



**Markets Database Dictionary**

**Effective: 06/01/2016**

## Revision History

### 2016 Revision (Effective 06/01/2016)

- Revise Schedule Detail parameter definitions
- Update additional parameter limited parameters for Capacity Performance resources.

### 2016 Revision (Effective 04/01/2016)

- Revise changes related to new Day-ahead Market timeline effective operating day 04/01/2016 per docket No. ER14-24-000 & ER15-226-001

### 2015 Revision (Effective 12/14/2015)

- Revise offer cap limit effective 12/14/2015 per FERC Docket No. ER16-76-000

### 2015 Revision (Effective 04/01/2015)

- Revise offer cap definition effective after 3/31/15 per FERC Docket No. EL15-31-000

### 2015 Revision (Effective 01/09/2015)

- Update to offer cap definition effective 1/16/15-3/31/15 per FERC Docket No. EL15-31-000

### 2011 Revision (Effective 12/1/2011)

- Prices are able to be negative
- Opportunity Cost field added to cost offer
- Use max gen flag required

### 2009 Revision (Effective 12/1/2008)

- Add Revision History
- Includes clarified Definitions of Cold Start-up Times
- Includes modifications for Parameter Limited Schedules
- Includes modifications for Day-ahead Scheduling Reserve Market
- Includes modifications to the definition of Fixed Gen flag for revised Balancing Operating Reserve rules
- Includes modifications implementation of the Three Pivotal Supplier Test in the Regulation Market.

## Approval

Approval Date: 06/15/2016

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## Introduction

The Markets Database Dictionary provides PJM Market Participants with definitions for each of the data elements in the Markets Database. The Markets Database is an Oracle database that replaced the PJM unit commitment database, when the PJM Energy Markets were created. It is the repository of all generation offers, demand bid data and schedules for the day-ahead energy market, real time energy market, regulation market, and synchronized reserve market.

Market Participants have two primary methods of interacting with the PJM Two-Settlement, Regulation, and Synchronized Reserve markets:

- **Web-based Interactions** — access is provided through a series of worldwide, web-based interactive displays, which are accessible on the Internet
- **XML-formatted File Exchange** — input and output files are posted or accessed using the capability provided in the MUI or some other participant-created application

This data dictionary focuses on defining the data displayed on the web-based interface perspective. Please refer to the ***External Interface Specification Guide for Markets Gateway*** for more information on the file exchange format.

The data dictionary describes input data for each web page. For each data item, the following information is presented:

### Required:

Indicates if a field is required to have data input:

- **Yes** — indicates that the field must have relevant data entered.
- **No** — indicates that you may leave the field blank.
- **Primary Unit Characteristic** — reflects basic unit characteristics that are submitted in writing to PJM by generation owners. These fields are not modifiable. (See the PJM Manual for ***Pre-Scheduling*** for more information on the PJM required data.)

If you leave a *required* field blank, an error message displays, alerting you that the field is a required field. You must enter valid data before you can proceed.

### Data Type/Size:

Describes the specific format of the field. The ranges of *Data Types* you encounter in this database are:

- **Number(p,s)** — Number having a precision p and scale s. The precision is the total number of decimal digits and the scale is the number of digits to the right of the decimal point.
- **Varchar2(length)** — Variable-length character data.
- **Boolean** — indicated by “check” or blank or YES and NO fields.
- **Date** — hour-ending

**Data Constraints:**

Describes any restrictions to the data that can be entered.

**Description:**

Brief explanation of what kind of data should be entered into this field, as well as any rules or criteria defining the information. The default value, if applicable, is also identified.

## Generation

The generation user views and modifies data on the following web pages:

- Unit Hourly Updates
- Unit Detail
- Energy Ramp Rates
- SyncRes Ramp Rates
- Weather Forecast
- Schedule Offers
- Schedule Detail
- Schedule Manager
- Schedule Selection
- Dispatch Lambda
- Regulation Offers
- Regulation Updates
- Regulation Bilaterals
- Generator Market Results
- SPREG Awards
- Synchronized Reserve Offers
- Synchronized Reserve Hourly Updates
- Synchronized Reserve Bilaterals
- Day-ahead Scheduling Reserve Offers
- Day-ahead Scheduling Reserve Updates
- Day-ahead Scheduling Reserve Bilaterals

### ***Primary Unit Characteristics***

Prior to participating in the PJM Energy Markets, Primary Unit Characteristics must be defined for each generating unit in the Markets Database. The PJM participant responsible for marketing the generating unit must submit the following characteristics to PJM for entry into the Markets Database.

#### **Type of Unit (MKTTypeOfUnit: TypeOfUnitLongName)**

Required:	Primary Unit Characteristic
Data Type/Size:	varchar2(40)
Data Constraints:	Fossil-Fired Steam (Single Boiler, Multiple Boiler, Bleed Steam Unit, Interchange, Steam Combined Cycle); Nuclear Steam (Boiling Water Reactor Pressurized Water Reactor); Combustion Turbines (Industrial CT, Single engine Jet, two-Engine Jet -- One Expander Turbine, Two Engine Jet - Two Expander Turbines, Eight Engine Jet, Regenerative Unit); Diesels; Hydro (Run of River, Pumped Storage); Combined Cycle – CT

Type Codes	Number	Description
<b>Fossil-Fired Steam</b>	01	Single Boiler/Default*
	02	Multiple Boiler
	03	Bleed Steam Unit
	04	Interchange (Unknown Steam Unit)
	05	Steam Combined Cycle
<b>Nuclear Steam</b>	11	Boiling Water Reactor
	12	Pressurized Water Reactor
<b>Combustion Turbines</b>	21	Industrial CT/Default*
	22	Single Engine Jet
	23	Two-Engine Jet - One Expander Turbine
	24	Two Engine Jet - Two Expander Turbines
	25	Eight Engine Jet (High Cap)
	26	Regenerative Unit
	27	Unknown CT
<b>Diesels/Wind</b>	31	All Diesel Units/Wind
<b>Hydro</b>	41	Run of River
	42	Pumped Storage
<b>Combined Cycle</b>	51	CT Combined Cycle

Description: The id number of the type of unit.

**Unit Number (MKTUnit: UnitNumber)**

Required: Primary Unit Characteristic

Data Type/Size: number(2)

Description: The generating unit's identifier at a site or plant.

**Unit Longname (MKTUnit: UnitLongName)**

Required: Primary Unit Characteristic

Data Type/Size: varchar2(40)

Description: The full name or description of the generating unit. This label appears in the Units List on the Generation web pages and in the Unit Detail's data block title.

**Operating Company (MKTParticipant: ParticipantName)**

Required: Primary Unit Characteristic

Data Type/Size: varchar2(40)

Description: The short name of the Market Participant that is responsible for operating the generating unit.

**Plant Name (MKTPlant: PlantLongName)**

Required: Primary Unit Characteristic

Data Type/Size: varchar2(40)

Description: The full name of the plant. A plant is a group of generating units located at the same site.

**Unit Shortname (MKTUnit: UnitShortName)**

Required: Primary Unit Characteristic

Data Type/Size: varchar2(8)

Description: The abbreviated name of the generating unit.

**Node (MKTUnit: PnodeID)**

Required:	Primary Unit Characteristic
Data Type/Size:	varchar2(40)
Description:	A valid PJM price node, which is a bus for which PJM calculates day-ahead and real-time LMPs. PJM and the EDC assign the price node for each generating unit based on the unit's telemetry and on the PJM state estimator model.

**Area (MKTArea: AreaLongName)**

Required:	Primary Unit Characteristic
Data Type/Size:	varchar2(40)
Description:	A bulk electric system or combination of bulk electric systems bounded by interconnection metering and telemetry to which a common generation control scheme and reserve requirement is applied.

**Zone (MKTReserveZone: ReserveLongName)**

Required:	Primary Unit Characteristic
Data Type/Size:	varchar2(40)
Description:	A subset of an area with its own reserve requirement that must be enforced in addition to enforcing the area requirement.

**Capacity Resource (MKTUnit: CapacityResource)**

Required:	Primary Unit Characteristic
Data Type/Size:	Boolean
Description:	Indicates if the generating unit is a Capacity Resource. The business rules governing Capacity Resources and non-capacity resource are different. For example, the current set of daily offers for each Capacity Resource offer remains in effect for each day until specifically superceded, while non-capacity resource offers will not carry forward.

Yes — The generating unit is a Capacity Resource.

No — The generating unit is not a Capacity Resource.



### **Regulation Resource (MKTUnit: RegResource)**

Required:	Primary Unit Characteristic
Data Type/Size:	Boolean
Description:	Indicates if the generating unit is a regulation resource, indicating it has met all unit requirements for providing regulation.
Yes — The generating unit is a Regulation Resource	
No — The generating unit is not a Regulation Resource	

### **Combined Cycle (MKTUnit: COMBINEDCYCLE)**

Required:	No
Data Type/Size:	Number (1, 0)
Data Constraints:	Must be a positive number
Description:	This column indicates the unit that represents the combined units for a combined cycle unit. Either the individual units or the combined cycle group may be bid into the market for any one day but not both. Default is zero.

### **Combined Cycle Unit (MKTUnit: COMBINEDCYCLEUNIT)**

Required:	No
Data Type/Size:	Number (8,0)
Data Constraints:	Must be a positive number
Description:	This column indicates the unit that represents the combined units for a combined cycle unit. Either the individual units or the combined unit may be bid into the market for any one day but not both.

### ***Unit Hourly Updates***

The Unit Hourly Updates web page is used to add or update operating limits and unit status during the Operating Day. Data that is submitted for future times (not the current Operating Day) is considered scheduling data for unit commitment purposes.

### **Hour Ending (MKTUnitHourly: EffectiveHour and TerminationHour)**

Required:	Yes
Data Type/Size:	date
Description:	A trading interval of one hour, identified by the time at the end of that hour.

### **Emergency Min MW (MKTUnitHourly: EmergencyMin)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	Lowest level of energy in MW the unit can produce and maintain a stable level of operation. The owning company operates the unit at this level during a Minimum Generation Emergency.

This value overrides the Emergency Minimum Limit (entered on the Unit Detail and Schedule Detail web pages) for this generating unit.

### **Economic Min MW (MKTUnitHourly: EconomicMin)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The minimum energy available from the unit for economic dispatch.

This value overrides the Economic Minimum Limit (entered on the Unit Detail and Schedule Detail web pages) for this generating unit.

CTs are permitted to provide an Economic Minimum Limit less than the physical economic minimum value of the unit.

### **Economic Max MW (MKTUnitHourly: EconomicMax)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The highest unrestricted level of energy, in MW, that the operating company operates the unit. This represents the highest output available from the unit for economic dispatch.

This value overrides the Economic Max Limit (entered on the Unit Detail and Schedule Detail web pages) for this generating unit.

### **Emergency Max MW (MKTUnitHourly: EmergencyMax)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The MW energy level at which the operating company operates the generating unit once PJM requests Maximum Emergency Generation. This represents the highest short-term MW level a generating unit can produce and may require extraordinary procedures to produce the desired output.

This overrides the Emergency Max Limit (entered on the Unit Detail and Schedule Detail web pages) for this generating unit.

### **Commit Status (MKTUnitHourly: Economic, Emergency, MustRun)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Economic, Emergency, Must Run, and Unavailable are mutually exclusive; only one state can apply at a time
Description:	
Unavailable:	Indicates that the unit is unavailable to PJM for the selected hour. These values override the status value on the Unit Detail web page.

Economic:	Indicates that the unit is available for normal economic dispatch for the select hour. This value overrides the status value on the Unit Detail web page for the selected hour.
Emergency:	Indicates that the unit is available only for emergency dispatch for the selected hour. This value overrides the status value on the Unit Detail web page for the selected hour.
Must Run:	Indicates that the generating unit is self-scheduling for the selected hour. This value overrides the status value on the Unit Detail web page for the selected hour.

#### **Fixed Gen (MKTUnitHourly: FixedGen)**

Required:	No
Data Type/Size:	Boolean
Description:	This field should be set to yes if a generation resource intends to remain "fixed" or otherwise not follow PJM real-time dispatch. This flag will be fed into the PJM Unit Dispatch System and will tell the system that the unit will not be responding to PJM dispatch signals. This information is needed to maintain an accurate overall dispatch solution as possible and PJM encourages all generation not intending to follow dispatch to check this field. . The field is not used by the day-ahead market.

#### **Notification Time (MKTUnitHourly: NotificationTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.
Description:	Participant override of the daily scheduled hot, cold, intermediate notification times. The default value is 0 hours.

This is a real time parameter only

#### ***Unit Detail***

The Unit Detail web page is used to view unit ownership information and to modify default unit ramp rates, MW operating limits, and regulation limits. The Unit Detail web page is also used to submit start-up and no-load data for generating units and CT weather curve data.

**Default Status (MKTUnitParameterDaily: MustRunDefault, or EconomicDefault, or EmergencyDefault)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Economic, Emergency, Must Run, and Unavailable are mutually exclusive; only one state can apply at a time
Description:	Indicates the unit's status at the unit level.

The default is Economic.

**Fixed Gen (MKTUnitParameterDaily: FixedGenDefault)**

Required:	No
Data Type/Size:	Boolean
Description:	This field should be set to yes if a generation resource intends to remain "fixed" or otherwise not follow PJM real-time dispatch. This flag will be fed into the PJM Unit Dispatch System and will tell the system that the unit will not be responding to PJM dispatch signals. This information is needed to maintain an accurate overall dispatch solution as possible and PJM encourages all generation not intending to follow dispatch to check this field. The fixed gen field is not used at all in the PJM settlement calculations, and therefore will have no direct effect on operating reserve eligibility. The field is not used by the day-ahead market.

**Default Ramp Rate (MW/Min.) (MKTUnitParameterDaily: RampRateDefault)**

Required:	Yes
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number
Description:	The default energy ramp rate, in MW/minute, for increasing or decreasing a unit's output. This average value is used by PJM in the day ahead commitment process. The default value is 1.0 MW/minute.

### **Emergency Min (MW) (MKTUnitParameterDaily: EmergencyMinDefault)**

Required:	Yes
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	Lowest level of energy, in MW, the unit can produce and maintain a stable level of operation. The owning company operates the unit at this level during a PJM declared Minimum Generation Emergency.

This is the default Emergency Minimum Limit. It is in effect if no schedule or hourly value is specified and no temperature-based adjustment is specified in the weather data. The default value is 0.0 MW.

### **Economic Min (MW) (MKTUnitParameterDaily: EconomicMinDefault)**

Required:	Yes
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The minimum energy available, in MW, from the unit for economic dispatch.

This is the default Economic Minimum Limit. It is in effect if no schedule or hourly value is specified and no temperature-based adjustment is specified in the weather data. CTs are permitted to provide an Economic Minimum Limit less than the physical economic minimum value of the unit.

The default value is 0.0 MW.

### **Reg Min (MKTUnitParameterDaily: RegLowLimit)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.

Only applicable to those units that are regulation resources.

Description: Minimum generation in MW when unit is providing regulation. Value defaults to the Economic Minimum limit if left blank.

### **Reg Max (MKTUnitParameterDaily: RegHighLimit)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Only applicable to those units that are regulation resources.	
Description:	Maximum generation in MW when unit is providing regulation. Value defaults to the Economic Maximum limit if left blank.

### **Spin Max (MW) (MKTUnitParameterDaily: SpinMaxDefault)**

Required:	Yes
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Spinning Max <= Emergency Maximum Limit
Description:	The maximum value, in MW, of output a Tier 1 resource can achieve in response to a synchronized reserve event. This quantity is defined as the increase in output achievable by the unit in ten (10) minutes.

This is the default Spin Maximum Limit. It must be higher than or equal to the economic maximum of the unit. The default value is 0.0 MW.

### **Economic Max (MW) (MKTUnitParameterDaily: EconomicMaxDefault)**

Required:	Yes
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The highest unrestricted level of energy, in MW, that the operating company operates the unit. This represents the highest available from the unit for economic dispatch.

This is the default Economic Maximum Limit. It is in effect if no schedule or hourly value is specified and no temperature-based adjustment is specified in the weather data. The default value is 0.0 MW.

### **Emergency Max (MW) (MKTUnitParameterDaily: EmergencyMaxDefault)**

Required:	Yes
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The MW energy level at which the operating company operates the generating unit once PJM requests Maximum Emergency Generation. This represents the highest short-term MW level a generating unit can produce and may require extraordinary procedures to produce the desired output.

This is the default Emergency Maximum Limit. It is in effect if no schedule or hourly value is specified and no temperature-based adjustment is specified in the weather data. The default value is 0.0 MW.

### **Emergency Low Temp. (MKTUnitParameterDaily: LowerEmerTemp)**

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Only applicable to CTs; Low Emergency Temperature <= Middle Emergency Temperature <= Upper Emergency Temperature
Description:	The temperature, in degrees Fahrenheit, associated with the lower emergency maximum MW limit on the weather curve for the CT. The default value is 0 degrees.

### **Economic Low Temp. (MKTUnitParameterDaily: LowerEcoTemp)**

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Only applicable to CTs; Low Economic Temperature <= Middle Economic Temperature <= Upper Economic Temperature
Description:	The temperature, in degrees Fahrenheit, associated with the lower economic maximum MW limit on the weather curve for a CT. The default value is 0 degrees.



### **Emergency Mid Temp. (MKTUnitParameterDaily: MiddleEmerTemp)**

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Only applicable to CTs; Low Emergency Temperature <= Middle Emergency Temperature <= Upper Emergency Temperature
Description:	The temperature, in degrees Fahrenheit, for the middle emergency maximum MW limit on the weather curve for the CT. The default value is 0 degrees.

### **Economic Mid Temp. (MKTUnitParameterDaily: MiddleEcoTemp)**

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Only applicable to CTs; Low Economic Temperature <= Middle Economic Temperature <= Upper Economic Temperature
Description:	The temperature, in degrees Fahrenheit, for the middle economic maximum MW limit on the weather curve for the CT. The default value is 0 degrees.

### **Emergency Upper Temp. (MKTUnitParameterDaily: UpperEmerTemp)**

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Only applicable to CTs; Low Emergency Temperature <= Middle Emergency Temperature <= Upper Emergency Temperature
Description:	The temperature, in degrees Fahrenheit, for the upper emergency maximum MW limit on the weather curve for the CT. The default value is 0 degrees.

### **Economic Upper Temp. (MKTUnitParameterDaily: UpperEcoTemp)**

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Only applicable to CTs; Low Economic Temperature <= Middle Economic Temperature <= Upper Economic Temperature
Description:	The temperature, in degrees Fahrenheit, for the upper economic maximum MW limit on the weather curve for the CT. The default value is 0 degrees.

### **Per. 1 Cost Based Startup and No Load Cost (MKTUnitParameterDaily: CostBasedStartupCost1)**

Required:	No
Data Type/Size:	Boolean
Data Constraints:	Per. 1 Cost Based Startup Cost and Per. 2 Cost Based Startup Cost are mutually exclusive; only one state can apply at a time

A price-based unit has the option to choose price-based or cost-based start-up and no load fees.

The choice between using cost-based and price-based startup and no-load fees can be made twice a year during the same open enrollment window (on or before 1030 hours March 31 for the period April 1 through September 30 and on or before 1030 hours September 30 for the period October 1 through March 31). Period 1 is defined as the period of time beginning April 1 and ending September 30. Period 2 is defined as the period of time beginning October 1 and ending March 31. If a priced based unit chooses the cost-based start-up and no-load fees option, the decision cannot be changed until the next open enrollment period takes place.

Description:	Indicates whether or not a unit startup costs and no-load costs are cost based for Period 1.
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### **Per. 1 Hot Startup Cost (MKTUnitParameterDaily: HotStartupCost1)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number.

Only applicable for a unit if the Per 1. Cost Based Startup and No Load Cost is set to "Yes"; enterable during Period 1's enrollment period (on or before 1030 hours March 31 for the period April 1 through September 30).

Description: The hot temperature startup offer, specified in dollars to be used during the first bi-annual period. The default value is \$0.00.

**Per. 1 Inter Startup Cost (MKTUnitParameterDaily: InterStartupCost1)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Must be a positive number.

Only applicable for a unit if the Per 1. Cost Based Startup and No Load Cost is set to "Yes"; enterable during Period 1's enrollment period (on or before 1030 hours March 31 for the period April 1 through September 30).

Description: The intermediate temperature state startup offer, specified in dollars, to be used during the first bi-annual period. The default value is \$0.00.

**Per. 1 Cold Startup Cost (MKTUnitParameterDaily: ColdStartupCost1)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Must be a positive number.

Only applicable for a unit if the Per 1. Cost Based Startup and No Load Cost is set to "Yes"; enterable during Period 1's enrollment period (on or before 1030 hours March 31 for the period April 1 through September 30).

Description: The cold temperature startup offer, specified in dollars, to be used during the first bi-annual period. The default value is \$0.00.

**Per. 1 No Load Cost (MKTUnitParameterDaily: NoLoadCost1)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Must be a positive number.

Only applicable for a unit if the Per 1. Cost Based Startup and No Load Cost is set to "Yes". A price-based unit has the option to choose cost based no-load fees. A price-based unit that **does not** choose the price based option may change no-load fees daily. A priced-based unit that chooses the price based option is only able to change no-load fees twice a year, and are, enterable during Period 1's enrollment period (on or before 1030 hours March 31 for the period April 1 through September 30).

Description: The no load cost offer, specified in dollars, to be used during the first bi-annual period. The default value is \$0.00.

**Emergency Low MW (MKTUnitParameterDaily: LowerEmerMW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Only applicable to CTs.

Description: The emergency MW value associated with the low emergency temperature point on the weather curve for the CT. The default value is 0.0 MW.

**Economic Low MW (MKTUnitParameterDaily: LowerEcoMW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Only applicable to CTs.

Description: The economic MW value associated with the low economic temperature point on the weather curve for the CT. CTs are permitted to provide an Economic Low Limit less than the physical economic minimum value of the unit.

The default value is 0.0 MW.

**Emergency Mid MW (MKTUnitParameterDaily: MiddleEmerMW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Only applicable to CTs.

Description: The emergency MW value associated with the middle emergency temperature point on the weather curve for the CT. The default value is 0.0 MW.

### **Economic Mid MW (MKTUnitParameterDaily: MiddleEcoMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Weather curve data is only applicable to CTs.
Description:	The economic MW value associated with the middle economic temperature point on the weather curve for the CT. The default value is 0.0 MW.

### **Emergency Upper MW (MKTUnitParameterDaily: UpperEmerMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Only applicable to CTs.
Description:	The emergency MW value associated with the upper emergency temperature point on the weather curve for the CT. The default value is 0.0 MW.

### **Economic Upper MW (MKTUnitParameterDaily: UpperEcoMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Only applicable to CTs.
Description:	The economic MW value associated with the upper economic temperature point on the weather curve for the CT. The default value is 0.0 MW.

### **Per. 2 Cost Based Startup and No Load Cost (MKTUnitParameterDaily: CostBasedStartupCost2)**

Required:	No
Data Type/Size:	Boolean
Data Constraints:	Per. 1 Cost Based and No Load Startup Cost and Per. 2 Cost Based and No Load Startup Cost are mutually exclusive; only one state can apply at a time

A price-based unit has the option to choose cost-based start-up and no-load fees. A price-based unit that chooses the cost based option may change the start-up and no-load fees daily. A priced-based unit that chooses the price based option is able to change the start-up and no-load fees twice a year.

The choice between using cost-based and price-based startup and no-load fees can be made twice a year during the same open enrollment window (on or before 1030 hours March 31 for the period April 1 through September 30 and on or before 1030 hours September 30 for the period October 1 through March 31). Period 1 is defined as the period of time beginning April 1 and ending September 30. Period 2 is defined as the period of time beginning October 1 and ending March 31. If a priced based unit chooses the cost-based start-up and no-load fees option, the decision cannot be changed until the next open enrollment period takes place.

Description: Indicates whether or not a unit startup and no load costs are cost based for Period 2.

### **Per. 2 Hot Startup Cost (MKTUnitParameterDaily:HotStartupCost2)**

Required: No  
Data Type/Size: number(10,2)  
Data Constraints: Must be a positive number.

Only applicable for a unit if the Per 2. Cost Based Startup and No Load Cost field is set to "Yes", enterable during Period 2's enrollment period (on or before 1030 hours September 30 for the period October 1 through March 31).

Description: The hot temperature state startup offer, specified in dollars, used during the second bi-annual period. The default value is \$0.00.

### **Per. 2 Inter Startup Cost (MKTUnitParameterDaily: InterStartupCost2)**

Required: No  
Data Type/Size: number(10,2)  
Data Constraints: Must be a positive number.

Only applicable for a unit if the Per 2. Cost Based Startup and No Load Cost field is set to "Yes", enterable during Period 2's enrollment period (on or before 1030hours September 30 for the period October 1 through March 31).

Description: The intermediate temperature state startup offer, specified in dollars, used during the second bi-annual period. The default value is \$0.00.

**Per. 2 Cold Startup Cost (MKTUnitParameterDaily: ColdStartupCost2)**

Required: No  
Data Type/Size: number(10,2)  
Data Constraints: Must be a positive number.

Only applicable for a unit if the Per 2. Cost Based Startup and No Load Cost field is set to "Yes", enterable during Period 2's enrollment period (on or before 1030 hours September 30 for the period October 1 through March 31).

Description: The cold temperature state startup offer, specified in dollars, used during the second bi-annual period. The default value is \$0.00.

**Per. 2 No Load Cost (MKTUnit: NoLoadCost2)**

Required: No  
Data Type/Size: number(10,2)  
Data Constraints: Must be a positive number.

Only applicable to price-based units if the Per 2. Cost Based Startup and No Load Cost field is set to "Yes", enterable during Period 2's enrollment period (on or before 1030 hours September 30 for the period October 1 through March 31).

Description: The no load cost offer, specified in dollars, for a price-based unit used during the second bi-annual period. The default value is \$0.00.

**Condense Available (MKTUnitParameterDaily: CondenseAvailable)**

Required: Yes  
Data Type/Size: Boolean  
Description: Indicates whether or not the unit is available for synchronous condensing for reasons other than synchronized reserve.

### **Condense Startup Cost (MktUnitParameterDaily: CondenseStartupCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number
Description:	Condense startup cost is the actual cost associated with getting a unit from a completely off-line state into the condensing mode including fuel, O&M, etc. The default value is \$0.00.

### **Condense Energy Use (MKTUnitParameterDaily: CondenseEnergyUse)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number; The value must be less than or equal to the actual energy consumed as observed in real time.
Description:	This is the amount of energy a condensing unit consumes in an hour while operating in the condensing mode.

### **Condense to Gen Cost (MKTUnitParameterDaily: CondensetogenCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number
	Condense To Gen Cost <= Condense Startup Cost
Description:	The cost, in dollars, of transitioning a condenser to the generating mode. The value submitted for this cost must be less than or equal to the condense startup cost. The default value is \$0.00.



**Condense Notification Time (hour) (MKTUnitParameterDaily: CondenseNotificationTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.
Description:	The amount of advance notice, in hours, required to notify the operating company to prepare the unit to operate in synchronous condensing mode. The default value is 0 hours.

**Condense Hourly Cost (MKTUnitParameterDaily: CondenseHourlyCost)**

Required:	No
Data Type/Size:	number (10,2)
Data Constraints:	Must be a positive number
Description:	The actual, variable O&M costs, in dollars, associated with operating a unit in the condensing mode, including any fuel costs. This cost does not include not include any estimate for energy consumed. The default value is \$0.00.

**Min. Time Between Startups**

Required:	No
Data Type/Size:	number (8, 2)
Data Constraints:	Must be a positive number
Description:	The time in hours between startups of the CTs defined as a combined cycle group. This field is only valid for the steam turbine unit that makes up the combined cycle group.

### **Allow Simple Cycle**

Required:	No
Data Type/Size:	number (1, 0)
Data Constraints:	Must be a positive number
Description:	If set to 1 for a combined cycle unit it indicates that the combustion turbines (CTs) can be dispatched without the steam turbine unit. This field is only valid for the steam turbine unit that makes up the combined cycle group. Default value is zero.

### **Combined Cycle Factor**

Required:	No
Data Type/Size:	number (4, 1)
Data Constraints:	Must be a positive number
Description:	The percentage of the output of the combustion turbines (CTs) that make up the combined cycle group that defines the output of the steam unit. This field is only valid for the steam turbine unit that makes up the combined cycle group.

### ***Energy Ramp Rates***

The ***Energy Ramp Rates*** web page is used to view and modify unit energy ramp rates, based on MW segments. The unit ramps rates are used in real time operations for unit dispatch. These values are not used for Day Ahead scheduling and commitment.

### **MW (MKTUnitRampRate:MW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The MW output of the unit associated with this ramp rate segment. This represents the upper limit on the band for the associated ramp rate. The default value is the unit ramp rate. (See the Unit Detail web page.)

### **Ramp Rate (MKTUnitRampRate: RampRate)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The energy ramp rate in MW per minute at the unit MW output defined for this segment. MW segments are used for operational purposes. There is a limit of 10 segments that can be defined.

### **SyncRes Ramp Rates**

The **SyncRes Ramp Rates** web page is used to view and modify synchronized reserve ramp rates, based on MW segments. The synchronized reserve ramps rates are used in real time operations for Tier 1 estimates. These values are not used for Day Ahead scheduling and commitment.

### **MW (MKTUnitSpinRampRate:MW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The MW output of the unit associated with this ramp rate segment. The default value is the unit ramp rate. (See the Unit Detail web page.)

### **Ramp Rate (MKTUnitSpinRampRate: RampRate)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The synchronized reserve ramp rate in MW per minute at the unit MW output defined for this segment. The MW values represent the upper bound for the segment; with the first ramp rate applying to 0 to the first MW point. This represents the upper limit on the band for the associated ramp rate. The synchronized reserve ramp rates are used for operational purposes, and are for Tier 1 estimation only. If no SynchRes Ramp Rates are entered, the Energy Ramp Rates are the default value. There is a limit of 10 segments that can be defined.

### **Weather Forecast**

The **Weather Forecast** web page is used to view and update daytime and nighttime temperatures.

#### **Zone (MKTPlant: Region)**

Required: Primary Unit Characteristic  
Data Type/Size: varchar2(40)  
Description: The region in which the generating unit is located.

#### **Station (MKTWeatherPoint: WeatherPointLongName)**

Required: Primary Unit Characteristic  
Data Type/Size: varchar2(40)  
Description: A long name for the weather point.

#### **Daytime Temp. (MKTWeatherForecast: DayTemperature)**

Required: No  
Data Type/Size: number(3)  
Data Constraints: Users are able to update weather station temperatures only for those weather stations for which they are responsible.  
Description: The forecast temperature, in degrees Fahrenheit, for daytime hours (0700 - 2000). This temperature is used to adjust the CT economic and emergency maximum MW limits during the daytime hours, according to the specified temperature curve. If no value is entered, the value on **Unit Detail** webpage and or the **Schedule Detail** webpage will be used unmodified.

### Nighttime Temp. (MKTWeatherForecast: NightTemperature)

Required:	No
Data Type/Size:	number(3)
Data Constraints:	Users are able to update weather station temperatures only for those weather stations for which they are responsible.
Description:	The forecast temperature, in degrees Fahrenheit, for nighttime hours (2000 - 0700). This temperature is used to adjust the CT economic and emergency maximum MW limits during the nighttime hours, according to the specified temperature curve.

### Schedule Offers

The **Schedule Offers** web page is used to create generating unit offers (MW/price segments) to the PJM market.

### MW (MW) (MKTUnitScheduleBidDaily: MW)

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be positive value; a schedule offer can consist of up to 10 MW/price segments; offer segments must be monotonically increasing.

Generator offers may consist of startup, no-load, and incremental energy segments. A generation resource market based incremental energy offers may not exceed \$1,000/MWh unless cost based incremental energy offer is greater than \$1,000/MWh then the market based incremental energy offer is capped at the lesser of the cost based incremental energy offer or \$2,000/MWh

Description: The net MW output associated with this segment. If the last MW point is less than the Maximum Emergency Limit, the curve is extended up to the Emergency Maximum Limit using zero slope from the last incremental point on the curve. The default value is 0.0 MW.

### Price (\$/MW) (MKTUnitScheduleBidDaily: Price)

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	A schedule offer can consist of up to 10 MW/price segments; offer segments must be monotonically increasing.

Generator offers may consist of startup, no-load and incremental energy segments. A generation resource market based incremental energy offers may not exceed \$1,000/MWh unless cost based incremental energy offer is greater than \$1,000/MWh then the market based incremental energy offer is capped at the lesser of the cost based incremental energy offer or \$2,000/MWh

Description: **The dollars/MW price offer for this segment. The default value is \$0.00. Value May be Negative**

### **Schedule Detail**

The **Schedule Detail** web page is used to view and modify schedule parameters that can be changed daily, including market participation, condensing data, and unit constraint data.

### Description (MKTUnitScheduleDaily: UnitScheduleLongName)

Required:	Not Applicable (This is the Description field entered on the Schedule Manager web page.)
Data Type/Size:	varchar2(40)
Description:	A full name for the generating unit's schedule, defined by the operating company.

### Schedule Available (MKTUnitScheduleAvail: Available)

Required:	No. This reflects the current status of the schedule, as entered on the Schedule Selection web page.
Data Type/Size:	Boolean
Description:	Indicates the availability status of the generating unit's schedules

**Market Type (MKTUnitScheduleDaily: DayAheadMarket, BalancingMarket)**

- Required: Yes
- Data Type/Size: Boolean
- Data Constraints: Installed Capacity resources are automatically included in day-ahead market. A generator offer that is accepted for the day-ahead market automatically carries over into the balancing market
- Description:
- Day Ahead Market: Indicates whether or not the schedule is available for the day-ahead market.
- Balancing Market: Indicates whether or not the schedule is available for the balancing market (used for re-bidding period).
- Both: Indicates whether or not the schedule is available for both the balancing market and for the day-ahead market.

**Fuel Type (MKTUnitScheduleDaily: FuelTypeID)**

Required: Yes.

Data Constraint

Coal	Gas	Petroleum	Nuclear	Hydro	Other	Other
Meta-Anthracite Anthracite Semi-Anthracite Bituminous 0.5 S Bituminous 1.0 S Bituminous 1.5 S Bituminous 2.0 S Bituminous 2.5 S Bituminous 3.0 S Bituminous 4.0 S Bituminous 5.0 S Bituminous 6.0 S Sub Bituminous 0.5 S Sub Bituminous 1.0 S Sub Bituminous 1.5 S	Natural Gas Propane Landfill Gas Butane Hydrogen Gasified Coal Refinery Gas Other	Distillate #1 #2 Oil Diesel Grade 1-D Diesel Grade 2-D Diesel Grade 4-D Diesel Grade S-M #4 Oil Light #4 Oil Heavy #5 Oil Light #5 Oil Heavy #6 Oil 0.5 S #6 Oil 1.0 S #6 Oil 2.0 S Crude Kero L Sulfur Jet 55 Kerosene Jet 54 Jet A / JP-5 Jet B / JP-4 Petroleum Coke Orimulsion Gasoline Other	Enriched U Other	Run of River Pumped Storage Other	Bagasse Battery Compressed Air Fuel Cell Nat Gas/Hy Fuel Cell Nat Gas Geothermal Municiple Waste Sludge Solar Tires Wind Wood Other	Nat Gas/#6 Oil 0.5 S Nat Gas/#6 Oil 1.0 S Nat Gas/#6 Oil 2.0 S Nat Gas/#2 Oil Nat Gas/Coal 0.5 S Nat Gas/Coal 1.0 S Nat Gas/Coal 1.5 S Nat Gas/Coal 2.0 S Nat Gas/Coal 2.5 S Nat Gas/Coal 3.0 S Nat Gas/Coal 4.0 S Nat Gas/Coal 5.0 S Nat Gas/Coal 6.0 S #2 Oil/Coal Other

Data Type/Size: varchar2(40)

Description: Indicates the fuel type of the generating unit's schedule.

### **Use Startup No Load (MKTUnitScheduleDaily: UseStartupNoLoad)**

Required:	Yes
Data Type/Size:	Boolean
Description:	Indicates whether PJM should use the startup and no-load values in the scheduling process.

### **Use Offer Slope (MKTUnitScheduleDaily: UseBidSlope)**

Required:	Yes
Data Type/Size:	Boolean
Description:	Indicates whether an interpolated slope is calculated between segments in a generator offer curve.

### **Hot Startup Cost (\$) (MKTUnitScheduleDaily: HotStartupCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number.

Cold Startup Cost >= Inter Startup Cost >= Hot Startup Cost

Generator offers may consist of startup, no-load, and incremental energy segments. A generation resource market based incremental energy offers may not exceed \$1,000/MWh unless cost based incremental energy offer is greater than \$1,000/MWh then the market based incremental energy offer is capped at the lesser of the cost based incremental energy offer or \$2,000/MWh

This value applies to all cost based schedules and a unit's price based schedules if the Per.1 Cost Based Startup and No Load Cost field is set to "Yes".

Description:	The dollars per start-up when the generating unit is in a hot temperature state, as established by the CDTF. The default is \$0.00.
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### **Inter Startup Cost (\$) (MKTUnitScheduleDaily: InterStartupCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number.

Cold Startup Cost >= Inter Startup Cost >= Hot Startup Cost



Generator offers may consist of startup, no-load, and incremental energy segments. A generation resource market based incremental energy offers may not exceed \$1,000/MWh unless cost based incremental energy offer is greater than \$1,000/MWh then the market based incremental energy offer is capped at the lesser of the cost based incremental energy offer or \$2,000/MWh

This value applies to all cost based schedules and a unit's price based schedules if the Per.1 Cost Based Startup and No Load Cost flag is .set to "Yes"

Description: The dollars per start-up when the unit is in an intermediate temperature state, as established by the CDTF. The default is \$0.00.

### **Cold Startup Cost (\$) (MKTUnitScheduleDaily: ColdStartupCost)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Must be a positive number.

Cold Startup Cost >= Inter Startup Cost >= Hot Startup Cost

Generator offers may consist of startup, no-load, and incremental energy segments. A generation resource market based incremental energy offers may not exceed \$1,000/MWh unless cost based incremental energy offer is greater than \$1,000/MWh then the market based incremental energy offer is capped at the lesser of the cost based incremental energy offer or \$2,000/MWh  
This value applies to all cost based schedules and a unit's price based schedules if the Per.1 Cost Based Startup and No Load Cost flag set to "Yes".

Description: The dollars per startup when the unit is in a cold temperature state, as established by the CDTF. The default value is \$0.00.

### **No Load Cost (\$/hour) (MKTUnitScheduleDaily: NoLoadCost)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Must be positive number.

Generator offers may consist of startup, no-load, and incremental energy segments. A generation resource market based incremental energy offers may not exceed \$1,000/MWh unless cost based incremental energy offer is greater than \$1,000/MWh then the market based incremental energy offer is capped at the lesser of the cost based incremental energy offer or \$2,000/MWh.

Description: No-load cost (or price) is the hourly fixed cost (or price), expressed in \$/hr, to run the generating unit at zero net output, as established by the CDTF. It can include hourly no load costs and other fixed costs. The default value is \$0.00.

### **Emergency Max (MW) (MKTUnitScheduleDaily: EmergencyMax)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit

Description: The MW energy level at which the operating company operates the generating unit once PJM requests Maximum Emergency Generation. This represents the highest short-term MW level a generating unit can produce and may require extraordinary procedures to produce the desired output.

This is the override to the default Emergency Max Limit (as defined on the Unit Detail web page) for this schedule.

### **Economic Max (MW) (MKTUnitScheduleDaily: EconomicMax)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit

Description: The highest unrestricted level of energy, in MW, that the operating company operates the unit. This represents the highest output The maximum energy available from the unit for economic dispatch.

This is the override to the default Economic Max Limit (as defined on the Unit Detail web page) for this schedule.

### **Economic Min (MW) (MKTUnitScheduleDaily: EconomicMin)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	The minimum energy available from the unit for economic dispatch.

This is the override to the default Economic Minimum Limit (as defined on the Unit Detail web page) for this schedule.

### **Emergency Min (MW) (MKTUnitScheduleDaily: EmergencyMin)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Emergency Maximum Limit
Description:	Lowest level of energy in MW the unit can produce and maintain a stable level of operation. The owning company operates the unit at this level during a Minimum Generation Emergency.

This is the override to the default Emergency Minimum Limit (as defined on the Unit Detail web page) for this schedule.

### **Minimum Downtime (hour) (MKTUnitScheduleDaily: MinimumDownTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.

Description: The minimum number of hours under normal operating conditions between unit shutdown and unit startup. In Real-Time operations, it is calculated as the shortest time difference between the unit's generator breaker opening and after the unit's generator breaker closure, which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. For Combined Cycles units this is the minimum number of hours between the last generator breaker opening and after first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. In the Day-Ahead Scheduling process, it is calculated as the number of consecutive hours at zero MW output. The default value is 0 hours.

**Minimum Runtime (hour) (MKTUnitScheduleDaily: MinimumRunTime)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be a positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.

Description: The minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero to the time of generator breaker opening, as measured by PJM's state estimator. For Combined Cycle units this is the time period after the first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero and the last generator breaker opening as measured by PJM's state estimator. In the Day-Ahead scheduling process, it is calculated as the number of consecutive hours at > 0 MW output. The default value is 0 hours.

**Maximum Weekly Starts (MKTUnitScheduleDaily: MaximumWeeklyStarts)**

Required: No  
Data Type/Size: number(15)  
Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway. Maximum Daily Starts <= Maximum Weekly Starts

Description: The maximum number of times a unit can be started in one week under normal operating conditions (168 hour period starting Monday 0001 hour). The default value is infinity.

#### **Maximum Runtime (hour) (MKTUnitScheduleDaily: hour)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.

Description: The maximum number of hours a unit can run over the course of an operating day as measured by PJM's state estimator. In the Day-Ahead scheduling process, it is calculated as the maximum number of hours a unit is producing > 0 MW output The default value is infinity.

#### **Maximum Daily Starts (MKTUnitScheduleDaily: MaximumDailyStarts)**

Required: No  
Data Type/Size: number(15)  
Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway. Maximum Daily Starts <= Maximum Weekly Starts

Description: The maximum number of times that a unit can be started in an operating day under normal operating conditions. The default value is 1 start.

### **Maximum Weekly Energy (MWh) (MKTUnitScheduleDaily: MaximumWeeklyEnergy)**

Required:	No
Data Type/Size:	number(12,1)
Data Constraints:	Must be positive number.
Description:	The maximum amount of energy, reported in MWh, that the unit can produce in one week used for study purposes. The default value is 0.0 MWh. It is recommended that his value be set to the default and run time restrictions be bid using the Maximum Run Time parameters.

### **Hot to Cold Time (hour) (MKTUnitScheduleDaily: HotToColdTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.
Hot To Cold Time >= Hot To Inter Time	
Description:	The amount of time, in hours, after shutdown that a hot temperature state unit takes to cool down to cold temperature state. The default value is 0 hours.

### **Hot to Inter Time (hour) (MKTUnitScheduleDaily: HotToInterTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.
Hot To Cold Time >= Hot To Inter Time	
Description:	The amount of time, in hours, after shutdown that a hot temperature state unit takes to cool down to intermediate temperature state. The default value is 0 hours.

### **Hot Notification Time (hour) (MKTUnitScheduleDaily: HotNotificationTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway. Cold Notification Time >= Inter Notification Time >= Hot Notification Time

Capacity Resources that have notification times that exceed 24 hours must submit binding offer prices for next seven days.

Description: The time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its hot temperature state. The default value is 0 hours.

#### **Inter Notification Time (hour) (MKTUnitScheduleDaily: InterNotificationTime)**

Required: No

Data Type/Size: number(8,2)

Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway. Cold Notification Time >= Inter Notification Time >= Hot Notification Time

Capacity Resources that have notification times that exceed 24 hours must submit binding offer prices for next seven days.

Description: The time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its intermediate temperature state. The default value is 0 hours.

#### **Cold Notification Time (hour) (MKTUnitScheduleDaily: ColdNotificationTime)**

Required: No

Data Type/Size: number(8,2)

Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.

Cold Notification Time >= Inter Notification Time >= Hot Notification Time

Capacity Resources that have notification times that exceed 24 hours must submit binding offer prices for next seven days.

Description: The time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold temperature state. The default value is 0 hours.

#### **Hot Startup Time (hour) (MKTUnitScheduleDaily: HotStartupTime)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.

Cold Startup Time >= Inter Startup Time >= Hot Startup Time

Capacity Resources that have startup times that exceed 24 hours must submit binding offer prices for next seven days.

Description: The time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero for a generating unit in its hot temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to the point after first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. The default value is 0 hours.

#### **Inter Startup Time (hour) (MKTUnitScheduleDaily: InterStartupTime)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.



Cold Startup Time >= Inter Startup Time >= Hot Startup Time

Capacity Resources that have startup times that exceed 24 hours must submit binding offer prices for next seven days.

Description: The time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero for a generating unit in its intermediate temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to the point after first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. The default value is 0 hours.

#### **Cold Startup Time (hour) (MKTUnitScheduleDaily: ColdStartupTime)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be positive number.

**This parameter is limited for all** cost-based and price based parameter limited schedules for Capacity Performance resources. PJM defines a limit for this parameter based on unit's generation technology type and physical operational limit. The applicable limit is posted in Markets Gateway.

Cold Startup Time >= Inter Startup Time >= Hot Startup Time

Capacity Resources that have startup times that exceed 24 hours must submit binding offer prices for next seven days.

Description: The time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero for a generating unit in its cold temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to the point after first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. The default value is 0 hours.

#### ***Schedule Manager***

The ***Schedule Manager*** web page is used view, create, and modify schedule types by "attaching" schedule ids to their long names and schedule types.

### **Schedule Name (MKTUnitSchedule: UnitScheduleShortName)**

Required:	Yes
Data Type/Size:	varchar2(8)
Description:	A short name for the generating unit's schedule, defined by the operating company. This label appears in the Schedules List on the Generation web pages.

### **Description (MKTUnitSchedule: UnitScheduleLongName)**

Required:	Yes
Data Type/Size:	varchar2(40)
Description:	A full name for the generating unit's schedule, defined by the units' Operating Company.

### **Schedule Type (MKTUnitSchedule: UnitScheduleTypeID)**

Required:	Yes
Data Type/Size:	number(2)
Data Constraints:	Schedule Type cannot be changed once the schedule record is created and saved. The following assignments should be made:  1-69, 80- 89 — Cost schedules Parameter Limited Schedules  70 – 79 – Price based Parameter Limited Schedules  90 — Historic LMP schedule  91 - 99 — Price-based schedules
Description:	The schedule type number. (This is the S part of the CPTUS code.) The default is 1 (Cost).

### **Schedule Selection**

The **Schedule Selection** web page is used to indicate whether a particular schedule is available on a specified day. The Schedule Selection web page presents all schedules for the units in the selected portfolio.

### Location (*Unit*) (MKTUnit: UnitLongName)

Required: Basic Unit Characteristic

Data Type/Size: varchar2(40)

Description: The full name of the generating unit.

### Type (MKTUnitSchedule: UnitScheduleTypeID)

Required: Not Applicable (This is the Schedule Type field entered on the Schedule Manager web page)

Data Type/Size: number(2)

Data Constraints: Business rules determine the schedule type number:

1-69, 80-89— Cost schedules Parameter Limited Schedules

70 – 79 – Price based Parameter Limited Schedules

90 – Historic LMP schedule 91 - 99 — Price-based schedules

Only a single price-based schedule may be submitted into the market; **All units** must have one cost-based schedule that is parameter limited available, if a price-based schedule is available.

Capacity Resources must have one cost-based schedule available

Description: The schedule type number. The S part of the CPTUS code.

### Parameter Limit (MKTUnitSchedule:ParameterLimit)

Required: Not Applicable (This indicates if the Schedule passes validation and is considered Parameter Limited).

Data Type/Size: Boolean

Description: The identification that a schedule is Parameter Limited.

### Use Max Gen (MKTUnitSchedule:UseMaxGen)

Required: Yes

Data Type/Size: Boolean

Description: Element that specifies if the schedule should be used for the given operating day in the event of a maximum generation emergency. Applies only to price-based parameter limited schedules.

**Schedule Name (MKTUnitSchedule:UnitScheduleShortName)**

Required:	Not Applicable (This is the Schedule Name entered on the Schedule Manager web page.)
Data Type/Size:	varchar2(8)
Description:	The short name of a unit schedule.

**Market Type (MKTUnitScheduleDaily: DayAheadMarket, BalancingMarket)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Installed Capacity resources are automatically included in day-ahead market. A generator offer that is accepted for the day-ahead market automatically carries over into the balancing market
Description:	
Day Ahead Market:	Indicates whether or not the schedule is available for the day-ahead market.
Balancing Market:	Indicates whether or not the schedule is available for the balancing market (used for re-bidding period).

**Available (MKTUnitScheduleAvail: Available)**

Required:	Yes
Data Type/Size:	Boolean
Description:	Indicates the availability status of the generating unit's schedules.

**No Load Cost (\$/hour) (MKTUnitScheduleDaily: NoLoadCost)**

Required:	No
Data Type/Size:	number (10, 2)
Description:	This field allows the user to modify the Hot Start Cost field from one web page. (See the Schedule Detail web page for details.)

**Int. Start Cost (MKTUnitScheduleDaily: InterStartupCost)**

Required: No

Data Type/Size: number (10, 2)

Description: This field allows the user to modify the Hot Start Cost field from one web page. (See the Schedule Detail web page for details.)

**Cold Start Cost (MKTUnitScheduleDaily: ColdStartCost)**

Required: No

Data Type/Size: number (10, 2)

Description: This field allows the user to modify the Cold Start Cost field from one web page. (See the Schedule Detail web page for details.)

**Hot Start Cost (MKTUnitScheduleDaily: HotStartCost)**

Required: No

Data Type/Size: number (10, 2)

Description: This field allows the user to modify the Hot Start Cost field from one web page. (See the Schedule Detail web page for details.)

***Dispatch Lambda***

The ***Dispatch Lambda*** web page is used to view the Lambda generation details for the current day.

**Location (*Unit*) (MKTUnit: UnitLongName/UnitScheduleLongName)**

Data Type/Size: varchar2(40)

Description: The full name of the generating unit.

**Schedule (MKTUnit: UnitScheduleLongName)**

Data Type/Size: varchar2(40)

Description: The description of the unit's schedule.

**Lambda (MKTUnitDispatch:CurrentDispatchRate)**

Data Type/Size: number (10, 2)

Description: The dispatch rate for the zone or unit.

**Gen MW (MKTUnitDispatch:CurrentDispatchMW)**

Data Type/Size: number (8, 1)

Description: The desired MW basepoint for the unit.

**Non-Ramp MW (MKTUnitDispatch:CurrentNonRampMW)**

Data Type/Size: number (8, 1)

Description: The MW amount, of non-ramp lambda generation.

**Reg MW (MKTUnitDispatch:CurrentRegMW)**

Data Type/Size: number (8, 1)

Description: The MW amount; that the unit is regulating.

**Dev MW (MKTUnitDispatch:CurrentDispatchMW - CurrentMW)**

Data Type/Size: number (8, 1)

Description: The MW deviation; or the deviation between the current generation from the desired generation

**En Min (MKTUnitDispatch:CurrentEconomicMin)**

Data Type/Size: number (8, 1)

Description: The minimum energy associated with lambda generation.

**En Max (MKTUnitDispatch:CurrentEconomicMax)**

Data Type/Size: number (8, 1)

Description: The maximum energy associated with lambda generation.

### **Cap Max (MKTUnitDispatch:CurrentEmergencyMax)**

Data Type/Size: number (8, 1)

Description: The maximum capacity MW associated with lambda generation.

### **Status (MKTUnitDispatch:CurrentOnReason)**

Data Type/Size: varchar2(40)

Description: The reason for lambda generation.

### **Generator Market Results**

The **Generator Market Results** web page is used to view the day-ahead generation schedules for each generating unit, as well as day-ahead LMPs.

A Generation user can view the results of the day-ahead market for each generating unit under their control. The day-ahead generation information includes the generating unit schedules for each unit committed to run and the LMPs for each hour in the day-ahead market.

### **Location (Unit) (MKTUnit: UnitShortName,UnitId)**

Description: The abbreviated name of the generating unit.

### **Schedule (MKTUnitSchedule: UnitScheduleShortName)**

Description: A short name for the generating unit's schedule, defined by the operating company.

### **MW (MW) (MKTPlanUnitSchedule:MW)**

Description: The MW output schedule for the generating unit for each hour. If there is no output scheduled, the field is blank. (Any cleared increment offers or decrement bids are reflected on the Demand Market Results page.)

### **Price (\$/MW) (MKTPlanUnitSchedule:LMP)**

Description: The dollars/MW day-ahead LMP for the generating unit for each hour. If there is no MW output scheduled, the field is blank.

### **SRREG Awards**

The **SRREG Awards** web page is used to view the generating unit results of the Synchronized Reserve and Regulation markets.

**Location (*Unit*) (MKTUnit: UnitShortName)**

Data Type/Size: varchar2(40)

Description: The short name of the generating unit.

**Synchronized Reserve MW Offer (MKTPlanUnitSchedule: SpinTier2MW)**

Data Type/Size: number (8,1)

Description: The amount of synchronized reserve Tier 2 MW offered for the unit.

**Reg. Offer MW (MKTPlanUnitSchedule: RegOfferMW)**

Data Type/Size: number (8,1)

Description: The amount of regulation MW offered for the unit.

**Tier 1 Est. MW (MKTPlanUnitSchedule: SpinTier1MW)**

Data Type/Size: number (8,1)

Description: Synchronized Reserve Market Tier 1 MW estimate.

**Self-Sched. MW (MKTPlanUnitSchedule: SelfScheduledMW)**

Data Type/Size: number (8,1)

Description: Amount of MW self-scheduled for Tier 2 in Synchronized Reserve Market.

**Tier 2 MW. (MKTPlanUnitSchedule: SpinTier2MW)**

Data Type/Size: number (8,1)

Description: Synchronized Reserve Market Tier 2 MW assigned.

**Reg. MW. (MKTPlanUnitSchedule: RegMW)**

Data Type/Size: number (8,1)

Description: The market clearing resulting regulation MW value for the day and/or hour ending.



### **DA Scheduling Reserve Awards**

The **DA Scheduling Reserve Awards** web page is used to view the generating unit results of the Day-ahead Scheduling Reserve markets.

#### **Location (*Unit*) (MKTUnit: UnitShortName)**

Data Type/Size: varchar2(40)  
Description: The short name of the generating unit.

#### **Area (MKTArea: ASAreaShortName)**

Required: Yes  
Data Type/Size: varchar2(40)  
Description: A region composed of one or multiple control zones over which and Ancillary Services Market is cleared, if applicable.

#### **DASR MW (MKTPlanUnitSchedule: DASRMW)**

Data Type/Size: number (8,1)  
Description: The amount of day-ahead scheduling reserve MW awarded for the unit.

### **Regulation Offers**

The **Regulation Offers** web page is used to submit regulation offers to the PJM Regulation Market.

#### **Location (*Unit*) (MKTUnit: UnitShortName)**

Required: Basic Unit Characteristic  
Data Type/Size: varchar2(40)  
Description: The short name of the generating unit.

#### **ASArea (MKTRegBilateral: ASAreald)**

Required: Yes  
Data Type/Size: varchar2(40)

Description: A bulk electric system or combination of bulk electric systems bounded by interconnection metering and telemetry to which a common generation control scheme and reserve requirement is applied. **Offer Cost (MKTUnitRegBidDaily: OfferCost)**

Required: Yes

Data Type/Size: number(10,2)

Data Constraints: Must be a positive number. Required if the unit is available for regulation

Description: The Cost-based Regulation offer, expressed as \$/MWh, of providing regulation, The Cost-based Regulation offer is mandatory, and if the value of the offer cost is greater than the regulation margin adder of \$12, the offer will be validated using the unit specific operating parameters submitted with the regulating offer as detailed in **Manual M15: Cost Development Task Force Guidelines**.

#### **Heat Rate @ Eco Max (MKTUnitRegBidDaily: EcoMaxHeatRate)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number.

Description: The heat rate, expressed as BTU/KWh, at the default economic maximum for the regulating resource. The economic maximum that will correspond to this rate value will be the default economic maximum that is shown both on the daily Regulation offers and Unit Details pages.

#### **Heat Rate @ Reg Min (MKTUnitRegBidDaily: RegMinHeatRate)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number.

Description: The heat rate expressed as BTU/KWh, at the default regulation minimum for the regulating resource. The regulation minimum that will correspond to this rate value will be the default regulation minimum that is shown both on the daily Regulation Offers and Unit Detail pages.

**VOM Rate (MKTUnitRegBidDaily: VOMRate)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The increase in VOM, expressed as \$/MWh of Regulation, as a result of operating the regulating resource at a higher heat rate than is otherwise economical for the purpose of providing regulation

**Fuel Cost (MKTUnitRegBidDaily: FuelCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number.
Description:	The fixed fuel costs, expressed as \$/MBTU, of the regulating resource. This value is used to determine the heat rate adjustments during steady-state and non steady-state operation for the purpose of providing regulation.

**Offer MW (MKTUnitRegBidDaily: RegMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The amount of regulation MW offered for the unit. This field is required if the unit is either Available or Self-Scheduled to provide regulation.

**Offer Price (MKTUnitRegBidDaily: RegPrice)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number;. A regulation offer may not exceed \$100/MWh.

Description: Price-Based Regulation Offer that is defined as the price at which regulation is offered for the unit. The Price-based Regulation offer is optional, and this value is capped at \$100/MWh.

**Eco Max MW (MKTUnit: EcoMaxMW)**

Required: Not Applicable. (Data reflects limits entered on the Unit Detail web page.)

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number

Description: Maximum operating limit of the resource. . Value defaults to the economic high limit if left blank.

**Reg. Min MW (MKTUnit: RegLowLimit)**

Required: Not Applicable. (Data reflects limits entered on the Unit Detail web page.)

Data Type/Size: number (8,1)

Data Constraints: Must be a positive number

Only applicable to those units that are regulation resources.

Description: Minimum generation limit when unit is providing regulation. Value defaults to the economic low limit if left blank.

**Min MW (MKTUnitRegBidDaily: RegMinMW)**

Required: No

Data Type/Size: number (8,1)

Data Constraints: Must be a positive number less than or equal to the offered MW.

Only applicable to those units that are regulation resources.

Description: Minimum regulation amount that must be assigned. Value defaults to zero if left blank.

### **Available Status (MKTUnitRegBidDaily: RegUnavailable, derived)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time.
Description:	
Not Available:	Indicates if the unit is unavailable to provide regulation.
Available :	Indicates if the unit is available to provide regulation.

### **Self Scheduled (MKTUnitRegBidDaily: RegSelfScheduled)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time.
Description:	Indicates if the unit is self-scheduled for regulation.

### **Regulation Updates**

The **Regulation Updates** web page is used to submit updated hourly regulation data.

### **Hour Ending (MKTUnitHourly: EffectiveHour and TerminationHour)**

Required:	Yes
Data Type/Size:	date
Description:	A trading interval of one hour, identified by the time at the end of that hour.

### **MW (MKTUnitHourly: RegMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number; must be less than or equal to the MW of regulation offered in the day-ahead market, unless the unit was unavailable for energy in the day-ahead market.

Description: The amount of regulation MW offered for the unit. This value overrides the Regulation Capacity (entered on the Unit Detail web page) for this generating unit.

#### **Regulation Min MW (MKTUnitHourly: RegLowLimit)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number. Must be greater than or equal to the Regulation Low Limit offered in the day-ahead market unless the unit was unavailable for energy in the day-ahead market.

Description: The lowest level of energy, in MW, that the operating company operates the unit while it is providing regulation.

This value overrides the Regulation Min (entered on the *Unit Detail* web page) for this generating unit.

#### **Regulation Max MW (MKTUnitHourly: RegHighLimit)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number. Must be less than or equal to the Regulation Max offered in the day-ahead market unless the unit was unavailable for energy in the day-ahead market.

Description: The highest level of energy, in MW, that the operating company operates the unit while it is providing regulation.

This value overrides the Regulation High Limit (entered on the *Unit Detail* web page) for this generating unit.

#### **Self Scheduled (MKTUnitHourly: RegSelfScheduled)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time. Unit may not be changed from unavailable to self-scheduled for regulation after the regulation market closes unless the unit was unavailable for energy in the day-ahead market.

Description: Indicates if the unit is self-scheduled for regulation.

**Available Status (MKTUnitHourly: RegUnavailable, derived)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time.

Description:

Not Available: Indicates if the unit is unavailable to provide regulation.

Available : Indicates if the unit is available to provide regulation.

**Spilling (MKTUnitHourly: RegSpilling)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: This indicator must be identical for all units at a given hydro plant.

Description: Indicates that the hydro plant associated with this unit is currently in the spilling condition.

**Regulation Bilaterals**

The *Regulation Bilaterals* web page is used to facilitate a bilateral market for regulation.

**Conf. (MKTRegBilateral: Confirmed)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: None

Description: Indicates that the seller has confirmed the bilateral regulation transaction.

## **Conf. Time**

Required:

Data Type/Size:

Data Constraints:

Description: Displays the time the transaction was confirmed. Will appear NULL if it was not. Automatically generated by Markets Gateway.

## **ID**

Required:

Data Type/Size:

Data Constraints:

Description: Displays the identification number of the transaction. Automatically generated by Markets Gateway.

## **Buyer (MKTRegBilateral: BuyerParticipantID)**

Required: Yes

Data Type/Size: number

Data Constraints: Must be the entity that enters the transaction.

Description: Indicates the entity buying the fixed amount of regulation indicated from the seller for the duration indicated. The number stored is generated by the database based on the entity that enters the transaction.

## **Seller (MKTRegBilateral: SellerParticipantID)**

Required: Yes

Data Type/Size: number

Data Constraints: Only the entity entered as the seller may confirm a transaction.

Description: Indicates the entity selling the fixed amount of regulation indicated to the buyer for the duration indicated. The number stored is generated by the database based on the entity entered as the seller for the transaction.



**MW (MKTRegBilateral: RegMW)**

Required:	Yes
Data Type/Size:	number (8,1)
Data Constraints:	Must be a positive number.
Description:	Indicates the amount of regulation sold for the duration of the transaction.

**Start Date (MKTRegBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the date the regulation bilateral transaction begins.

**Hour (MKTRegBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the hour the regulation bilateral transaction begins, identified by the time at the end of the hour.

**Stop Date (MKTRegBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date greater than the start date.
Description:	Indicates the date the regulation bilateral transaction ends.

### Hour (MKTRegBilateral: TerminationHour)

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour.
Description:	Indicates the hour the regulation bilateral transaction ends, identified by the time at the end of the hour.

### Area (MKTRegBilateral: ASAreald)

Required:	Yes
Data Type/Size:	varchar2(40)
Description:	A region composed of one or multiple control zones over which and Ancillary Services Market is cleared.

### **Synchronized Reserve Offers**

The **Spinning Offers** web page is used to submit synchronized reserve offers to the PJM Spinning Reserve Market.

### Location (*Unit*) (MKTUnit: UnitShortName)

Required:	Basic Unit Characteristic
Data Type/Size:	varchar2(40)
Description:	The short name of the generating unit.

### Offer MW (MKTUnitSpinBidDaily: SpinMW)

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The amount of synchronized reserve MW offered for the unit. The synchronized reserve quantity is defined as the increase in output achievable by the unit in ten (10) minutes. This field is required if the unit is either Available or Self-Scheduled to provide synchronized reserve.

**Offer Price (MKTUnitSpinBidDaily: SpinPrice)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number; required if the unit is available for synchronized reserve. A synchronized reserve offer price may not exceed the unit's O & M cost (as determined by the Cost Development Task Force) plus \$7.50/MWh margin.
Description:	The price at which synchronized is offered for the unit.

**Condense Energy Use (MKTUnitSpinBidDaily: CondenseEnergyUse)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number; required if the unit is available for synchronized reserve. The value must be less than or equal to the actual energy consumed as observed in real time.
Description:	This is the amount of energy a condensing unit consumes in an hour while operating in the condensing mode.

**Condense Startup Cost (MKTUnit: CondenseStartupCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number
Description:	This is the actual cost associated with getting a unit from a completely off-line state into the condensing mode including fuel, O&M, etc. The default value is \$0.00.

**Condense to Gen Cost (MKTUnit: CondensetogenCost)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number
Condense To Gen Cost <= Condense Startup Cost	

Description: The cost, in dollars, of transitioning a condenser to the generating mode. The value submitted for this cost must be less than or equal to the condense startup cost. The default value is \$0.00.

**Full Heat Rate (MKTUnitSpinBidDaily: FullLoadHeatRate)**

Required: No  
Data Type/Size: number(8,3)  
Data Constraints: Must be a positive number  
Description: Indicates the unit's full load heat rate specified in BTU/kWh.

**Reduced Heat Rate (MKTUnitSpinBidDaily: ReducedLoadHeatRate)**

Required: No  
Data Type/Size: number(8,3)  
Data Constraints: Must be a positive number  
Description: Indicates the unit's reduced load heat rate specified in BTU/kWh.

**VOM Rate (MKTUnitSpinBidDaily: VOMRate)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be a positive number  
Description: Indicates the unit's variable operating rate specified in \$/MBTU.

**Spin As Condenser (MKTUnitSpinBidDaily: SpinAsCondenser)**

Required: No  
Data Type/Size: number(10,2)  
Description: Used to identify if a combustion turbine can be committed for synchronized reserve as a condenser or dispatchable. Default is null.

### **Condense Available Status (MKTUnitParameterDaily: CondenseAvailable)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Unavailable and Available are mutually exclusive; only one state can apply at a time.
Description:	Indicates if a unit is capable of condensing.
Not Available:	Indicates that the unit is not capable of condensing.
Available :	Indicates that the unit is capable of condensing.

### **Synchronized Reserve Updates**

The **Synchronized Updates** web page is used to submit updated hourly synchronized reserve data.

### **Hour (MKTUnitHourly: EffectiveHour and TerminationHour)**

Required:	Yes
Data Type/Size:	date
Description:	A trading interval of one hour, identified by the time at the end of that hour.

### **Offer MW (MKTUnitSpinBidDaily: SpinMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The amount of synchronized reserve MW offered for the unit. The synchronized reserve quantity is defined as the increase in output achievable by the unit in ten (10) minutes. This field is required if the unit is Available to provide synchronized reserve.

### **Spin Max (MW) (MKTUnitHourly: SpinMax)**

Required:	No
Data Type/Size:	number(8,1)

Data Constraints:           Emergency Minimum Limit <= Economic Minimum Limit <= Economic Maximum Limit <= Spinning Max <= Emergency Maximum Limit

It must be higher than or equal to the economic maximum of the unit. The default value is 0.0 MW.

Description:                The maximum value, in MW, of output a Tier 1 resource can achieve in response to a synchronized reserve event. This quantity is defined as the increase in output achievable by the unit in ten (10) minutes.

This value overrides the Synchronized Reserve Maximum Limit (entered on the Unit Detail web page) for this generating unit.

**Available Status (MKTUnitHourly: SpinUnavailable , Derived)**

Required:                    Yes

Data Type/Size:            Boolean

Data Constraints:           Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time. Unit may not be made available for synchronized reserve after the synchronized reserve market closes unless the unit was unavailable for energy in the day-ahead market.

Description:

**Not Available (MKTUnitHourly: SpinUnavailable)**

Indicates if the unit is unavailable to provide synchronized reserve.

**Available. (MKTUnitHourly: derived)**

Indicates if the unit is available to provide synchronized reserve.

**Self Scheduled MW (MKTUnitHourly: SpinSelfMW)**

Required:                    Yes

Data Type/Size:            varchar2(40)

Data Constraints:           Unit may not be changed from unavailable to self-scheduled for synchronized reserve after the synchronized reserve market closes unless the unit was unavailable for energy in the day-ahead market.

It must be less than or equal to the synchronized reserve maximum of the unit. The default value is 0.0 MW.

Description: Indicates the amount, in MW, that a unit is self-scheduled for synchronized reserve.

### ***Synchronized Bilaterals***

The ***Synchronized Bilaterals*** web page is used to facilitate a bilateral market for synchronized reserve.

#### **Conf. (MKTSpinBilateral: Confirmed)**

Required: Yes

Data Type/Size: Boolean

Data Constraints:

Description: Indicates that the seller has confirmed the bilateral synchronized reserve transaction. **All synchronized bilateral transactions must be entered by the buyer and confirmed by the seller.**

#### **Conf. Time (MKTSpinBilateral: ConfirmationTime)**

Required: Yes

Data Type/Size: date (7)

Data Constraints:

Description: The time when the synchronized reserve bilateral transaction was confirmed

#### **ID (MKTSpinBilateral: SpinBilateralId)**

Required: Yes

Data Type/Size: number

Data Constraints:

Description: The unique key assigned to a synchronized reserve bilateral transaction

#### **Buyer (MKTSpinBilateral: BuyerParticipantID)**

Required: Yes

Data Type/Size: varchar2 (40)  
Data Constraints: Must be the entity that enters the transaction.  
Description: The short name of the Market Participant who is buying the fixed amount of synchronized reserve indicated from the seller for the duration specified.

**Seller (MKTSpinBilateral: SellerParticipantID)**

Required: Yes  
Data Type/Size: varchar2 (40)  
Data Constraints: Must be the entity that enters the transaction.  
Description: The short name of the Market Participant who is selling the fixed amount of synchronized reserve indicated from the buyer for the duration specified.

**MW (MKTSpinBilateral: SpinMW)**

Required: Yes  
Data Type/Size: number (8,1)  
Data Constraints: Must be a positive number.  
Description: Indicates the amount of synchronized reserve offered for sale for the duration of the transaction.

**Percent (%) (MKTSpinBilateral: ObligationPercentage)**

Required: No  
Data Type/Size: number (8,1)  
Data Constraints: Must be a positive number.  
If MW > 0, then Percent cannot be entered.  
Description: Indicates the percentage of purchaser's Synchronized Obligation in the area or reserve zone offered for sale for the duration of the transaction.



**Start Date (MKTSpinBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the date the synchronized reserve bilateral transaction begins.

**Hour (MKTSpinBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the hour the synchronized reserve bilateral transaction begins, identified by the time at the end of the hour.

**Stop Date (MKTSpinBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date greater than the start date.
Description:	Indicates the date the synchronized reserve bilateral transaction ends.

**Hour (MKTSpinBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour.
Description:	Indicates the hour the synchronized reserve bilateral transaction ends, identified by the time at the end of the hour.

**Area (MKTArea: ASAreaName)**

Required:	Yes
Data Type/Size:	varchar2(8)
Description:	A region composed of one or multiple control zones over which and Ancillary Services Market is cleared.

**Sub Zone (MKTReserveZone: ReserveLongName)**

Required:	No
Data Type/Size:	varchar2(15)
Description:	A subset of an area with its own reserve requirement that must be enforced in addition to enforcing the area requirement.

**DA Scheduling Reserve Offers**

The **DA Scheduling Reserve Offers** web page is used to submit day-ahead scheduling reserve offers to the PJM Day-Ahead Scheduling Reserve market.

**Location (Unit) (MKTUnit: UnitShortName)**

Required:	Basic Unit Characteristic
Data Type/Size:	varchar2(40)
Description:	The short name of the generating unit.

**Area (MKTArea: ASAreaShortName)**

Required:	Yes
Data Type/Size:	varchar2(40)
Description:	A region composed of one or multiple control zones over which and Ancillary Services Market is cleared, if applicable.

**Offer Price (MKTUnitASTypeBidDaily: Price)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number; required if the unit is available for day-scheduling reserve.

Description: The price at which regulation is offered for the unit.

### **DA Scheduling Reserve Bilaterals**

The **DA Scheduling Reserve Bilaterals** web page is used to facilitate a bilateral market for day-ahead scheduling reserve.

#### **Conf. (MKTASTypeBilateral: Confirmed)**

Required: Yes

Data Type/Size: Boolean

Data Constraints:

Description: Indicates that the seller has confirmed the bilateral day-ahead scheduling transaction. All day-ahead scheduling transactions must be entered by the buyer and confirmed by the seller.

#### **Conf. Time (MKTASTypeBilateral: ConfirmationTime)**

Required: Yes

Data Type/Size: date (7)

Data Constraints:

Description: The time when the day-ahead scheduling bilateral transaction was confirmed

#### **ID (MKTASTypeBilateral: SpinBilateralId)**

Required: Yes

Data Type/Size: number

Data Constraints:

Description: The unique key assigned to a day-ahead scheduling bilateral transaction

#### **Buyer (MKTASTypeBilateral: BuyerParticipantID)**

Required: Yes

Data Type/Size: varchar2 (40)

Data Constraints: Must be the entity that enters the transaction.

Description: The short name of the Market Participant who is buying the fixed amount of day-ahead scheduling indicated from the seller for the duration specified.

**Seller (MKTASTypeBilateral: SellerParticipantID)**

Required: Yes

Data Type/Size: varchar2 (40)

Data Constraints: Must be the entity that enters the transaction.

Description: The short name of the Market Participant who is selling the fixed amount of day-ahead scheduling indicated from the buyer for the duration specified.

**MW (MKTASTypeBilateral: DASRMW)**

Required: Yes

Data Type/Size: number (8,1)

Data Constraints: Must be a positive number.

Description: Indicates the amount of day-ahead scheduling offered for sale for the duration of the transaction.

**Start Date (MKTASTypeBilateral: EffectiveHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid date; bilateral transactions must be entered by 1330 the day after the transaction starts.

Description: Indicates the date the day-ahead scheduling reserve bilateral transaction begins.

**Hour (MKTDASRBilateral: EffectiveHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid hour; bilateral transactions must be entered by 1330 the day after the transaction starts.

Description: Indicates the hour the synchronized reserve bilateral transaction begins, identified by the time at the end of the hour.

#### **Stop Date (MKTASTypeBilateral: TerminationHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid date greater than the start date.

Description: Indicates the date the day-ahead scheduling bilateral transaction ends.

#### **Hour (MKTASTypeBilateral: TerminationHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid hour.

Description: Indicates the hour the day-ahead scheduling bilateral transaction ends, identified by the time at the end of the hour.

#### **Area (MKTArea: ASAreaShortName)**

Required: Yes

Data Type/Size: varchar2(8)

Description: A region composed of one or multiple control zones over which and Day-Ahead Scheduling Reserve Market is cleared.

## Demand

The demand user views and modifies demand information using the following web pages:

- Demand Bids
- Inc Bids
- Dec Bids
- Virtual Market Results
- Day-Ahead Load Response Daily
- Day- Ahead Load Response Hourly
- Day-Ahead Load Response Market Results
- Real-Time Load Response Daily
- Real-Time Load Response Hourly
- Demand Market Results
- SPREG Award
- Regulation Offers
- Regulation Updates
- Regulation Bilaterals
- Synchronized Reserve Offers
- Synchronized Reserve Updates
- Synchronized Reserve Bilaterals
- Day-ahead Scheduling Reserve Offers
- Day-ahead Scheduling Reserve Updates
- Day-ahead Scheduling Reserve Bilaterals
- Distribution Factors

### ***Demand Bids***

The ***Demand Bids*** web page is used to submit demand bids, fixed and price-sensitive.

### **Hour (MKTBidHourly: MktHour)**

Required: Yes

Data Type/Size: date

Description: The trading interval of one hour, identified by the time at the end of that hour, for which the bid is valid.

### **MW (MKTBidHourly: MW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be positive number; demand bids must be decreasing;
	If no day-ahead bidding information is entered, a 0 MW quantity is assumed.
Description:	The MW bid for the fixed or price-sensitive bid segment. The default value is 0.0 MW.

### **Price (MKTBidHourly: Price)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Price-sensitive bids specify MW quantity, location, and price at which the demand is curtailed.
Description:	The bid price for this segment of a price-sensitive bid. The default value is \$0.00.

### ***Demand Market Results***

The ***Demand Market Results*** web page is used to view the day-ahead demand schedules for each price node, as well as day-ahead LMPs for each hour.

A Demand user can view the results of the day-ahead market for each fixed demand bid and price sensitive demand bid at each pricing node. The day-ahead demand market results includes the MW cleared at each pricing node and the LMPs for each hour in the day-ahead market.

### **Location (Node) (MKTPlanPnode: PnodeName)**

Data Type/Size:	varchar2(30)
Description:	The published name of the price node known by the participants and used for bidding.

**MW (MW) (MKTPlanBid: MW)**

Data Type/Size: number (8, 1)

Description: The demand MW cleared at the node. This includes the cleared fixed demand bids, and price sensitive demand bids.

**Price (\$/MW) (MKTPlanBid: LMP)**

Data Type/Size: number (10, 2)

Description: The LMP at the node.

**SPREG Awards**

The **SPREG Awards** web page is used to view the results of the Synchronized Reserve and Regulation markets for demand resources.

**Location (demand resource) (MKTPlanDSR: LoadResponseName)**

Data Type/Size: varchar2(40)

Description: The short name of the demand resource.

**Synchronized Reserve MW Offer (MKTPlanDSR: SpinBidMW)**

Data Type/Size: number (8,1)

Description: The amount of synchronized reserve Tier 2 MW offered for the demand resource.

**Reg. Offer MW (MKTPlanDSR: RegBidMW)**

Data Type/Size: number (8,1)

Description: The amount of regulation MW offered for the demand resource.

**Self-Sched. MW (MKTPlanDSR: SelfScheduledSpinMW)**

Data Type/Size: number (8,1)

Description: Amount of MW self-scheduled for Tier 2 in Synchronized Reserve Market.



**Synch Reserve MW. (MKTPlanDSR: SpinMW)**

Data Type/Size: number (8,1)

Description: Synchronized Reserve Market Tier 2 MW assigned.

**Reg. MW. (MKTPlanDSR: RegMW)**

Data Type/Size: number (8,1)

Description: The market clearing resulting regulation MW value for the day and/or hour ending.

**DA Scheduling Reserve Awards**

The **DA Scheduling Reserve Awards** web page is used to view the load resource results of the Day-ahead Scheduling Reserve markets.

**Location (Unit) (MKTUnit: UnitShortName)**

Data Type/Size: varchar2(40)

Description: The short name of the load resource.

**Area (MKTArea: ASAreaShortName)**

Required: Yes

Data Type/Size: varchar2(40)

Description: A region composed of one or multiple control zones over which and Ancillary Services Market is cleared, if applicable.

**DASR MW (MKTPlanUnitSchedule: DASRMW)**

Data Type/Size: number (8,1)

Description: The amount of day-ahead scheduling reserve MW awarded for the load resource.

**Inc Offers**

The **Inc Bids** web page is used to submit increment offers.

**Location (Node) (MKTPlanPnode: PnodeName)**

Data Type/Size: varchar2(30)

Description: The published name of the price node known by the participants and used for bidding.

#### **Hour (MKTBidHourly: MKTHour)**

Required: Yes

Data Type/Size: date

Description: The trading interval of one hour, identified by the time at the end of that hour, for which the bid is valid.

#### **MW (MKTBidHourly: MW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number

Description: The increment offer, in MW, for this segment. The default value is 0 MW.

#### **Price (MKTBidHourly: Price)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Increment offers and decrement bids must be consistent with the \$2,000/MWh price cap.

Description: The increment bid price for this segment. The default value is \$0.00.

#### ***Dec Bids***

The ***Dec Bids*** web page is used to submit decrement bids.

#### **Location (Node) (MKTPlanPnode: PnodeName)**

Data Type/Size: varchar2(30)

Description: The published name of the price node known by the participants and used for bidding.

### Hour (MKTBidHourly: MKTHour)

Required:	Yes
Data Type/Size:	date
Description:	The trading interval of one hour, identified by the time at the end of that hour, for which the bid is valid.

### MW (MKTBidHourly: MW)

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number
Description:	The decrement bid, in MW, for this segment. The default value is 0 MW.

### Price (MKTBidHourly: Price)

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Increment offers and decrement bids must be consistent with the \$2,000/MWh price cap.
Description:	The decrement bid price for this segment. The default value is \$0.00.

### **Virtual Market Results**

The **Virtual Market Results** web page is used to view the cleared virtual transactions (incs and decs) for each price node, as well as day-ahead LMPs for each hour.

A Demand user can view the results of the day-ahead market for decrement bid, and increment offers at each pricing node. The day-ahead virtual market results include the MW cleared at each pricing node and the LMPs for each hour in the day-ahead market.

### Location (Node) (MKTPlanPnode: PnodeName)

Data Type/Size:	varchar2(30)
Description:	The published name of the price node known by the participants and used for bidding.

**MW (MW) (MKTPlanBid: MW)**

Data Type/Size: number (8, 1)

Description: The demand MW cleared at the node. This includes the cleared incremental offers and decremental bids.

**Price (\$/MW) (MKTPlanBid: LMP)**

Data Type/Size: number (10, 2)

Description: The LMP at the node.

***Day-Ahead Load Response Daily***

The ***Day-Ahead Load Response Daily*** web page is used to submit updated daily Day-Ahead load response data.

**Load Response Name (MKTLoadResponse: LoadResponseName)**

Required: No

Data Type/Size: varchar2(40)

Description: The name of a load response resource that submits a Day-Ahead Load Response bid to reduce the load they draw from the PJM system in advance of real time operations.

**Price (MKTLoadResponseDaily: BidPrice)**

Required: No

Data Type/Size: number(10,2)

Description: Price, in \$/MW, at which the load shall be curtailed.

**ShutDown Cost1 (MKTLoadResponseDaily: ShutDownCost1)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Shutdown costs are changeable only every six months, corresponding to the six-month periods during which price-based start-up costs may be changed for generators.

The six month periods for shutdown costs are defined as follows: Period 1 is defined as April 1 - September 30 and Period 2 is defined as October 1 - March 30

Description: Shutdown costs, expressed in dollars, represent the fixed cost associated with committing a load response resource. Shutdown costs are optional, and will default to zero (0) if not submitted.

#### **ShutDown Cost2 (MKTLoadResponseDaily: ShutDownCost2)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Shutdown costs are changeable only every six months, corresponding to the six-month periods during which price-based start-up costs may be changed for generators.

The six month periods for shutdown costs are defined as follows: Period 1 is defined as April 1 - September 30 and Period 2 is defined as October 1 - March 30

Description: Shutdown costs, expressed in dollars, represents the fixed cost associated with committing a load response resource. Shutdown costs are optional, and will default to zero (0) if not submitted.

#### **Minimum Downtime (MKTLoadResponseDaily: Minimum DownTime)**

Required: No

Data Type/Size: number(8,2)

Data Constraints: Must be positive number.

Description: Minimum down time, expressed as a number of hours, represents the minimum number of contiguous hours for which a load response bid must be committed in the Day-Ahead market. Minimum down times are optional, and will default to zero (0) if not submitted.

#### ***Day-Ahead Load Response Hourly***

The ***Day-Ahead Load Response Hourly*** web page is used to submit updated hourly load response data.

#### **Hour (MKTLoadResponse: MKTHour)**

Required: Yes

Data Type/Size: date

Description: A trading interval of one hour, identified by the time at the end of that hour.

### **MW (MKTLoadResponseDaily: BidMW)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number, specified in minimum increments of .1 MW or 100 KW.
Description:	The MW bid for a specific curtailment.

### ***Day-Ahead Load Response Market Results***

The ***Day-Ahead Load Response*** web page is used to view the day-ahead schedules for each load response resource, as well as day-ahead LMPs for each hour.

### **Load Response Name (MKTPlanLoadResponse: LoadReponseName)**

Data Type/Size:	varchar2(40)
Description:	The name of a load response resource that submits a bid to reduce the load they draw from the PJM system in advance of real time operations.

### **MW (MW) (MKTPlanLoadResponse:MW)**

Data Type/Size:	number (8,2)
Description:	The MW quantity scheduled to be curtailed by the load response resource for each hour. If there is no reduction scheduled, the field is blank.

### **Price (MKTPlanLoadResponse LMP)**

Data Type/Size:	number(10,2)
Description:	Price, in \$/MW, at which the load shall be curtailed.

### ***Real-Time Load Response Daily***

The ***Real Time Load Response Daily*** web page is used to submit updated daily Real-Time Dispatchable load response data.

### **Load Response Name (MKTLoadResponse: LoadReponseName)**

Required:	No
Data Type/Size:	varchar2(40)

Description: The name of a load response resource that submits a Real-Time Dispatchable Load Response bid to reduce the load they draw from the PJM system in advance of real time operations.

**Price (MKTDSRRtBidDaily: BidPrice)**

Required: No

Data Type/Size: number(10,2)

Description: Price, in \$/MW, at which the load shall be curtailed.

**ShutDown Cost1 (MKTMKTDSRRtDaily: ShutDownCost)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Shutdown costs are changeable only every six months, corresponding to the six-month periods during which price-based start-up costs may be changed for generators.

The six month periods for shutdown costs are defined as follows: Period 1 is defined as April 1 - September 30 and Period 2 is defined as October 1 - March 30

Description: Shutdown costs, expressed in dollars, represent the fixed cost associated with committing a load response resource. Shutdown costs are optional, and will default to zero (0) if not submitted.

**ShutDown Cost2 (MKTMKTDSRRtDaily: ShutDownCost)**

Required: No

Data Type/Size: number(10,2)

Data Constraints: Shutdown costs are changeable only every six months, corresponding to the six-month periods during which price-based start-up costs may be changed for generators.

The six month periods for shutdown costs are defined as follows: Period 1 is defined as April 1 - September 30 and Period 2 is defined as October 1 - March 30

Description: Shutdown costs, expressed in dollars, represents the fixed cost associated with committing a load response resource. Shutdown costs are optional, and will default to zero (0) if not submitted.

### **Minimum Downtime (MKTMKTDSRRtDaily: Minimum DownTime)**

Required:	No
Data Type/Size:	number(8,2)
Data Constraints:	Must be positive number.
Description:	For a Real-Time Dispatchable Load Response bid, minimum down time, expressed as a number of hours, represents the minimum number of contiguous hours for which a load response bid must be committed in the Day-Ahead market. Minimum down times are optional, and will default to zero (0) if not submitted.

### ***Real-Time Load Response Hourly***

The ***Real-Time Load Response Hourly*** web page is used to submit updated hourly Real-Time Dispatchable load response data.

### **Hour (MKTMKTDSRRTHOURLY: MKTHour)**

Required:	Yes
Data Type/Size:	date
Description:	A trading interval of one hour, identified by the time at the end of that hour.

### **MW (MKTMKTDSRRTHOURLY: BidMW)**

Required:	No
Data Type/Size:	number(10,2)
Data Constraints:	Must be a positive number, specified in minimum increments of .1 MW or 100 KW.
Description:	For a Real-Time Dispatchable Load Response bid, the MW bid for a specific curtailment.

### ***Regulation Offers***

The ***Regulation Offers*** web page is used to submit regulation offers for load resources to the PJM Regulation Market.



**Location (Demand Resource) (MKTLoadResponse: LoadResponseName)**

Required: Basic Unit Characteristic  
Data Type/Size: varchar2(40)  
Description: The short name of the demand resource

**Area (MKTASArea: ASAreald)**

Required: Yes  
Data Type/Size: varchar2(40)  
Description: A region composed of one or multiple control zones over which and Ancillary Services Market is cleared.

**Offer MW (MKTDSRRegBidDaily: BidMW)**

Required: No  
Data Type/Size: number(8,1)  
Data Constraints: Must be a positive number.  
Description: The amount of regulation MW offered for the demand resource. This field is required if the demand resource is either Available or Self-Scheduled to provide regulation.

**Offer Price (MKTDSRRegBidDaily: BidPrice)**

Required: No  
Data Type/Size: number(10,2)  
Data Constraints: Must be a positive number; required if the unit is available for regulation. A regulation offer may not exceed \$100/MWh.  
Description: The price at which regulation is offered for the demand resource.

**Reg. Max (MKTDSRRegBidDaily: RegMaxMW)**

Required: Yes  
Data Type/Size: number(8,1)  
Data Constraints: Must be a positive number

Only applicable to those units that are regulation resources.

Description: Maximum limit when demand resource is providing regulation.

**Reg. Min (MKTDSRRegBidDaily: RegMaxMW)**

Required: Yes

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number

Only applicable to those units that are regulation resources.

Description: Minimum limit when demand resource is providing regulation.

**Min MW (MKTDSRRegBidDaily: MinRegBidCapMW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number

Only applicable to those units that are regulation resources.

Description: Minimum regulation amount that must be assigned. Value defaults to zero if left blank.

**Available Status (MKTDSRRegBidDaily: Unavailable, derived)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time.

Description: Indicates the resource's availability for the day.

Not Available: Indicates if the demand resource is unavailable to provide regulation.

Available : Indicates if the demand resource is available to provide regulation.

### **Self Scheduled (MKTDSRRegBidDaily: SelfScheduled)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time.
Description:	Indicates if the demand resource is self-scheduled for regulation.

### **Regulation Updates**

The **Regulation Updates** web page is used to submit updated hourly regulation data for load resources.

### **Hour Ending (MKTDSRRegBidHourly: EffectiveHour and TerminationHour)**

Required:	Yes
Data Type/Size:	date
Description:	A trading interval of one hour, identified by the time at the end of that hour.

### **MW (MKTDSRRegBidHourly: BidMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number; must be less than or equal to the MW of regulation offered in the day-ahead market, unless the demand resource was unavailable for energy in the day-ahead market.
Description:	The amount of regulation MW offered for the resource.

### **Regulation Min MW (MKTDSRRegBidHourly: RegMinMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number. Must be greater than or equal to the Regulation Low Limit offered in the day-ahead market unless the demand resource was unavailable for energy in the day-ahead market.

Description: The lowest level of energy, in MW, that the operating company operates the unit while it is providing regulation. The value overrides the Regulation Min MW entered on the Regulation Offers page.

**Regulation Max MW (MKTDSRRegHourly: RegMaxMW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number. Must be less than or equal to the Regulation Max offered in the day-ahead market unless the unit was unavailable for energy in the day-ahead market.

Description: The highest level of energy, in MW, that the operating company operates the unit while it is providing regulation. The value overrides the Regulation Min MW entered on the Regulation Offers page.

**Self Scheduled (MKTDSRRegBidHourly: SelfScheduled)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time. Unit may not be changed from unavailable to self-scheduled for regulation after the regulation market closes unless the demand resource was unavailable for energy in the day-ahead market.

Description: Indicates if the unit is self-scheduled for regulation.

**Available Status (MKTDSRRegBidHourly: Unavailable, derived)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time.

Description: Indicates the resource's availability for the hour.

Not Available: Indicates if the demand resource is unavailable to provide regulation.

Available: Indicates if the demand resource is available to provide regulation.

## **Regulation Bilaterals**

The **Regulation Bilaterals** web page is used to facilitate a bilateral market for regulation.

### **Conf. (MKTRegBilateral: Confirmed)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	None
Description:	Indicates that the seller has confirmed the bilateral regulation transaction.

### **Buyer (MKTRegBilateral: BuyerParticipantID)**

Required:	Yes
Data Type/Size:	number
Data Constraints:	Must be the entity that enters the transaction.
Description:	Indicates the entity buying the fixed amount of regulation indicated from the seller for the duration indicated. The number stored is generated by the database based on the entity that enters the transaction.

### **Seller (MKTRegBilateral: SellerParticipantID)**

Required:	Yes
Data Type/Size:	number
Data Constraints:	Only the entity entered as the seller may confirm a transaction.
Description:	Indicates the entity selling the fixed amount of regulation indicated to the buyer for the duration indicated. The number stored is generated by the database based on the entity entered as the seller for the transaction.

### **MW (MKTRegBilateral: RegMW)**

Required:	Yes
Data Type/Size:	number (8,1)
Data Constraints:	Must be a positive number.

Description: Indicates the amount of regulation sold for the duration of the transaction.

**Start Date (MKTRegBilateral: EffectiveHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid date; bilateral transactions must be entered by 1330 the day after the transaction starts.

Description: Indicates the date the regulation bilateral transaction begins.

**Hour (MKTRegBilateral: EffectiveHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid hour; bilateral transactions must be entered by 1330 the day after the transaction starts.

Description: Indicates the hour the regulation bilateral transaction begins, identified by the time at the end of the hour.

**Stop Date (MKTRegBilateral: TerminationHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid date greater than the start date.

Description: Indicates the date the regulation bilateral transaction ends.

**Hour (MKTRegBilateral: TerminationHour)**

Required: Yes

Data Type/Size: date

Data Constraints: Must be a valid hour.

Description: Indicates the hour the regulation bilateral transaction ends, identified by the time at the end of the hour.

**ASArea (MKTASArea: ASAreald)**

Required:	Yes
Data Type/Size:	varchar2(40)
Description:	A region composed of one or multiple control zones over which and Ancillary Services Market is cleared.

**Synchronized Offers**

The **Synchronized Offers** web page is used to submit synchronized reserve offers to the PJM Synchronized Reserve Market.

**Synchronized Reserve Offers**

The **Synchronized Reserve Offers** web page is used to submit synchronized reserve offers for load resources to the PJM Synchronized Reserve Market.

**Location (Demand Resource) (MKTLoadResponse: LoadResponseName)**

Required:	Basic Unit Characteristic
Data Type/Size:	varchar2(40)
Description:	The short name of the generating unit.

**Offer MW (MKTDSRSpinBidDaily: SpinMW)**

Required:	No
Data Type/Size:	number(8,1)
Data Constraints:	Must be a positive number.
Description:	The amount of synchronized reserve MW offered for the unit. The synchronized reserve quantity is defined as the increase in output achievable by the unit in ten (10) minutes. This field is required if the unit is either Available or Self-Scheduled to provide synchronized reserve.

**Offer Price (MKTDSRSpinBidDaily: SpinPrice)**

Required:	No
Data Type/Size:	number(10,2)

Data Constraints: Must be a positive number; required if the unit is available for synchronized reserve. A synchronized reserve offer price may not exceed the unit's O & M cost (as determined by the Cost Development Task Force) plus \$7.50/MWh margin.

Description: The price at which synchronized reserve is offered for the unit.

#### **Available Status (MKTDSRSpinBidDaily: SpinUnavailable)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable and Available are mutually exclusive; only one state can apply at a time.

Description:

Not Available: Indicates if the unit is unavailable to provide synchronized reserve.

Available: Indicates if the unit is available to provide synchronized reserve.

#### ***Synchronized Reserve Updates***

The ***Synchronized Reserve Updates*** web page is used to submit updated hourly synchronized reserve data for load resources.

#### **Hour (MKTDSRSpinBidHourly: EffectiveHour and TerminationHour)**

Required: Yes

Data Type/Size: date

Description: A trading interval of one hour, identified by the time at the end of that hour.

#### **Offer MW (MKTDSRSpinBidHourly: SpinMW)**

Required: No

Data Type/Size: number(8,1)

Data Constraints: Must be a positive number.

Description: The amount of synchronized reserve MW offered for the unit. The synchronized reserve quantity is defined as the increase in output



achievable by the unit in ten (10) minutes. This field is required if the unit is Available to provide synchronized reserve.

**Available Status (MKTDSRSpinBidHourly: SpinUnavailable, Derived)**

Required: Yes

Data Type/Size: Boolean

Data Constraints: Unavailable, Available, and Self-Scheduled are mutually exclusive; only one state can apply at a time. Unit may not be made available for synchronized reserve after the synchronized reserve market closes unless the unit was unavailable for energy in the day-ahead market.

Description:

**Not Available (MKTDSRSpinBidHourly: SpinUnavailable)**

Indicates if the unit is unavailable to provide synchronized reserve.

**Available. (MKTDSRSpinBidHourly: derived)**

Indicates if the unit is available to provide synchronized reserve.

**Self Scheduled MW (MKTDSRSpinBidHourly: SpinSelfMW)**

Required: Yes

Data Type/Size: varchar2(40)

Data Constraints: Unit may not be changed from unavailable to self-scheduled for synchronized reserve after the synchronized reserve market closes unless the unit was unavailable for energy in the day-ahead market.

It must be less than or equal to the synchronized reserve offer of the unit. The default value is 0.0 MW.

Description: Indicates the amount, in MW, that a unit is self-scheduled for synchronized reserve.

**Spinning Bilaterals**

The **Spinning Bilaterals** web page is used to facilitate a bilateral market for synchronized reserve.

**Conf. (MKTSpinBilateral: Confirmed)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	
Description:	Indicates that the seller has confirmed the bilateral synchronized reserve transaction.

**Conf. Time (MKTSpinBilateral: ConfirmationTime)**

Required:	Yes
Data Type/Size:	date (7)
Data Constraints:	
Description:	The time when the synchronized reserve bilateral transaction was confirmed

**ID (MKTSpinBilateral: SpinBilateralId)**

Required:	Yes
Data Type/Size:	number
Data Constraints:	
Description:	The unique key assigned to a synchronized reserve bilateral transaction

**Buyer (MKTSpinBilateral: BuyerParticipantID)**

Required:	Yes
Data Type/Size:	varchar2 (40)
Data Constraints:	Must be the entity that enters the transaction.
Description:	The short name of the Market Participant who is buying the fixed amount of synchronized reserve indicated from the seller for the duration specified.

**Seller (MKTSpinBilateral: SellerParticipantID)**

Required:	Yes
Data Type/Size:	varchar2 (40)
Data Constraints:	Must be the entity that enters the transaction.
Description:	The short name of the Market Participant who is selling the fixed amount of synchronized reserve indicated from the buyer for the duration specified.

**MW (MKTSpinBilateral: SpinMW)**

Required:	Yes
Data Type/Size:	number (8,1)
Data Constraints:	Must be a positive number.
Description:	Indicates the amount of synchronized reserve offered for sale for the duration of the transaction.

**Percent (%) (MKTSpinBilateral: ObligationPercentage)**

Required:	No
Data Type/Size:	number (8,1)
Data Constraints:	Must be a positive number.
	If MW > 0, then Percent cannot be entered.
Description:	Indicates the percentage of purchaser's Synchronized Reserve Obligation in the area or reserve zone offered for sale for the duration of the transaction.

**Start Date (MKTSpinBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the date the synchronized reserve bilateral transaction begins.

**Hour (MKTSpinBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the hour the synchronized reserve bilateral transaction begins, identified by the time at the end of the hour.

**Stop Date (MKTSpinBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date greater than the start date.
Description:	Indicates the date the synchronized reserve bilateral transaction ends.

**Hour (MKTSpinBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour.
Description:	Indicates the hour the synchronized reserve bilateral transaction ends, identified by the time at the end of the hour.

**Area (MKTASArea: ASAreaName)**

Required:	Yes
Data Type/Size:	varchar2(8)
Description:	A region composed of one or multiple control zones over which and Ancillary Services Market is cleared.

**Sub-Zone (MKTReserveZone: ReserveLongName)**

Required:	No
Data Type/Size:	varchar2(15)

Description: A subset of an area with its own synchronized reserve requirement that must be enforced in addition to enforcing the area requirement.

### **DA Scheduling Reserve Offers**

The **DA Scheduling Reserve Offers** web page is used to submit day-ahead scheduling reserve offers for load resources to the PJM Day-ahead Scheduling Reserve Market.

### **Location (Demand Resource) (MKTLoadResponse: LoadResponseName)**

Required: Basic Unit Characteristic  
Data Type/Size: varchar2(40)  
Description: The short name of the generating unit.

### **Area (MKTASArea: ASAreaName)**

Required: Yes  
Data Type/Size: varchar2(8)  
Description: A region composed of one or multiple control zones over which and Ancillary Services Market is cleared, if applicable.

### **Offer Price (MKTLSBidDaily: Price)**

Required: No  
Data Type/Size: number(10,2)  
Data Constraints: Must be a positive number; required if the unit is available for day-ahead scheduling reserve.  
Description: The price at which day-ahead scheduling reserve is offered for the unit.

### **Minimum Downtime (MKTLoadResponseDaily: Minimum DownTime)**

Required: No  
Data Type/Size: number(8,2)  
Data Constraints: Must be positive number.  
Description: Minimum down time, expressed as a number of hours, represents the minimum number of contiguous hours for which a load response bid must be committed.

### ***Day-ahead Scheduling Reserve Updates***

The ***Day-ahead Scheduling Reserve Updates*** web page is used to submit updated hourly day-ahead scheduling reserve data for load resources.

#### **Hour (MKTLRASTypeBidHourly: EffectiveHour and TerminationHour)**

Required:	Yes
Data Type/Size:	date
Description:	A trading interval of one hour, identified by the time at the end of that hour.

#### **Eligible Status (MKTLRASTypeBidHourly: Eligible)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	Eligible and ineligible are mutually exclusive; only one state can apply at a time.
Description:	If load resource is eligible to provide Day-ahead scheduling reserve

### ***DA Scheduling Reserve Bilaterals***

The ***DA Scheduling Reserve Bilaterals*** web page is used to facilitate a bilateral market for day-ahead scheduling reserve.

#### **Conf. (MKTASTypeBilateral: Confirmed)**

Required:	Yes
Data Type/Size:	Boolean
Data Constraints:	
Description:	Indicates that the seller has confirmed the bilateral day-ahead scheduling transaction. All day-ahead scheduling transactions must be entered by the buyer and confirmed by the seller.

**Conf. Time (MKTASTypeBilateral: ConfirmationTime)**

Required:	Yes
Data Type/Size:	date (7)
Data Constraints:	
Description:	The time when the day-ahead scheduling bilateral transaction was confirmed

**ID (MKTASTypeBilateral: SpinBilateralId)**

Required:	Yes
Data Type/Size:	number
Data Constraints:	
Description:	The unique key assigned to a day-ahead scheduling bilateral transaction

**Buyer (MKTASTypeBilateral: BuyerParticipantID)**

Required:	Yes
Data Type/Size:	varchar2 (40)
Data Constraints:	Must be the entity that enters the transaction.
Description:	The short name of the Market Participant who is buying the fixed amount of day-ahead scheduling indicated from the seller for the duration specified.

**Seller (MKTASTypeBilateral: SellerParticipantID)**

Required:	Yes
Data Type/Size:	varchar2 (40)
Data Constraints:	Must be the entity that enters the transaction.
Description:	The short name of the Market Participant who is selling the fixed amount of day-ahead scheduling indicated from the buyer for the duration specified.

### **MW (MKTASTypeBilateral: DASRMW)**

Required:	Yes
Data Type/Size:	number (8,1)
Data Constraints:	Must be a positive number.
Description:	Indicates the amount of day-ahead scheduling offered for sale for the duration of the transaction.

### **Start Date (MKTASTypeBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the date the day-ahead scheduling reserve bilateral transaction begins.

### **Hour (MKTDASRBilateral: EffectiveHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour; bilateral transactions must be entered by 1330 the day after the transaction starts.
Description:	Indicates the hour the synchronized reserve bilateral transaction begins, identified by the time at the end of the hour.

### **Stop Date (MKTASTypeBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid date greater than the start date.
Description:	Indicates the date the day-ahead scheduling bilateral transaction ends.



**Hour (MKTASTypeBilateral: TerminationHour)**

Required:	Yes
Data Type/Size:	date
Data Constraints:	Must be a valid hour.
Description:	Indicates the hour the day-ahead scheduling bilateral transaction ends, identified by the time at the end of the hour.

**Area (MKTArea: ASAreaShortName)**

Required:	Yes
Data Type/Size:	varchar2(8)
Description:	A region composed of one or multiple control zones over which and Day-Ahead Scheduling Reserve Market is cleared.

### **Distribution Factors**

The **Distribution Factors** web page is used to view and modify the price node distribution factors for the nodes that make up a pricing node.

#### **Bus Node Location (MKTPnodef: PnodeName)**

Required:	Not Applicable
Data Type/Size:	varchar2(30)
Description:	The name of the individual price node included in the aggregate node, which is identified in the data block title.

#### **Factor (MKTPnodePnode: Factor)**

Required:	Yes
Data Type/Size:	number(12,6)
Data Constraints:	Only the responsible EDC can modify the aggregate factors. The values can only be modified after the state estimator populates the web page.
Description:	The amount of electricity that is distributed to the price node. The sum of the factors for any aggregate node should be 1.0 (The SPD software normalizes the distribution). The default value is the PJM state estimator value from one week prior to the Operating Day.

## Administration

The Markets Gateway user manages and defines user specific information using the following web pages:

- Portfolio Manager

### **Portfolio Manager**

The **Portfolio Manager** web page is used to view, create, and modify portfolios (collections of locations). Portfolios can be used by Market Participants to filter the data presented on the web pages to show only subsets of the price nodes, generating units, or load response resources for which the user is responsible for submitting data.

#### **Portfolio (MktPortfolio: PortfolioName)**

Required:	No
Data Type/Size:	varchar2(40)
Description:	The name of a portfolio, which is a collection of locations.

#### **Location (Various)**

Required:	No
Data Constraints:	Valid price nodes, generating units or load response resources, must be used.

Data Type/Size:	varchar2(30)
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Description:

Node (MKTPnodef: PNodeName): The published name of the price node known by the participants and used for bidding. This label appears in the Nodes Selector List on the Demand web pages.

Unit (MKTUnit: UnitLongName): The long name of the generating unit. This data element is one of the data components included in the Primary Unit Characteristics. This label appears in the Units List on the Generation web pages.

Load Response Name (MktLoad Response: Load ResponseName): The name of a load response resource that submits a bid to reduce the load they draw from the PJM system in advance of real time operations.