

10/22/14 v3

Please Note: Items in red font are updates from the 10/17/14 Meeting
Items in green font 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
11/7/14	MIC Review
11/6/14	(OC) GUCC Vote
11/18/14	GUCC Mtg.
11/20/14	MRC Endorsement
11/24/14	Winter Webinar training

- 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

Manual 11- 2.3.4 Minimum Generator Operating Parameters – Parameter Limited Schedules

<http://www.pjm.com/~media/documents/manuals/m11.ashx>

There are three different types of exceptions to the Parameter Limited Schedule Matrix default values:

- o **Temporary Exception** – is a one-time exception lasting for 30 days or less during the twelve month period from June 1 to May 31.
- o **Period Exception** – is an exception lasting for at least 31 days but no more than one year during the twelve month period from June 1 to May 31.
- o **Persistent Exception** – is an exception lasting for at least one year.

Exception Process extension discussion added to matrix for Post 2014/2015 Winter scope

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

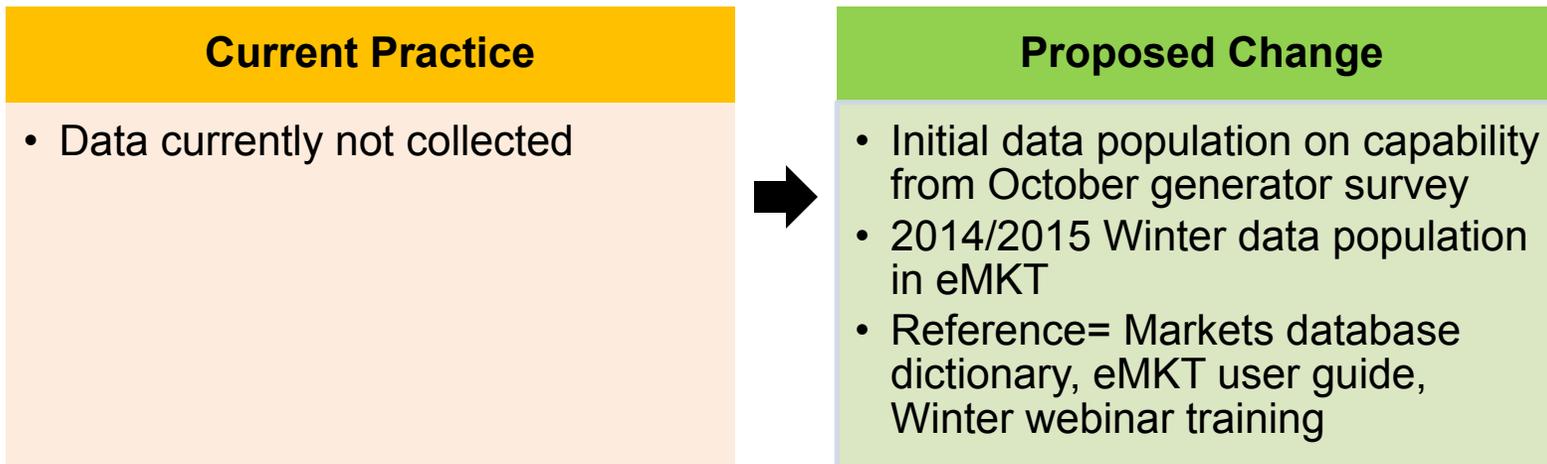
- Data currently not collected



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

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 is submitted in MA tool CODA (Cost Offer Data Application).
- Currently CODA tool is not available. CODA has been phased out by MIRA.



Proposed Change

- Generation Owners will be responsible for submitting an updated fuel policy for intra-day offers (updated during operating day) based on actual/expected intra-day costs in MA tool MIRA (Member Information Reporting Application) tool. MIRA estimated implementation date is mid-Nov 2014.

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

SUITE > 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: [v] Unit: [v] Date: 10/10/2014 (mm/dd/yyyy) [Change Date]

Schedule: [v]

Schedule Detail Screen

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)

Last Updated Date, Time

SUITE > 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: [v] [Get Report]

Unit Hourly Update Screen

Defaults: Economic No

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

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)

Last Updated Date, Time

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

Long lead time units (prior to DA) called on by PJM, 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

- Utilizing the current 78 available Cost Schedules reflecting cost in increments
- Cost Schedule Values will be locked in at 18:00 prior day (except for fields on the Unit Hourly update tab and new Unit Schedule Availability Update tab)
- Price Schedule must be made unavailable at 22:00 by utilizing the cost switch flag to be eligible for Cost switching
- Schedules can be made available or unavailable hourly to more accurately reflect the resources cost based on a three hour sliding lock out (two plus hours in advance of the operating hour)
- Units **committed** in Real-time are unable to change Cost Schedule until **released**

	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

- Next Day Cost Switch Flag (**New Schedule Availability Update Tab**)
 - Yes
 - Must be selected before **22:00** Day Prior to be effective starting midnight the next day
 - No Price Schedules will be available in Real-Time (**except DA commitments/RAC commitment**)
 - 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

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



HE 02

HE 03

HE 04

HE 05

HE 06



Schedule Availability Cannot be updated

Availability Can be updated

Hour Ending



Conceptual Design- Unit Schedule Availability

Only 1 schedule per fuel type can be made available each hour. All other schedules will automatically be updated to Unavailable in eMKT.

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

Unit Schedules Dispatch Lambda Market Results Regulation Market Synchronized Reserve Market Nonsynchronized Reserve Market DA Scheduling Reserve Market Con Ed Parameter Limits

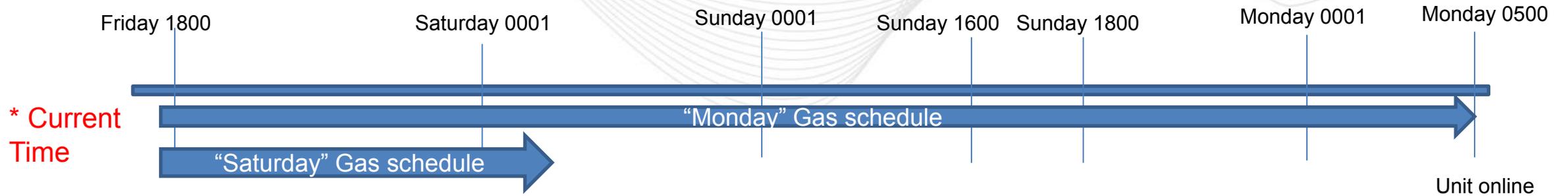
Schedule Offers Schedule Detail Schedule Manager Schedule Selection Schedule Availability Update

Schedule Offers Search

Portfolio: Unit: Date: 

Schedule: HOUR:

Hour Ending	Schedule Name	Schedule Description	Schedule Type	Available	Notification Time
1	S GAS	CT S GAS	15-Cost-PLS	Available	10
1	C GAS	CT C GAS	16-Cost-PLS	Not Available	24
1	PLS	PLS	77-Price-PLS	Not Available	13
1	Price	CT PRICE	99-Price	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

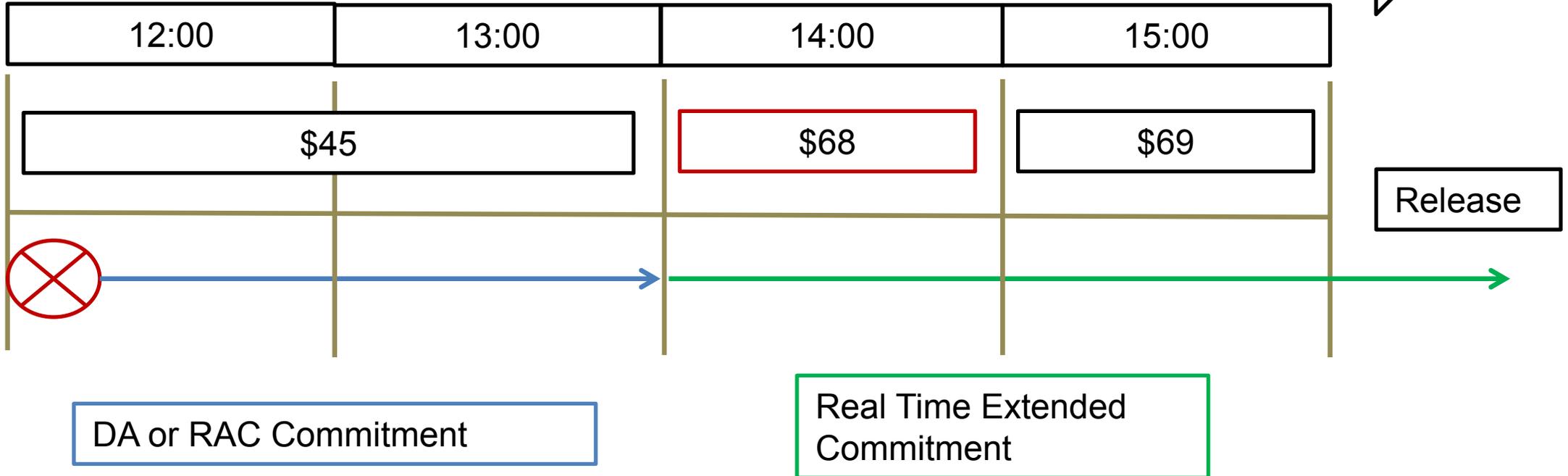
"Saturday" Schedule Parameters:
 Start Time = 4 hours
 Notification Time = 1 hour

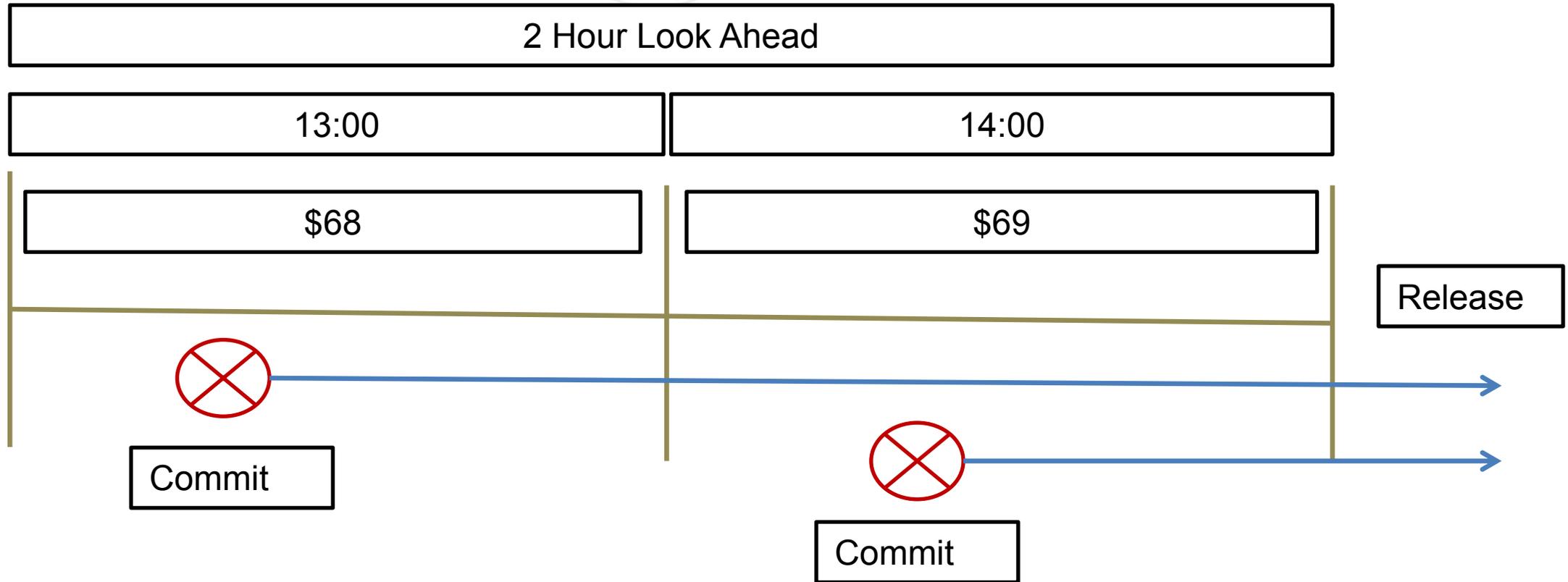
"Monday" Schedule Parameters:
 Start Time = 4 hours
 Notification Time = 72 hours

- Generators should use Cost-based Schedules to reflect range of possible costs
 - Include sufficient granularity to adequately approximate costs
 - If actual costs can't be reflected by one of the available schedules, pick the next lowest schedule
 - Example: Cost schedules for \$50 and \$60. Actual cost = \$55. Choose the \$50 cost schedule.
 - OR better option would be to increase granularity between schedules (\$50, \$52, \$54, \$56, \$58, \$60)
 - Actual costs must 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”



24 Hour Look Ahead





- Under M11: Section 2.3.3 Market Sellers
 - Generation resources that are scheduled in the Day-ahead Market have a financial obligation to sell their output in real-time. Provisions exist in the Tariff that permit make whole payments to be made to those combustion turbines that are scheduled in the Day-ahead Market and then not called on in real-time by PJM that are furthered defined in PJM Manual M-28.
 - When a generation resource is not committed by PJM the market seller may update schedule availability hourly three hours prior to the operating hour.
 - A generation resource may not change schedule availability once it has been committed PJM for the hours in which it is committed.
 - Generation Capacity Resources that have notification, startup, and minimum run times that exceed 24 hours must submit binding offer prices for the next seven days.

Manual updates will be completed to reflect scenarios for updating intra-day costs

	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