

June 14, 2017

Holyoke, MA

Disclaimer for Customer Training: ISO New England (ISO) provides training to enhance participant and stakeholder understanding. Not all issues and requirements are addressed by the training. Consult the effective [Transmission, Markets and Services Tariff](#) and the relevant [Market Manuals](#), [Operating Procedures](#) and [Planning Procedures](#) for detailed information. In case of a discrepancy between training provided by ISO and the Tariff or Procedures, the meaning of the Tariff and Procedures shall govern.

Internal Market Monitor Asset Characteristics (IMMAC) UI

Customer Training Webinar



Note this presentation was updated on **12/03/2019**. Impacted slides are 25, 44-46, 48, 57-60, 75 and 85.

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Frequently Used Acronyms

Acronym	Term
CAMS	Customer Asset Management System
CR	change request
DNE	do not exceed
IMM	Internal Market Monitor
IMMAC	Internal Market Monitor Asset Characteristics
IO	input/output
SA	security administrator
UI	user-interface
VOM	variable operating and maintenance

Objectives

- Introduce lead participants to the new external facing Internal Market Monitor Asset Characteristics (IMMAC) database
- Identify access roles that allow *view* and *edit* capability
- Demonstrate how to access and navigate the system
- Explain the workflow for unit parameter changes

Topics

- General Overview of Asset Characteristics
- Accessing Internal Market Monitor Asset Characteristics (IMMAC) in Customer Asset Management System (CAMS)
- Search Functionality
- Asset
- Change Request Process
- Unit Activation
- Implementation Details
- References and Contact Information
- Appendix: Parameter Names and Descriptions



General Overview of Asset Characteristics

Today and Tomorrow

General Overview

- Asset characteristics are used to maintain physical and financial parameters used to model generator operating characteristics and estimate marginal costs
 - Marginal cost estimates are used to determine generator reference levels (Section III.A.7 of the Tariff) that are used in the energy market mitigation process (Section III.A.5 of the Tariff)
- It is important that physical and financial parameters accurately reflect an assets operating costs and remain current
- If a market participant's supply offer exceeds the reference level by more than the threshold permitted under the Tariff, it is subject to mitigation



Asset Parameter Changes

Today and Tomorrow

Today



Manual process

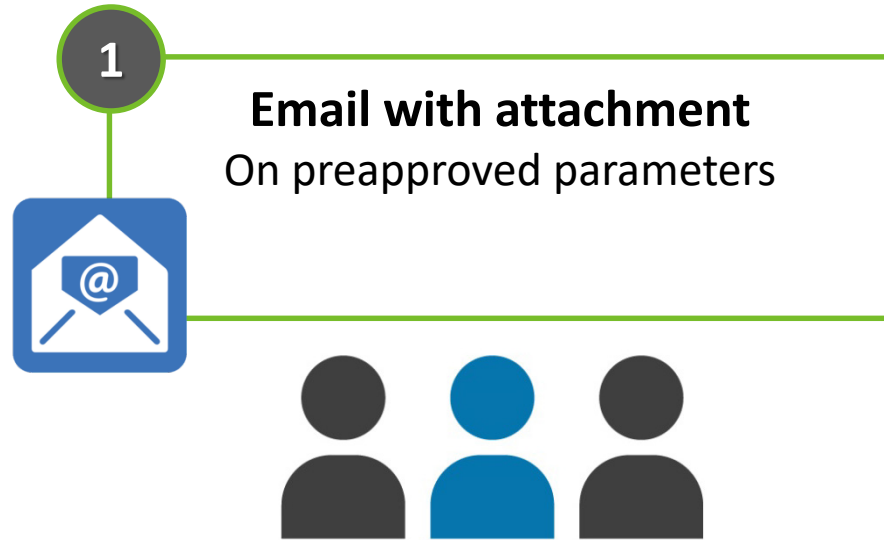
Tomorrow



Automated process

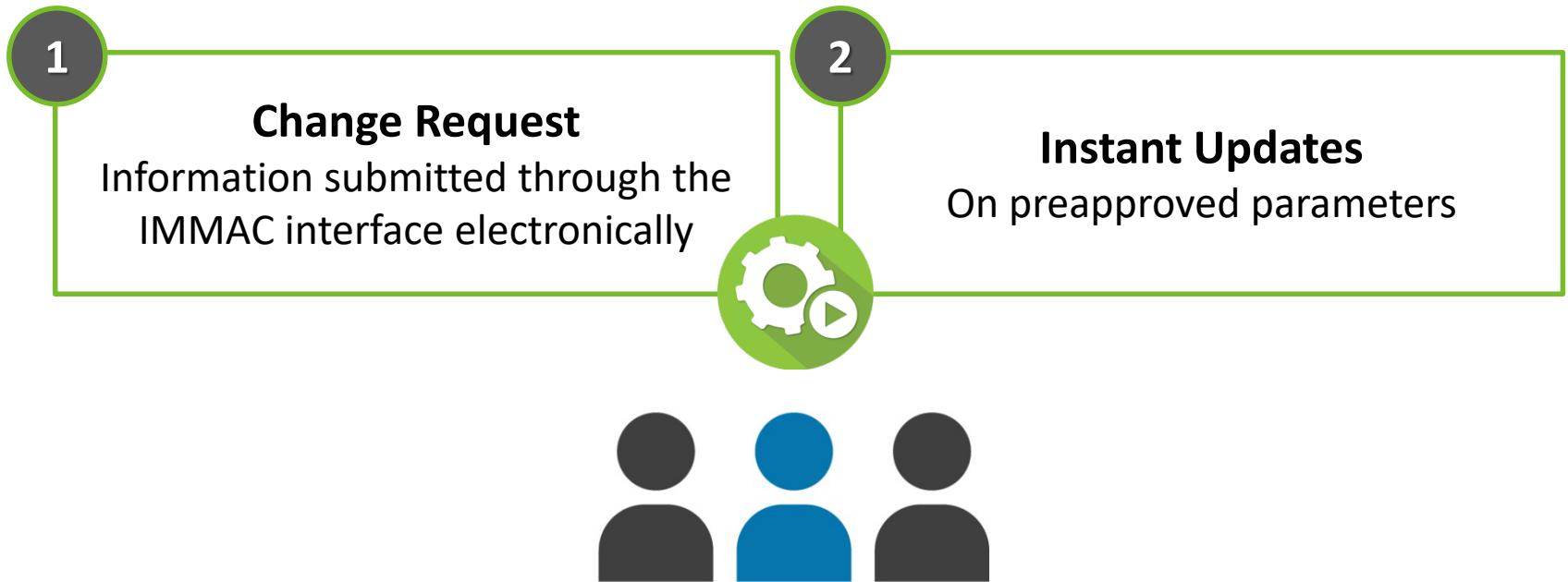
Only One Way to Make Asset Parameter Changes

Send email to IMM to initiate asset parameter changes



Two Ways to Make Asset Parameter Changes

Asset parameter changes are initiated through the IMMAC interface



Applies only to non settlement-only generators





**What's in it
for me?**

**External facing and
interactive interface**

**Electronically submit your
parameter change requests
for IMM approval**

**Directly upload supporting
documentation into interface**

**Instant updates on preapproved
asset parameters**

Accessing Internal Market Monitor Asset Characteristics in Customer Asset Management System





All data displayed in the IMMAC screenshots are fictitious and not associated with any customer [e.g., ABC Energy LLC, (000000)]

Who Can Access IMMAC?



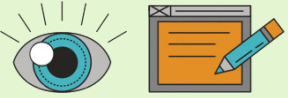
Role Types

View 

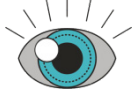
Edit 



External IMMAC Maintainer



External IMMAC Viewer



Lead participant can assign these roles to additional users but email notifications for *change requests* will ONLY be sent to IMM primary and secondary contacts



*This training will focus on the **External IMMAC Maintainer** role; the only difference between the two roles is the **External IMMAC Viewer** has view access only*

CAMS Access

The screenshot shows the 'SMD Applications Home Page' for ISO New England. The page features a grid of application buttons. A red box highlights the 'Customer and Asset Management System' button, and a green callout box points to it with the text: 'To access IMMAC, click the **Customer and Asset Management System** button'. The page also includes a sidebar with 'Informational Links' and a breadcrumb trail 'Market System → SMD Applications Home Page'.

SMD Applications Home Page		
Market System → SMD Applications Home Page		
Transmission System Information	Internal Transactions	External Transactions
Satellite Information	Bids & Offers (Registered Users)	Customer and Asset Management System
LCC CMS	Financial Transmission Rights (Registered Users)	Forward Reserve Market Auction
LCC Vision Learning	Submit Meter Reading	CROW Outage Scheduler
	Financial Assurance Management	Forward Reserve Assignment
	Forward Capacity Market CSO Bilateral Contracts	Forward Capacity Tracking System
	Demand Resource Market User Interface	Forward Capacity Market Reconfiguration Auction
	Claimed Capability Auditing Tool	Supplemental Availability Designation
	Energy Efficiency Measure Database	DR Audit and Testing Tool
		NX Application (NX-9 and NX-12D)
		Ask ISO

Asset Details Default Screen

From *Customer Asset Management System* home page, select the **IMMAC** tab

Use the *IMMAC* menu bar to navigate the user interface

Asset Search screen is the default view in IMMAC

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us

Database: Development

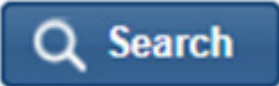
Asset Search

Asset ID: Asset Name: Asset Status: Lead Participant (ID): As Of:* 05/09/2017

Asset ID ↑	Asset Name	Asset Status	L...	Effective Date
49251	NMB Gen49251	PENDING	N...	04/27/2017
49252	RJB Gen49252	PENDING	N...	04/27/2017

Page 1 of 1 | Export

Search Functionality



Search Tool

Search criteria is based on *Asset ID*, *Asset Name*, *Asset Status*, *Lead Participant (ID)*, and *As Of* date fields

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset Search

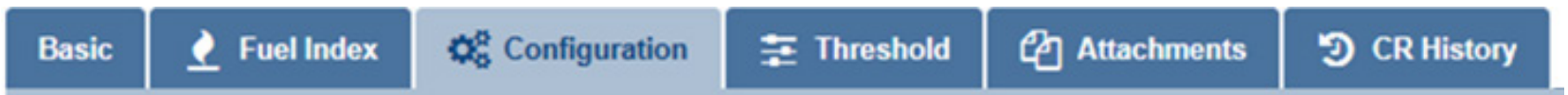
Asset ID: Asset Name: Asset Status: Lead Participant (ID): As Of:

Asset ID ↑	Asset Name	Asset Status	L...	Effective Date
49251	NMB Gen49251	PENDING	N...	04/27/2017
49252	RJB Gen49252	PENDING	N...	04/27/2017

Page 1 of 1 | Export

Asset Search screen lists all of the assets in a lead participant's generating portfolio

Asset



Basic Tab

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Development

Asset details as of 05/10/2017

As Of:	Asset ID:	Asset Name:	Short Name:	Effective:	Asset Status:	Lead Participant (ID):	Last Updated:	Updated By:	In Service:
05/10/2017	49252	RJB Gen49252	RJBGen	04/27/2017	ACTIVE	ABC Energy, LLC (00000)	05/10/2017	Test, Internal User 19 (50051)	04/27/2017

Dispatchable Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Off Peak:	Marginal Cost Reference Price:	RMR Contract:	Load Zone:	Generator Type:
No	No	No		Combustion (Gas) Turbine
Technology Type:	Supplemental Energy:	Station Service Rate (\$/kWh):	NRC Summer (MW):	NRC Winter (MW):
E_Class_CC	No	0.000		
Capacity Demand Rate (\$/kVA):	Capacity Demand Value (kVA):	Min Manual Load (MW):	Min Permitted Load (MW):	Emergency Min (MW):
0.000	0.000			

Comments:
GE, 2x1 CC

Create Change Request | Change Log

Data pre-populated from *Customer Asset Management System (CAMS)*

Use the **Basic** tab to view values, pre-populated CAMS asset data, and *Create Change Request*

An * denotes a required field. Required fields must have a value, even if it's zero. Some exceptions to required fields will be covered on the **Fuel Index** tab.



See Appendix for Parameter Names and Descriptions

Basic Tab

Parameter	Parameter Description
Off Peak:*	A <i>yes</i> selection will invoke the off-peak notification times defined on the Configuration/Startup tab, superseding the default notification times
Marginal Cost Reference Price:*	A <i>yes</i> selection will invoke a marginal cost reference level for the asset, superseding the default <i>Order of Reference Level</i> calculation outlined in Appendix A
RMR Contract:*	Indicates that a Reliability Must Run (RMR) agreement is in place
Technology Type:*	IMM internal classification
Supplemental Energy:*	Used to activate a predefined <i>Duct Firing</i> or any other power augmentation (<i>Upper Block</i>) that is implemented above the normal output range of the unit
Station Service Rate (\$/kWh):*	The cost sometimes charged if a retail utility rate is used in place of the default locational marginal price (LMP) station service rate
Capacity Demand Rate (\$/kVA):*	The cost sometimes charged to large commercial or industrial users for the intermittent use of large amounts of electricity; default is zero
Capacity Demand Value (kVa):*	Demand power requirements if a capacity demand charge is included in startup cost. Default is 0. Must be supplied if <i>capacity demand rate</i> is submitted.



Help buttons throughout the application provide additional information

Help Button

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/10/2017

As Of:	Asset ID:	Asset Name:	Short Name:	Effective:	Asset Status:	Lead Participant (ID):	Last Updated:	Updated By:	In Service:
05/10/2017	49252	RJB Gen49252	RJBGen	04/27/2017	ACTIVE	ABC Energy, LLC (00000)	05/10/2017	Test, Internal User 19 (50051)	04/27/2017

Dispatchable Intermittent

Basic | **Fuel Index** | Configuration | Threshold | Attachments | CR History

Off Peak:*	Marginal Cost Reference Price:*	RMR Contract:*	Load Zone:	Generator Type:
No	No	No		Combustion (Gas) Turbine
Technology Type:*	Supplemental Energy:*	Station Service Rate (\$/kWh):*	NRC Summer (MW):	NRC Winter (MW):
E_Class_CC	No	0.000		
Capacity Demand Rate (\$/kVA):*	Capacity Demand Value (kVA):*	Min Manual Load (MW):	Min Permitted Load (MW):	Emergency Min (MW):
0.000	0.000			

Comments:
GE, 2x1 CC

[Create Change Request](#) [Change Log](#)

? Help

Use the **Help** button to learn more about parameters displayed on a particular tab screen

Help Pop-Up Window

Asset details as of 05/10/2017

As Of: Asset ID: Asset Name: Short Name: Effective: Asset Status:

05/10/2017 49252 RJB Gen49252 RJBGen 04/27/2017 ACTIVE

Dispatchable Intermittent

Basic Fuel Index Configuration Threshold Attachments

Off Peak:* Marginal Cost Reference Price:* RMR Contract:*

When you click the **Help** button, a *Help* pop-up window will appear, click **OK** or **X** button to close the window

GE, 2x1 CC

Create Change Request

Help

The following parameters are defined in IMMAC as:

- Off Peak Flag - A "Yes" selection will invoke the off-peak notification times defined on the Config/Startup tab, superseding the default notification times.
- Marginal Cost Reference Price Flag - A "Yes" selection will invoke a Cost Based marginal cost reference level for the Asset, superseding the default "Order of Reference Level" calculation outlined in Appendix A.
- Technology Type - IMM Internal classification.
- Supplemental Energy Flag - Used to activate a pre-defined Duct Firing or any other power augmentation type (Upper Block) that is implemented above the normal output range of the unit.
- Station Service Rate - The cost sometimes charged if a Retail Utility Rate is used in place of the default LMP Station Service rate.
- Capacity Demand Rate - The cost sometimes charged to large commercial or industrial users for the intermittent use of large amounts of electricity. Default is zero.
- Capacity Demand Value - Demand power requirements if a Capacity Demand charge is included in start-up cost. Default is 0. Must be supplied if Demand Rate is submitted.

OK

Comments Field

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Off Peak: No | Marginal Cost Reference Price: No | RMR Contract: No

Technology Type: E_Class_CC | Supplemental Energy: No | Station Service Rate (\$/kWh): 0.000

Capacity Demand Rate (\$/kVA): 0.000 | Capacity Demand Value (kVA): 0.000

Load Zone: | Generator Type: Combustion (Gas) Turbine

NRC Summer (MW): | NRC Winter (MW):


Min Manual Load (MW): | Min Permitted Load (MW): | Emergency Min (MW):

Comments:
GE, 2x1 CC

Create Change Request | Change Log

Comments field:

- Access to enter/change data is for *IMM Internal Use* only
- Can be viewed by both *IMM* and *External Users*
- Displays at the bottom of every tab



Change Log Button

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/10/2017

As Of:	Asset ID:	Asset Name:	Short Name:	Effective:	Asset Status:	Lead Participant (ID):	Last Updated:	Updated By:	In Service:
05/10/2017	49252	RJB Gen49252	RJBGen	04/27/2017	ACTIVE	ABC Energy, LLC (00000)	05/10/2017	Test, Internal User 19 (50051)	04/27/2017

Dispatchable Intermittent

Basic | **Fuel Index** | Configuration | Threshold | Attachments | CR History

Off Peak:*	Marginal Cost Reference Price:*	RMR Contract:*	Load Zone:	Generator Type:
No	No	No		
Technology Type:*	Supplemental Energy:*	Station Service Rate (\$/kWh):*	NRC Summ	
E_Class_CC	No	0.000		
Capacity Demand Rate (\$/kVA):*	Capacity Demand Value (kVA):*		Min Manual	
0.000	0.000			

Comments:
GE, 2x1 CC

[Create Change Request](#) [Change Log](#)

Use the Change Log button to view all changes for the asset

Change Log Screen

Change Log for asset ID 49252					
Change Logs					
Effective ↓	Table	Field	Value	Updated	Updated By
Effective: 05/12/2017 (2 Items)					
05/12/2017	ASSET_FUEL_INDEX_DATA_T (1031)	Premium Cost (\$)	2	05/11/2017 10:56:00 am	ISO MEC Approver, CAMS (50051)
05/12/2017	ASSET_FUEL_INDEX_DATA_T (1031)	Co2	165.555	05/11/2017 10:56:00 am	ISO MEC Approver, CAMS (50051)
Effective: 05/10/2017 (187 Items)					
05/10/2017	ACF_BOILER_STATE_T (1016,COLD)	RB Energy Startup (mmBTU)	840	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,COLD)	SS Energy Startup (mmBTU)	1.66	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,COLD)	Startup VOM (Hours)	19000	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,COLD)	Offpeak Notification (Hours)	0	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,COLD)	Deleted Flag	N	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,COLD)	SB Energy Startup (mmBTU)	26.4	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,HOT)	Deleted Flag	N	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,HOT)	Offpeak Notification (Hours)	0	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,HOT)	Startup VOM (Hours)	10100	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,HOT)	SS Energy Startup (mmBTU)	1.63	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,HOT)	SB Energy Startup (mmBTU)	26.4	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,HOT)	RB Energy Startup (mmBTU)	180	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,INTER)	Deleted Flag	N	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,INTER)	Offpeak Notification (Hours)	0	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,INTER)	Startup VOM (Hours)	14100	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,INTER)	SS Energy Startup (mmBTU)	1.63	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,INTER)	RB Energy Startup (mmBTU)	350	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1016,INTER)	SB Energy Startup (mmBTU)	26.4	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,COLD)	RB Energy Startup (mmBTU)	840	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,COLD)	SB Energy Startup (mmBTU)	26.4	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,COLD)	SS Energy Startup (mmBTU)	1.66	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,COLD)	Startup VOM (Hours)	19000	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,COLD)	Offpeak Notification (Hours)	0	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,COLD)	Deleted Flag	N	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)
05/10/2017	ACF_BOILER_STATE_T (1017,HOT)	Deleted Flag	N	05/09/2017 01:41:49 pm	Test, Internal User 19 (50051)

Fuel Index Tab

The required fields highlighted in yellow are for *IMM Internal Use Only*. **Do not** edit these fields unless instructed by Internal Market Monitor.



Customer and Asset Management System

IMMAC

Asset Search Change Request Search Contact Us Database: Development

Asset details as of 11/07/2019

As Of: 11/07/2019 Asset ID: Asset Name: Short Name: Effective: 09/01/2019 Asset Status: ACTIVE Lead Participant (ID): Last Updated: 06/28/2019 Updated By:

Dispatchable Intermittent

Basic Fuel Index Configuration Threshold Attachments CR History Contacts Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas6	3.160	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	0.000000
ULSDiesel	Calculated Opportunity Cost (\$/MWh):		Calculated Opportunity Cost Timestamp:						
MA_natgas2	6.47		11/21/2019 11:07:34 am						

Emission Restrictions:

Emission Restrictions:
Both *IMM* and *External Users* can enter/change data

DNE Hourly Profiles
Effective Expires
There are no hourly profiles for this asset.

Use the **Fuel Index** tab to view associated fuel input values, and *DNE Hourly Opportunity Cost* profiles



Slide 25 was updated on 12/03/2019.

Change Log

Configuration/Startup Tab

Customer Asset Management System

ASSETS | Asset Registration | IMMAC

Asset Search | Change Request Search | Contact Us | Database: Dev

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: ACTIVE

Dispatchable | Intermittent

Basic | Fuel Index | **Configuration** | Threshold | Attachments | CR History

Configurations

Configuration Status	# of Generators	Min Run Time (hrs)	Min Down Time (hrs)
Active	3	8.00	2.00

1x1

Start Time (hrs)

Cold	Intr	Hot	Hot to Cold	Hot to Intr	Notification Time (hrs)
3.50	2.00	1.50	60.00	16.00	Cold: 0.30, Intr: 0.30, Hot: 0.30

Associated Fuels

- MA_natgas1
- ULSKerosene

Startup | IO | Supplemental Energy | Reference Offer

Startup

Startup VOM (\$/Start)	Cold	Intr	Hot
	19000.000	14100.000	10100.000

Off Peak Notification Time (hrs)

Cold	Intr	Hot
0.00	0.00	0.00

Energy Startup

	Cold	Intr	Hot	Ramp/Down
Station Service (MWh)	1.660	1.630	1.630	0.840
Start (mmBTU)	26.400	26.400	26.400	
Ramp (mmBTU)	840.000	350.000	180.000	180.000

Comments: GE, 2x1 CC

Create Change Request | Change Log

Use the **Configuration** tab to review existing or add new ones; this screen will display both physical and financial values

When you select the **Configuration** tab, the **Startup** tab will automatically display and the **default** configuration will display with its corresponding values

Configuration/Startup Tab, *continued*

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Updated: 10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | **Configuration** | Threshold | Attachments | CR History

Configurations

default	Configuration Status:*	# of Generators:*	Min Run Time (hrs):*	Min Down Time (hrs):*
1x1	Inactive <input checked="" type="checkbox"/>	2	8.00	2.00

Start Time (hrs)

Cold:*	Intr:*	Hot:*	Hot to Cold:*	Hot to Intr:*
2.50	1.50	1.00	50.00	16.00

Notification Time (hrs)

Cold:*	Intr:*	Hot:*
0.30	0.30	0.30

Associated Fuels

- MA_natgas1
- ULSKerosene

Startup | IO | Supplemental Energy | Reference Offer

Startup

Cold:*	Intr:*	Hot:*
12000.000	9400.000	6400.000

Off Peak Notification Time (hrs)

Cold:*	Intr:*	Hot:*
0.00	0.00	0.00

Energy Startup

Station Service (MWh)	Cold:*	Intr:*	Hot:*	Ramp/Down:*
Start (mmBTU)	1.100	1.100	1.100	0.560
Ramp (mmBTU)	17.000	17.000	17.000	
	560.000	560.000	560.000	120.000

Comments: GE, 2x1 CC

Create Change Request | Change Log

Click the check mark to change a user-defined **Configuration Status** to **Active**

Configuration Status:*

1x1

If you have more than one configuration, select the user-defined configuration (in this example **1x1**) and the corresponding values will display

Instant Updates on IMM Preapproved Data

Configuration tab/
Configuration Status

Basic Fuel Index Configuration Threshold Attachments CR History

Configurations

default	Configuration Status:*
1x1	Inactive <input checked="" type="checkbox"/>

Click the check mark to change a user-defined Configuration Status to Active

Configuration tab/Supplemental Energy tab/Segment #1 Begin MW/Duct Firing or Upper Block

Basic Fuel Index Configuration Threshold Attachments CR History

Associated Fuels ?

Startup IO Supplemental Energy Reference Offer

Segment#1 Begin MW: Save

Upper Block/Duct Firing ?

# ↑	Type	Begin MW	Heat Rate (mmBTU/MWh)	VOM Cost (\$/MWh)
1	DF	300	8.5	1.25

Fuel Index tab/
DNE Hourly Profiles

Basic Fuel Index Configuration Threshold Attachments CR History

DNE Hourly Profiles

Effective	Expires
There are no hourly profiles for this asset.	

IO (Input/Output) Tab

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Development

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: ACTIVE | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Configurations

default

1x1

Associated Fuels

MA_natgas1

ULSKerosene

Configuration Status: Inactive | # of Generators: 2 | Min Run Time (hrs): 8.00 | Min Down Time (hrs): 2.00

Start Time (hrs)

Cold: 2.50 | Intr: 1.50 | Hot: 1.00 | Hot to Cold: 50.00 | Hot to Intr: 16.00

Notification Time (hrs)

Cold: 0.30 | Intr: 0.30 | Hot: 0.30

Startup | **IO** | Supplemental Energy | Reference Offer

IO Coefficients

Constant (a0): 134.272600 | Linear Term (a1): 7.256000 | Quadratic Term (a2): 0.000300 | Operating/Maintenance costs | Energy VOM (\$/MWh): 0.520 | No Load VOM (\$/hr): 61.000

IO Curve Source:

IMM

IO Curve Graph

Comments:

GE, 2x1 CC

Create Change Request

Change Log

There are no stand-alone heat rate values in IMMAC; *IO Coefficients* are used to calculate the average and incremental heat rates



Use the **IO** tab to view *IO Coefficients* that are used to calculate your average and incremental heat rates

IO (Input/Output) Tab, *continued*

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset: ACT

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments

Configurations

Configuration Status: Inactive | # of Generators: 2 | Min Run Time (hrs): 8.00 | Min Down Time (hrs): 2.00

Start Time (hrs)

Cold	Intr	Hot	Hot to Cold	Hot to Intr
2.50	1.50	1.00	50.00	16.00

Notification Time (hrs)

Cold	Intr	Hot
0.30	0.30	0.30

Startup | **IO** | Supplemental Energy | Reference Offer

IO Coefficients

Constant (a0)	Linear Term (a1)	Quadratic Term (a2)
134.272600	7.256000	0.000300

Operating/Maintenance costs

Energy VOM (\$/MWh)	No Load VOM (\$/hr)
0.520	61.000

IO Curve Source: IMM

IO Curve Graph

IO Curve Graph button uses the *IO Coefficients* to estimate your average and incremental heat rates

Create Change Request | Change Log

Polynomial heat input function constructed using unit fuel input (MMBtu) and electrical output (MW) data, where $MMBtu = a_0 + a_1(MW) + a_2(MW)^2$

a_0 = heat rate base (intercept term); calculated fuel requirement (per hour) to run generating unit at zero MW output

a_1 = (linear term); heat rate increment

a_2 = (quadratic term); heat increment



IO Curve Graph button uses the *IO Coefficients* to estimate your average and incremental heat rates

IO Curve Graphing Tool

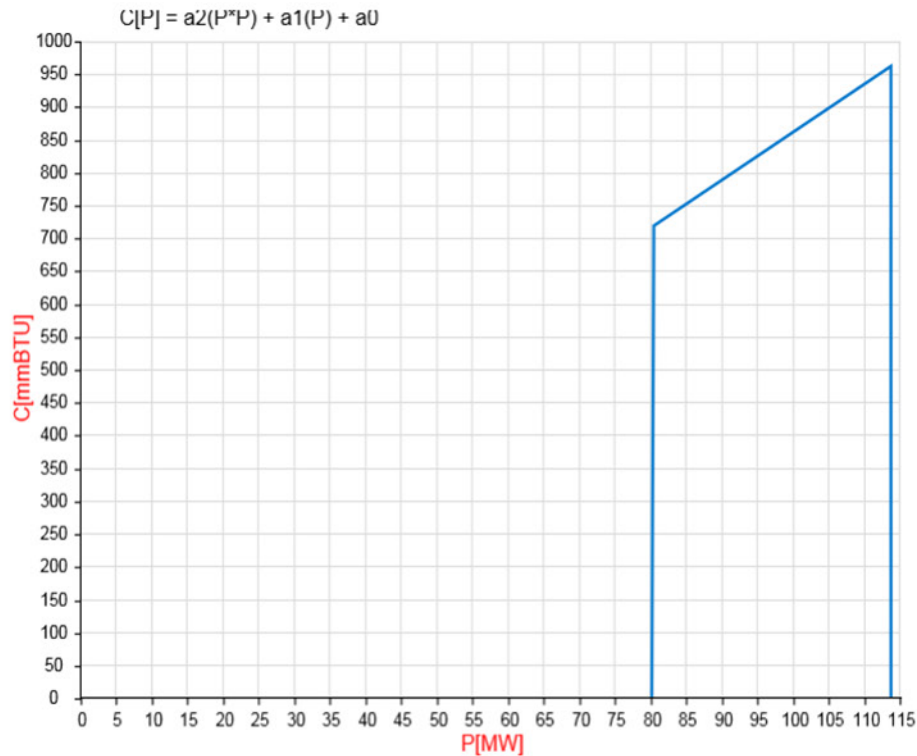
Customer Asset Management System

COMPANY | Minimum Eligibility Criteria | Asset Registration | **IMMAC**

Q Asset Search | Q Change Request Search | Contact Us | **Database: Development**

IO Curve Graphing Tool

Summer:		Winter:	
Pmin(LL)	80	80	
Pmax(CC)	103.714	113.567	
IO Coefficients			
a0:*	a1:*	a2:*	
134.2760	7.2560	0.0003	
Calculate			
MW:*	\$/mmBTU:*		
90.0000	2.0000		
Heat Rate		Cost	
mmBtu:	\$:		
Total	789.7460	1579.4920	
Average	8.7750	17.5500	
Increment	7.3100	14.6200	



Create Change Request

Change Log

Supplemental Energy Tab

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Development

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: ACTIVE | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Configurations

- default
- 1x1

Configuration Status: Active | # of Generators: 3 | Min Run Time (hrs): 8.00 | Min Down Time (hrs): 2.00

Start Time (hrs)

Cold:	Intr:	Hot:	Hot to Cold:	Hot to Intr:	Notification Time (hrs)	Cold:	Intr:	Hot:
3.50	2.00	1.50	60.00	16.00	0.30	0.30	0.30	0.30

Startup | IO | **Supplemental Energy** | Reference Offer

Segment#1 Begin MW: Save

Upper Block/Duct Firing

# ↑	Type	Begin MW	Heat Rate (mmBTU/MWh)	VOM Cost (\$/MWh)
1	DF	300	8.5	1.25

Comments: GE, 2x1 CC

Create Change Request | Change Log

Use the **Supplemental Energy** tab to preapprove values for *Upper Block* or *Duct Firing*

Reference Offer Tab

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: ACTIVE | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | **Threshold** | Attachments | CR History

Configurations

Configuration Status:*	# of Generators:*	Min Run Time (hrs):*	Min Down Time (hrs):*
Active	3	8.00	2.00

Start Time (hrs)

Cold:*	Intr:*	Hot:*	Hot to Cold:*	Hot to Intr:*
3.50	2.00	1.50	60.00	16.00

Notification Time (hrs)

Cold:*	Intr:*	Hot:*
0.30	0.30	0.30

Associated Fuels

MA_natgas1
ULSKerosene

Startup | IO | Supplemental Energy | **Reference Offer**

Cold Start%:*	Intr Start%:*	Hot Start%:*	No Load%:*
0.000	0.000	0.000	0.000

Reference Offer Segments


# ↑	Begin MW	%
No reference offer segment has been setup yet.		

Disclaimer: The values represented by the Reference Offer data elements pertain to the default fuel blends and do not correlate to the values entered in eMarket.

Comments:

GE, 2x1 CC

Use the **Reference Offer** tab to view physical limitations for actual startup and dispatch fuel blend characteristics



Threshold Tab

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/16/2017

As Of: 05/16/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: ACTIVE | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/12/2017 | Updated By: ISO MEC Approver, CAMS (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | **Threshold** | Attachments | CR History

Threshold Factor Overrides

ID ↑	Effective	Expires	Name	Description	Default	Override	Updated	Updated By
There are no threshold overrides for this asset.								

Comments:
GE, 2x1 CC

Threshold tab is used by IMM to temporarily override predefined threshold based on asset conditions

IMM Internal Use

Create Change Request | Change Log

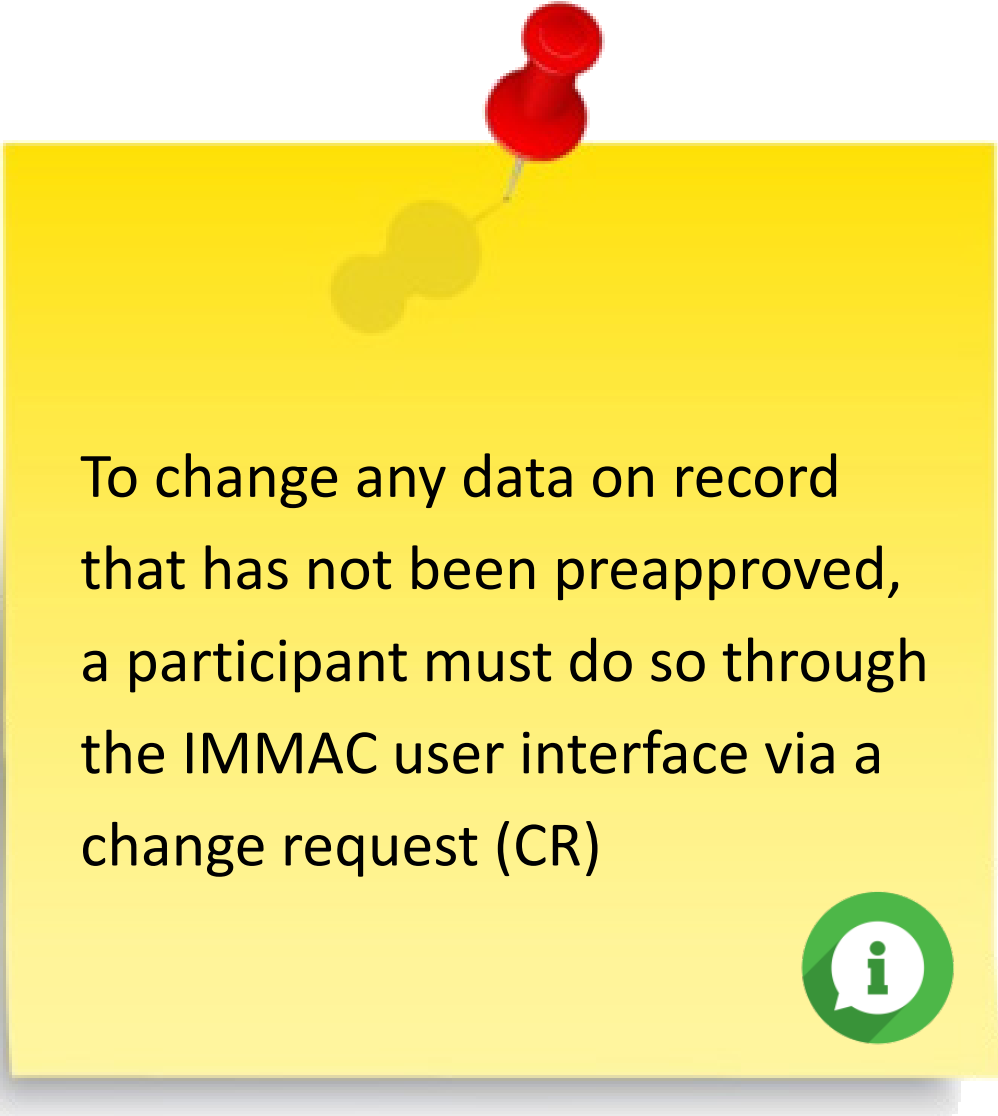


Questions

Change Request Process



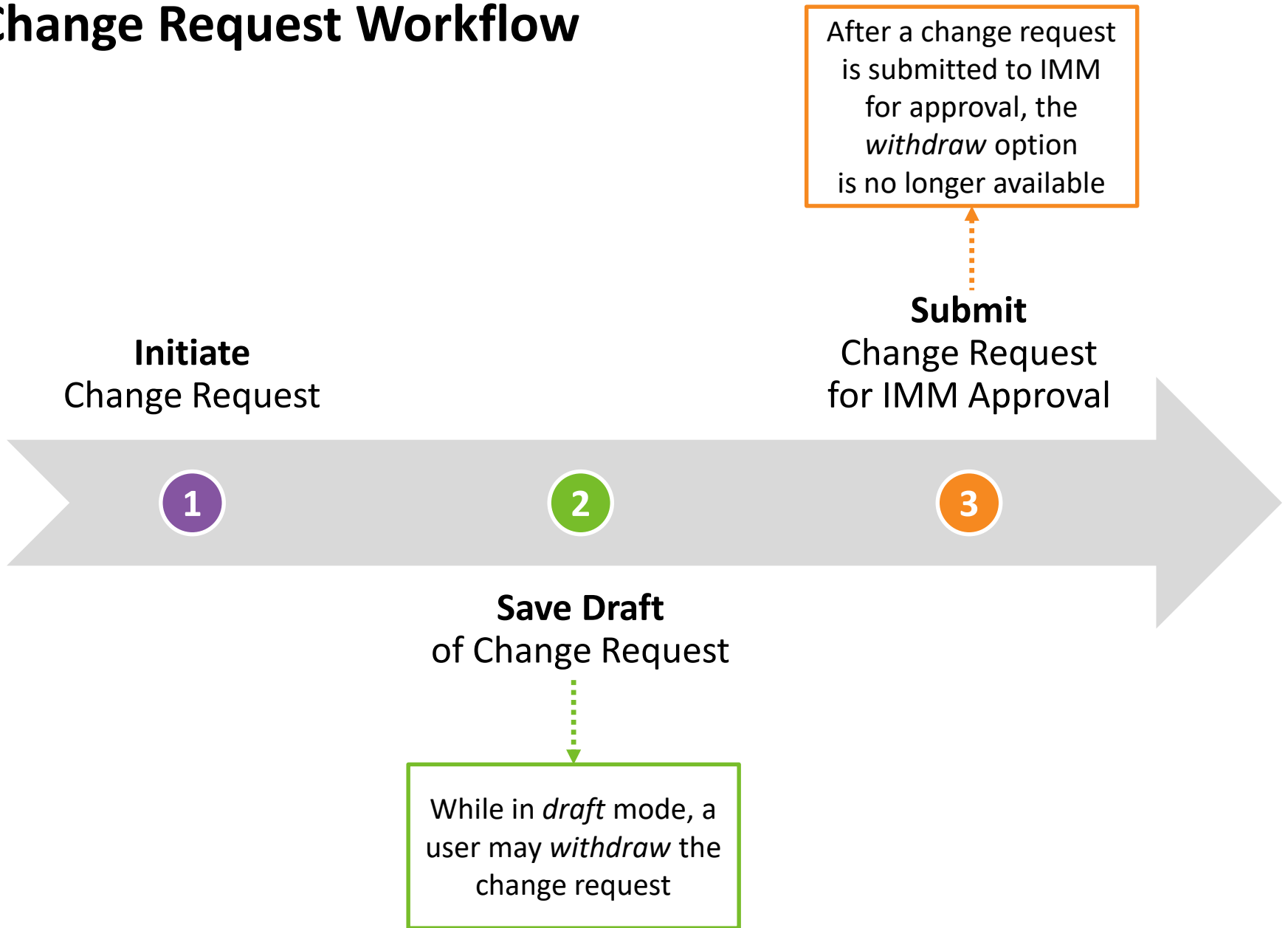
Purpose of Change Request



To change any data on record that has not been preapproved, a participant must do so through the IMMAC user interface via a change request (CR)



Change Request Workflow



Asset Search

Change requests can only be done on current or future dates



Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Select the **Asset ID** link requiring change

Asset Search | Change Request Search | Contact Us | **Datab**

Asset Search

Asset ID: Asset Name: Asset Status: As Of:

Asset ID ↑	Asset Name	Asset Status	Effective Date
49252	RJB Gen49252	PENDING	04/27/2017

Page 1 of 1 | Export

Displaying 1 - 1 of 1

Create Change Request

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/11/2017

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Off Peak:* No | Marginal Cost Reference Price:* No | RMR Contract:* No | Load Zone: | Generator Type: Combustion (Gas) Turbine | ? Help


Technology Type:* E_Class_CC | Supplemental Energy:* No | Station Service Rate (\$/kWh):* 0.000 | NRC Summer (MW): | NRC Winter (MW):

Capacity Demand Rate (\$/kVA):* 0.000 | Capacity Demand Value (kVA):* 0.000 | Min Manual Load (MW): | Min Permitted Load (MW): | Emergency Min (MW):

Comments:
GE, 2x1 CC

Create Change Request | Change Log

To initiate a change request, click the **Create Change Request** button

Changes to parameters cannot be made until the **Create Change Request** button is clicked 

Effective Date of Change Request

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/11/2017

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000)

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Off Peak:* No | Marginal Cost Reference Price:* No | RMR Contract:* No

Technology Type:* E_Class_CC | Supplemental Energy:* No | Station Service Rate (\$/kWh):* 0.000

Capacity Demand Rate (\$/kVA):* 0.000 | Capacity Demand Value (kVA):* 0.000

Generator Type: Combustion (Gas Turbine) | NRC Winter (MW):

Min Permitted Load (MW): | Emergency Min (MW):


Comments: GE, 2x1 CC

Create Change Request | Change Log

Effective Date dialog box: 05/12/2017 | **Submit**

System automatically shows default *Effective Date* of change request; click the **Submit** button to continue

Effective Date dialog box with a red box around the Submit button.

Effective Date is the date requested; *actual* Effective Date is dependent on IMM approval 

Effective Date Calendar Drop-Down Selection

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Development

Asset details as of 05/10/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000)

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Off Peak: No | Marginal Cost Reference Price: No | RMR Contract: No

Technology Type: E_Class_CC | Supplemental Energy: No | Station Service Rate (\$/kWh): 0.000

Capacity Demand Rate (\$/kVA): 0.000 | Capacity Demand Value (kVA): 0.000

Comments: GE, 2x1 CC

Create Change Request | Change Log

Effective Date: 05/11/2017

Calendar for May 2017:

S	M	T	W	T	F	S
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Today

You can also use the calendar drop-down icon to select a date; select the date and click the **Submit** button to continue

Effective Date is the date requested; *actual* Effective Date is dependent on IMM approval

Changes in *****EDIT mode*****

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Development

Changes can begin in *****EDIT mode***** within the *Basic*, *Fuel Index*, and *Configuration* tabs

Asset details as of 05/10/2017

CR Date:

05/11/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Off Peak:* No | Marginal Cost Reference Price:* Yes | RMR Contract:* No

No

Technology Type:* E_Class_CC | Supplemental Energy:* No | Station Service Rate (\$/kWh):* 0.000

Capacity Demand Rate (\$/kVA):* 0.000 | Capacity Demand Value (kVA):* 0.000

Load Zone: | Generator Type: Combustion (Gas) Turbine

NRC Summer (MW): | NRC Winter (MW):

Min Manual Load (MW): | Min Permitted Load (MW): | Emergency Min (MW):

Help

Comments:

GE, 2x1 CC

Save

Submit

***** EDIT mode *****

Exit

Change Log

Save a Draft of Change Request

Customer and Asset Management System

IMMAC

Asset Search Change Request Search Contact Us Database: Development

Asset details as of 11/07/2019

As Of: 11/07/2019 Asset ID: Asset Name: Short Name: Effective: 09/01/2019 Asset Status: ACTIVE Lead Participant (ID): Last Updated: 06/28/2019 Updated By:

Dispatchable Intermittent

Basic Fuel Index Configuration Threshold Attachments CR History Contacts Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas6	3.160	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	0.000000
ULSDiesel									
MA_natgas2									

Calculated Opportunity Cost (\$/MWh): 6.47
Calculated Opportunity Cost Timestamp: 11/21/2019 11:07:34 am

Emission Restrictions:

DNE Hourly Profiles

Effective Expires

There are no hourly profiles for this asset.

Comments:

Save Submit *** EDIT mode *** Exit Change Log

Best Practice: Click the **Save** button as soon as possible to create a draft change request

If you **Exit** during the process without saving, there will be no record of the change request



Slide 44 was updated on 12/03/2019.

Warning Message

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/11/2017

CR Date:

05/12/2017

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History | Contacts | Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas2	2.000	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	9.990000
MA_natgas6									
ULSDiesel									

Calculated Opportunity Cost (\$/MWh): 0.00 | Calculated Opportunity Cost Timestamp: 11/24/2019 06:21:36 pm

Emission Restrictions:

None.

DNE Hourly Profiles

Effective | Expires

There are no hourly profiles for this asset.

Comments:

GE, 2x1 CC

Warning

Cannot create/save a change request with no changes!

OK

Save

Submit

*** EDIT mode ***

Exit

Change Log

You must make at least one change or a *Warning* message will display and you will not be able to save



Slide 45 was updated on 12/03/2019.

ISO-NE PUBLIC

Save/Create Draft Change Request

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/11/2017

CR Date:

05/12/2017

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50351) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History | Contacts | Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas2	2.000	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	9.990000
MA_natgas6	3.160								
ULSDiesel									

Calculated Opportunity Cost (\$/MWh): 0.00 | Calculated Opportunity Cost Timestamp: 11/24/2019 06:21:36 pm

Click the **Yes** button to confirm you want to save/create a *Draft Change Request*

Click the **Save** button to save/create a *Draft Change Request*

Save CR

Click Yes to create Draft Change Request and continue editing

Yes No

Comments:

GE, 2x1 CC

Save Submit

*** EDIT mode ***

Exit

Change Log



Slide 46 was updated on 12/03/2019.

Change Request Created and Assigned Number

The screenshot displays the 'Customer Asset Management System' interface. The top navigation bar includes 'ASSETS', 'Asset Registration', and 'IMMAC'. Below this, there are links for 'Asset Search', 'Change Request Search', and 'Contact Us', along with the text 'Database: Development'. A red box highlights the header text 'Asset details as of 05/11/2017'. Another red box highlights the text 'Change Request details as of 05/11/2017'. A table below shows the following data:

CR ID:	CR Status:	CR Date:	CR Last Updated:	CR Updated By:
137672	DRAFT	05/12/2017	05/11/2017 09:22 am	99999

Below the table, there are fields for 'AS Of:', 'Asset ID:', 'Asset Name:', 'Short Name:', 'Effective:', and 'Asset Sta'. A green box highlights the 'CR ID' and 'CR Status' fields. A large green box contains the text: 'When save is complete, screen header will change from Asset details as of... to Change Request details as of... and CR ID number and CR Status will display'. A success pop-up window is shown with the text 'Success' and 'Change request 137672 created.', with an 'OK' button. A green box highlights this pop-up. Another green box contains the text: 'CR ID number is assigned and CR Status updates to DRAFT'. A final green box contains the text: 'Success pop-up window indicates change request is created and assigned a number; click the OK button to continue'. At the bottom of the interface, there are buttons for 'Save', 'Withdraw', 'Exit', and 'Change Log'.

Making Edits on Change Request Screen

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Asset details as of 05/11/2017

CR Date: 05/12/2017

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History | Contacts | Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas2	2.000	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	9.990000
MA_natgas6									
ULSDiesel	3.160								

Calculated Opportunity Cost (\$/MWh): Calculated Opportunity Cost Timestamp: 5:21:36 pm

Comments: GE, 2x1 CC

Save | Submit | ***** EDIT mode ***** | **Withdraw** | **Exit** | Change Log

Once you are on the *Change Request details* screen, you can continue to make and **Save** additional changes

Click the **Withdraw** button if you want to withdraw (cancel) the change request

Click the **Exit** button to close the change request (change request is created and all saved changes will remain)



Slide 48 was updated on 12/03/2019.

Attachments Tab

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Attachments:

- Are saved on the server for a period as required by policy
- Are added/deleted/updated instantly

The following file extensions are allowed: .txt, .csv, .pdf, and all Microsoft office files



Use the **Attachments** tab to upload supporting documentation for IMM review and approval

Attachments

CR History



To upload a document, click the + icon

Comments:

GE, 2x1 CC

Save

Submit

*** EDIT mode ***

Withdraw

Exit

Change Log

Upload Attachment Window – Asset ID and CR ID

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Development

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: DRAFT | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 09:27 am | CR Updated By: 999999709

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | **Attachments** | CR History

Files uploaded

Show files related to this change request only

File ID	CR ID	File Name	File Description
There are no attachments for this asset.			

Comments:

GE, 2x1 CC

Save | Submit | ***** EDIT mode ***** | Withdraw | Exit | Change Log

Make sure the *Upload Attachment* window has both the **Asset ID** and **CR ID** (this indicates the change request has been saved)

Upload Attachment

Asset ID:* 49252 | CR ID: 137672

File Description:*

File:*

Browse...

Submit

Upload Attachment Window – No CR ID

Customer Asset Management System

ASSETS | Asset Registration | IMMAC

Asset Search | Change Request Search | Contact Us

Asset details as of 05/10/2017

CR Date: 05/11/2017

As Of: 05/10/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Files uploaded

File ID	CR ID	File Name	File Description
There are no attachments for this asset.			

Comments: GE, 2x1 CC

Save | Submit

*** EDIT mode ***

Exit | Change Log

Important! If the *CR ID* is not present, this means you have not saved a draft of the *change request* and any documents you upload will not have a change request identifying number. If this happens, close the window and click the **Save** button.

Upload Attachment

Asset ID:* 49252

File Description:*

File:*

Browse...

Submit

Upload Attachment Window

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Databases**

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: DRAFT | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 09:27 am | CR ID: 999999709

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | **Attachments** | CR History

Files uploaded

Show files related to this change request only

File ID	CR ID	File Name	File Description
There are no attachments for this asset.			

Comments:

GE, 2x1 CC

Save | Submit

*** EDIT mode ***

Withdraw

Exit

Change Log

Enter a *File Description* and click the **Browse** button to attach the file. When finished, click the **Submit** button.

Upload Attachment

Asset ID:* 49252 | CR ID: 137672

File Description:*
Fuel Premium

File:*
W:\MARKETCOMPLIANCE\StaffFolders\Beaulieu\TESTING | Browse...

Submit

Successful Upload Message

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: DRAFT | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 09:27 am | CR Updated By: 999999709

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | **Attachments** | CR History

Files uploaded

Show files related to this change request only

File ID	CR ID	File Name	File Description
2000	137672	Fuel Premium Documentation.xlsx	Fuel Premium

Comments:
GE, 2x1 CC

Save | Submit | ***** EDIT mode ***** | Withdraw | Exit | Change Log

Success message will display indicating the file was uploaded successfully; click the **OK** button to continue

Success

Your file has been uploaded successfully.

OK

File Attached to Change Request

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: DRAFT | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 09:27 am | CR Updated By: 999999709

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | **Attachments** | CR History

Files uploaded C + ?

Show files related to this change request only

File ID	CR ID	File Name	File Description	Uploaded	Uploaded By
2000	137672	Fuel Premium Documentation.xlsx	Fuel Premium	05/11/2017 10:02 am	IMM Maintainer, ATT Test Customer 9 (50086)

Comments:
GE, 2x1 CC

Save | Submit | ***** EDIT mode ***** | Withdraw | Exit | Change Log

Shown here is a file attached to a change request

Attaching Multiple Document Files

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: DRAFT | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 09:27 am | CR Updated By: 999999709

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | **Attachments** | CR History

Files uploaded + ?

Show files related to this change request only

File ID	CR ID	File Name	File Description	Uploaded	Uploaded By
2001	137672	Fuel Premium Documentation 1.xlsx	Fuel Premium Documentation 1	05/11/2017 10:06 am	IMM Maintainer, ATT Test Customer 9 (50086)
2000	137672	Fuel Premium Documentation.xlsx			IMM Maintainer, ATT Test Customer 9 (50086)

Comments:
GE, 2x1 CC

Save | Submit | ***** EDIT mode ***** | Withdraw | Exit | Change Log

Multiple files can be uploaded by clicking on the + icon again and following the same process outlined on [slides 49-54](#)

Submit Change Request for IMM Review

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: DRAFT | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 09:27 am | CR Updated By: 999999709

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: PENDING | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History

Files uploaded

Show files related to this change request only

File ID	CR ID	File Name	Uploaded By
2001	137672	Fuel Premium Documentation 1.xlsx	IMM Maintainer, ATT Test Customer 9 (50086)
2000	137672	Fuel Premium Documentation.xlsx	IMM Maintainer, ATT Test Customer 9 (50086)

Comments:
GE, 2x1 CC

Save | **Submit** | *** EDIT mode *** | Withdraw | Exit | Change Log

Click the **Submit** button to send the change request to IMM for review

Submit Change Request for IMM Review

Customer and Asset Management System

IMMAC

Asset Search Change Request Search Bulk Upload Reference Tables Contact Us Database: Development

Asset details as of 11/07/2019

As Of: 11/07/2019 Asset ID: Asset Name: Short Name: Effective: 09/01/2019 Asset Status: ACTIVE Lead Participant (ID): Last Updated: 06/26/2019 Updated By:

Dispatchable Intermittent

Basic Fuel Index Configuration Threshold Sequence

Fuel Indexes

- MA_natgas6
- ULSDiesel
- MA_natgas2

Premium (\$/mmBTU):* 3.160 Default P (\$/mmBTU) 0.000

NOX (lbs/mmBTU):* 0.000000 SO2 (lbs/mmBTU):* 0.000000 CO2 (lbs/mmBTU):* 159.436200 Carbon Permit Price: 0.000000

Calculated Opportunity Cost (\$/MWh): 6.47 Calculated Opportunity Cost Timestamp: 11/21/2019 11:07:34 am

Emission Restrictions:

DNE Hourly Profiles

Effective	Expires
There are no hourly profiles for this asset.	

Comments:

Submit Change Request

Click Yes to Submit Change Request for ISO review

Yes No

Save Submit

*** EDIT mode ***

Withdraw Exit Change Log

Click the **Yes** button to submit the change request for ISO review

Click the **No** button to continue editing the change request



Slide 57 was updated on 12/03/2019.

Submit Change Request for Review – Success Message

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | **Database: Development**

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: PENDING | CR Date: 05/12/2017 | CR Last Upd: 05/11/2017

As Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effect: 04/2

Service: 4/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History | Contacts | Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOx (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas2	2.000	0.000	5.63	0.00	0.000			200	9.990000
MA_natgas6	3.160								
ULSDiesel									

Calculated Opportunity Cost (\$/MWh): 0.00 | Calculated Opportunity Cost Timestamp: 11/24/2019 06:21:36 pm

DNE Hourly Profiles

Effective	Expires
There are no hourly profiles for this asset.	

Comments:

GE, 2x1 CC

Change Log

Success
Change request has been submitted for review
OK

*Success message will display indicating the change request has been submitted for review; click the **OK** button to continue*



Slide 58 was updated on 12/03/2019.

Change Request Submitted

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Developer

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: **PENDING** | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 10:15 am | CR Updated By: 999999709

AS Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: **PENDING** | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History | Contacts | Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas2	2.000	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	9.990000
MA_natgas6	3.160								
ULSDiesel									

Calculated Opportunity Cost (\$/MWh): 0.00 | Calculated Opportunity Cost Timestamp: 11/24/2019 06:21:36 pm

Emission Restrictions: None.

DNE Hourly Profiles

Effective	Expires
There are no hourly profiles for this asset.	

Comments: GE, 2x1 CC

Change Log

After change request is submitted for IMM review, the *CR Status* changes from *DRAFT* to *PENDING*



Slide 59 was updated on 12/03/2019.

Change Request Submitted

Customer Asset Management System

ASSETS | Asset Registration | **IMMAC**

Asset Search | Change Request Search | Contact Us | Database: Developer

Change Request details as of 05/11/2017

CR ID: 137672 | CR Status: **PENDING** | CR Date: 05/12/2017 | CR Last Updated: 05/11/2017 10:15 am | CR Updated By: 999999709

AS Of: 05/11/2017 | Asset ID: 49252 | Asset Name: RJB Gen49252 | Short Name: RJBGen | Effective: 04/27/2017 | Asset Status: **PENDING** | Lead Participant (ID): ABC Energy, LLC (00000) | Last Updated: 05/10/2017 | Updated By: Test, Internal User 19 (50051) | In Service: 04/27/2017

Dispatchable | Intermittent

Basic | Fuel Index | Configuration | Threshold | Attachments | CR History | Contacts | Fuel Sequence

Fuel Indexes	Premium (\$/mmBTU):*	Default Premium (\$/mmBTU):*	Opportunity Cost (\$/MWh):*	Fuel Price Override (\$/mmBTU):*	Multiplier:*	NOX (lbs/mmBTU):*	SO2 (lbs/mmBTU):*	CO2 (lbs/mmBTU):*	Carbon Permit Price:
MA_natgas2	2.000	0.000	5.63	0.00	0.000	0.000000	0.000000	159.436200	9.990000
MA_natgas6	3.160								
ULSDiesel									

Calculated Opportunity Cost (\$/MWh): 0.00 | Calculated Opportunity Cost Timestamp: 11/24/2019 06:21:36 pm

Emission Restrictions: None.

DNE Hourly Profiles

Effective	Expires
There are no hourly profiles for this asset.	

Comments: GE, 2x1 CC

Change Log

After change request is submitted for IMM review, the *CR Status* changes from *DRAFT* to *PENDING*



Slide 60 was updated on 12/03/2019.

CR History Tab

Once change request is approved, you will see the message **(There are future changes for this asset)**

Use the **CR History** tab to view the current status of change request

(There are future changes for this asset)

Asset details as of

As Of: 05/11/2017 Asset ID: 49252 RJB Gen49252 RJBGen 04/27/2017 PENDING ABC Energy, LLC (00000) 05/12/2017 ISO ME In Service:

Dispatchable Intermittent

Basic Fuel Index Configuration Threshold Attachments **CR History**

CR Comment describes effective market dates

CR ID ↓	CR Date	Status	Created	Created By	Updated	Updated By	CR Comment
137672	05/12/2017	APPROVED	05/11/2017 09:22:10 am	999999709	05/11/2017 10:56:04 am	999999935	Change effective in the DA market on 05/13/2017 and in the RT market on 05/12/2017
137647	05/11/2017	DRAFT	05/10/2017 01:01:37 pm	999999709	05/10/2017 01:01:37 pm	999999709	
137607	05/11/2017	CANCELLED	05/10/2017 12:48:05 pm	999999709	05/10/2017 12:53:39 pm	999999709	No longer valid
137568	05/11/2017	PENDING	05/10/2017 10:58:03 am	999999709	05/10/2017 10:58:04 am	999999709	
135179	05/10/2017	APPROVED	05/09/2017 10:11:20 am	999999908	05/09/2017 10:28:01 am	999999935	Change effective in the DA market on 05/11/2017 and in the RT market on 05/10/2017
131244	05/10/2017	APPROVED	05/02/2017 11:54:55 am	999999908	05/09/2017 01:41:50 pm	999999919	Change effective in the DA market on 05/11/2017 and in the RT market on 05/10/2017

If change request is withdrawn, its *Status* will show as *CANCELLED*

Created By column displays a user-specific CAMS ID

Comments: GE, 2x1 CC

Create Change Request

Change Log

Email Notification Confirming Change Request

Only MM primary contact and MM secondary contacts will receive email notifications



From: noreply@iso-ne.com
To:
Cc:
Subject: IMM Asset Characteristics – Changes Pending

ISO-NE CONFIDENTIAL

Dear ATT Test Customer 1 IMM Admin,

An Asset Characteristics Change request for Asset RJB Gen49252 (ID# 49252) has been submitted to the ISO New England Inc. Internal Market Monitor with a Desired Implementation date of 05/12/2017.

Please review the submitted details in the CAMS IMM Asset Characteristics System.

Sincerely;
Internal Market Monitor
ISO New England

The information in this message is intended solely for the addressee(s) listed above. If you have received this message in error, please notify us immediately and delete the original message. This email was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.



The information contained in this email is fictitious and is for illustrative purposes only.

Email Notification for Results of IMM Review

Only MM primary contact and MM secondary contacts will receive email notifications



From: noreply@iso-ne.com
To:
Cc:
Subject: IMM Asset Characteristics – Request for change has been Approved

ISO-NE CONFIDENTIAL

Dear ATT Test Customer 1 IMM Admin,

An Asset Characteristics Change request for Asset RJB Gen49252 (ID# 49252) has been approved by the ISO New England Inc. Internal Market Monitor with an Implementation date of 05/12/2017.

Please review asset details in the CAMS IMM Asset Characteristics System.

Sincerely;
Internal Market Monitor
ISO New England

The information in this message is intended solely for the addressee(s) listed above. If you have received this message in error, please notify us immediately and delete the original message. This email was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.



The information contained in this email is fictitious and is for illustrative purposes only.

Email Notification for Participant Withdrawal

Only MM primary contact and MM secondary contacts will receive email notifications



From: noreply@iso-ne.com
To:
Cc:
Subject: IMM Asset Characteristics – Request for change has been Withdrawn

ISO-NE CONFIDENTIAL

Dear ATT Test Customer 1 IMM Admin,

An Asset Characteristics Change request for Asset RJB Gen49252 (ID# 49252) has been Withdrawn.

Please review asset details in the CAMS IMM Asset Characteristics System.

Sincerely;
Internal Market Monitor
ISO New England

The information in this message is intended solely for the addressee(s) listed above. If you have received this message in error, please notify us immediately and delete the original message. This email was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.



The information contained in this email is fictitious and is for illustrative purposes only.

Email Notification from IMM Review Process – Reject

From: noreply@iso-ne.com
To:
Cc:
Subject: IMM Asset Characteristics – Request for change has been Rejected

Only MM primary contact and MM secondary contacts will receive email notifications



ISO-NE CONFIDENTIAL

Dear ATT Test Customer 1 IMM Admin,

An Asset Characteristics Change request for Asset RJB Gen49252 (ID# 49252) has been Rejected.

Please review asset details in the CAMS IMM Asset Characteristics System.

Sincerely;
Internal Market Monitor
ISO New England

The information in this message is intended solely for the addressee(s) listed above. If you have received this message in error, please notify us immediately and delete the original message. This email was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.



The information contained in this email is fictitious and is for illustrative purposes only.

Email Notification from IMM Review Process – Rework

Only MM primary contact and MM secondary contacts will receive email notifications



From: noreply@iso-ne.com
To:
Cc:
Subject: IMM Asset Characteristics – Rework of request is required

ISO-NE CONFIDENTIAL

Dear ATT Test Customer 1 IMM Admin,

An Asset Characteristics Change request for Asset RJB Gen49252 (ID# 49252) has been returned to its originator for rework by the ISO New England Inc. Internal Market Monitor.

Please review the submitted details in the CAMS IMM Asset Characteristics System.

Sincerely;
Internal Market Monitor
ISO New England

The information in this message is intended solely for the addressee(s) listed above. If you have received this message in error, please notify us immediately and delete the original message. This email was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.



The information contained in this email is fictitious and is for illustrative purposes only.



Questions

Unit Activation

Unit Activations

- Coordinated through asset registration process
- Must have CAMS and IMMAC access rights
- New asset must be assigned:
 - Lead Participant ID
 - Asset ID
 - Short Name
- Asset will be assigned a **Pending** status in CAMS
- Participants will update asset characteristics by using the change request process
 - Change request can be updated over time as technical information is received
- Process must be completed one week prior to commercial operation

IMMAC Implementation Details

IMMAC Access Roles in CAMS

Roles and Abilities



Tomorrow

Role Types

View 

Edit 

Two application roles with different abilities

Role	Lead Participant
<p>1</p> <p>External IMMAC Maintainer</p> 	<p>Maintain, update, and submit IMMAC asset parameter changes and view current and historical data for assets</p>
<p>2</p> <p>External IMMAC Viewer</p> 	<p>View current and historical data for assets</p>

Lead participant can assign these roles to additional users, but email notifications for change requests will **ONLY** be sent to IMM primary and secondary contacts

View is based on lead participant not unit specific contacts



IMMAC *Sandbox* Access



- Individuals in CAMS with either the *IMM primary or secondary* contact type have been granted the **External IMMAC Maintainer** role in CAMS as of June 5, 2017
 - All users meeting the above criteria will have sandbox access by end of the day
- Prior to the sandbox, if you did not have access to CAMS or any ISO applications, you will receive an email with instructions to process a digital certificate

Sandbox will be available June 19 through July 11, 2017



IMMAC *Go Live* Access



- Individuals in CAMS with either the *IMM primary or secondary* contact type have been granted the **External IMMAC Maintainer** role in CAMS as of June 29, 2017
 - All users meeting the above criteria will have production access on July 11, 2017
- Additional changes to access roles (**External IMMAC Maintainer** and **External IMMAC Viewer**) are the lead participants responsibility

Security Administrator

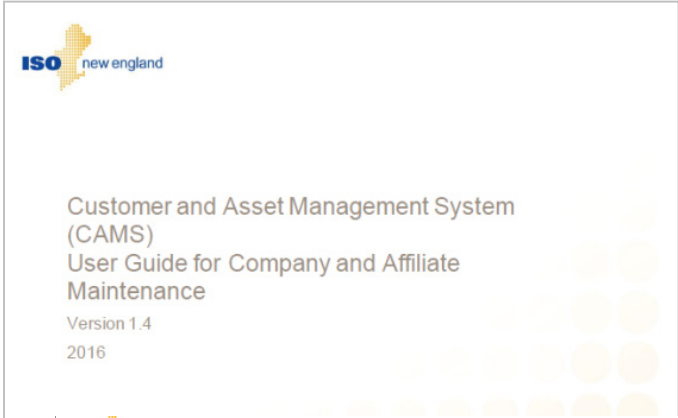
Today

Tomorrow

Security administrator is responsible for:

- Adding individuals to CAMS
- Assigning application roles
- Issuing digital certificates

Security Administrator **cannot** assign contact types (IMM primary or IMM secondary) directly in CAMS. Only ISO can make these types of assignments, which is done via a request from the lead participant through [Ask ISO](#).



Customer and Asset Management System (CAMS) Application Group Roles

Access to the following ISO New England applications and file groups is available through the Customer Asset Management System (CAMS). Prior to accessing most issued by ISO New England and have their company's Security Administrator assign the appropriate access level in CAMS. Applications that do not require a certificate.

The Application Group Roles tab identifies the available roles and their function for each application or group listed below.

If you need to know who your company's Security Administrator is or have any other questions regarding access to these applications, please contact ISO-NE Customer Support.

CAMS Application Names	Application Description	Application Access Location	Corresponding Application page or other
A&TT	The DR Audit and Testing Tool is used for the submittal, scheduling and maintenance of Demand Resource seasonal audits.	SMD Home Page	DR Audit and Testing Tool
Ask ISO	Ask ISO is a user interface for market participants to submit questions, requests and registration forms, (all classified as Issues in Ask ISO) directly to Customer Support.	SMD Home Page	Ask ISO
CEII Materials External Access	CEII Materials External Access allows individuals with a valid digital certificate to view various NEPOOL committee material posted on the ISO-NE website.	ISO-NE secure email ISO-NE.com website committee page	CEII Document Administration ISO-NE.com website committee page
Citrix Sharefile LCC Citrix Sharefile TO Citrix Sharefile DDE	Members of certain task force groups and special committees can access study data for analysis, meeting materials, or otherwise restricted data related to the committees on which they serve	Link to documentation or account user ID and password delivered via email	Citrix Sharefile LCC Citrix Sharefile TO Citrix Sharefile DDE
Claimed Capability Auditing Tool	The Claimed Capability Auditing Tool is used by Lead Participants of generation resources to generate audit reports, submit audit	SMD Home Page	Claimed Capability Auditing Tool



To view, click on the image

Go Live Date



Slide 75 was updated on 12/03/2019.



Questions

References and Contact Information

Useful References

- [CAMS User Guide](#)
- [Internal Market Monitor Asset Characteristics \(IMMAC\) Project](#)
web page
- [Market Rule 1, Appendix A](#)

The screenshot shows the ISO New England website. At the top left is the ISO New England logo with a '20 years' anniversary mark. A search bar is in the top right. Below the logo is a navigation menu with links: About Us, Participate, Committees and Groups, System Planning, and Markets and Operations. The main content area is titled 'Internal Market Monitor Asset Characteristics (IMMAC) Project'. A sidebar on the left lists projects under the heading 'IN THIS SECTION', with 'Internal Market Monitor Asset Characteristics (IMMAC) Project' highlighted. The main text area contains a paragraph about the project and a list of links: Project Overview, Required Customer Actions, Customer Training Opportunities, and Technical Documentation, Rules, and Procedures. Below this is a 'Project Overview' section with a 'Target launch: July 2017'.



To view, click on the image

Internal Market Monitor (IMM) Contact Information



imm@iso-ne.com



For questions **about asset parameters**, contact IMM

For questions **about the IMM MAC UI**, contact ISO's Customer Support department

Customer Support Information



Ask ISO (preferred)

- Self-service interface for submitting inquiries
- Accessible through the SMD Applications Homepage
- Requires a valid digital certificate with the role of Ask ISO/External User (Contact your security administrator for assistance)

Other Methods of Contacting Customer Support

Method	Contact Information	Availability
Email	custserv@iso-ne.com	Anytime
Phone*	(413) 540-4220	Monday through Friday 8:00 a.m. to 5:00 p.m. (EST)
Pager (emergency inquiries)	(877) 226-4814	Outside of regular business hours

* Recorded/monitored conversations



Evaluations

Appendix

Parameter Names and Descriptions

Asset Details

Parameter	Parameter Description
As of:	IMMAC database parameter state, as of the date indicated
Last Updated:	Date of last IMMAC update
Updated by:	Person performing IMMAC update
In Service date:	Date asset was put into service (CAMS data)
Effective Date:	Date of last entry in the CAMS change log (CAMS data)

Basic Tab

Parameter	Parameter Description
Off Peak: *	A <i>yes</i> selection will invoke the off-peak notification times defined on the Configuration/Startup tab, superseding the default notification times
Marginal Cost Reference Price: *	A <i>yes</i> selection will invoke a marginal cost reference level for the asset, superseding the default <i>Order of Reference Level</i> calculation outlined in Appendix A
RMR Contract: *	Indicates that a Reliability Must Run (RMR) agreement is in place
Technology Type: *	IMM internal classification
Supplemental Energy: *	Used to activate a predefined <i>Duct Firing</i> or any other power augmentation (<i>Upper Block</i>) that is implemented above the normal output range of the unit
Station Service Rate (\$/kWh): *	The cost sometimes charged if a retail utility rate is used in place of the default locational marginal price (LMP) station service rate
Capacity Demand Rate (\$/kVA): *	The cost sometimes charged to large commercial or industrial users for the intermittent use of large amounts of electricity; default is zero
Capacity Demand Value (kVa): *	Demand power requirements if a capacity demand charge is included in startup cost. Default is 0. Must be supplied if <i>capacity demand rate</i> is submitted.

Fuel Index Tab

Parameter	Parameter Description
Premium (\$/mmBTU):*	Variable fuel transportation costs; fixed expenses are excluded
Default Premium (\$/mmBTU):*	IMM internal use
Opportunity Cost (\$/MWh):*	Costs may include but are not limited to, economic costs associated with complying with emissions limits, water storage limits, and other operating permits that limit production of energy
Calculated Opportunity Cost (\$/MWh):	IMM Calculated value, not user editable
Calculated Opportunity Cost Time Stamp (Date/Time):	IMM value, not user editable, indicates time stamp of the most recent ISO calculated Opportunity Cost
Fuel Price Override (\$/mmBTU):*	IMM internal use
Multiplier:*	IMM internal use
NOX (lbs/mmBTU):*	NOX content of the corresponding fuel (used only if emission cost applicable)
SO2 (lbs/mmBTU):*	SO2 content of the corresponding fuel (used only if emission cost applicable)
CO2 (lbs/mmBTU):*	CO2 content of the corresponding fuel (used only if emission cost applicable)
Carbon Permit Price (\$/metric ton):	IMM Calculated value, not user editable, currently MA state requirement only
Emission Restrictions:	Comments used to describe any operating restrictions imposed due to emissions restrictions
Fuel Price Override (\$/mmBTU):*	IMM internal use
Multiplier:*	IMM internal use



Slide 85 was updated on 12/03/2019.

Configuration Tab

Parameter	Parameter Description
Configuration Status:*	If asset has multiple configurations, the field will display the <i>Active</i> or <i>Inactive</i> status. To change configurations, make a selection and click the check mark next to the <i>Status</i> field. Configurations can be created through the CR process. Once approved the user can change configurations based on the daily physical station characteristics.
# of Generators:*	The number of generators per configuration
Min Run Time (hrs):*	The minimum number of hours of operation at or above economic minimum (ecom) that the generator owner requires the ISO to recognize when committing the resource. The minimum run time applies from the point where the generator is scheduled to be released for dispatch by the ISO from ecom, to the point where the ISO releases the generator for shutdown from ecom.
Min Down Time (hrs):*	The minimum number of hours that the generator owner requires between the time the generator is released for shutdown by the ISO and the time the generator is scheduled to be released for dispatch to the ISO

Configuration Tab

Parameter	Parameter Description
Start Time (hrs)	
Cold:*	The number of hours elapsed between when generator asset connects to the grid at 0 MW and generator is released for dispatch at the economic minimum (ecomin) limit from a cold start condition
Intr:*	The number of hours elapsed between when generator asset connects to the grid at 0 MW and generator is released for dispatch at the ecomin limit from an intermediate start condition
Hot:*	The number of hours elapsed between when generator asset connects to the grid at 0 MW and generator is released for dispatch at the ecomin limit from a hot start condition
Hot to Cold:*	The time from de-synchronization that cold conditions apply
Hot to Intr:*	The time from de-synchronization that intermediate conditions apply
Notification Time (hrs)	
Cold:*	The number of hours elapsed between when generator asset receives a startup order from ISO and when generator asset connects to the grid at 0 MW from a cold operating condition
Intr:*	The number of hours elapsed between when generator asset receives a startup order from ISO and when generator asset connects to the grid at 0 MW from an intermediate operating condition
Hot:*	The number of hours elapsed between when generator asset receives a startup order from ISO and when generator asset connects to the grid at 0 MW from a hot operating condition

Configuration/Startup Tab

Parameter	Parameter Description
Startup	
Startup VOM (\$/Start) Cold:*	Variable operating and maintenance (VOM) costs incurred directly related to unit startup from a cold condition
Startup VOM (\$/Start) Intr:*	VOM costs incurred directly related to unit startup from a condition that is neither hot nor cold
Startup VOM (\$/Start) Hot:*	VOM costs incurred directly related to unit startup from a hot condition
Off Peak Notification Time (hrs) Cold:*	Notification times that are only applied in off peak hours that will replace the units default notification times. Peak hours are defined in New England as the weekday hours between 8:00 a.m. and 11:00 p.m., excluding NERC holidays.
Off Peak Notification Time (hrs) Intr:*	
Off Peak Notification Time (hrs) Hot:*	

Configuration/Startup Tab

Parameter	Parameter Description
Energy Startup	
Station Service (MWh) Cold:*	Total station use minus normal base station electrical use from initiation of start sequence to breaker closing from a cold condition
Station Service (MWh) Intr:*	Total station use minus normal base station electrical use from initiation of start sequence to breaker closing from a condition that is neither hot nor cold
Station Service (MWh) Hot:*	Total station use minus normal base station electrical use from initiation of start sequence to breaker closing from a hot condition
Station Service (MWh) Ramp/Down:*	Total station use minus normal base station electrical use from initiation of shut-down sequence to completion of the shutdown process
Start (mmBTU) Cold:*	Fuel requirement from initial fire of start process to breaker close from a cold condition
Start (mmBTU) Intr:*	Fuel requirement from initial fire of start process to breaker close from a condition that is neither hot nor cold
Start (mmBTU) Hot:*	Fuel requirement from initial fire of start process to breaker close from a hot condition

Configuration/Startup Tab

Parameter	Parameter Description
Energy Startup	
Ramp (mmBTU) Cold:*	Fuel requirement from breaker close to 75% of ecomin from a cold condition
Ramp (mmBTU) Intr:*	Fuel requirement from breaker close to 75% of ecomin from a condition that is neither hot nor cold
Ramp (mmBTU) Hot:*	Fuel requirement from breaker close to 75% of ecomin from a hot condition
Ramp (mmBTU) Ramp/Down:*	Fuel requirement from 75% of ecomin to completion of the shutdown process

Configuration/IO Tab

Parameter	Parameter Description
IO Coefficients	The IO Coefficients are used to estimate a generator's average and incremental heat rates that are necessary in determining the marginal cost of energy throughout the operating range
Constant (a0):*	Polynomial heat input function constructed using unit fuel input (MMBtu) and electrical output (MW) data, where $MMBtu = a0 + a1(MW) + a2(MW)^2$
Linear Term (a1):*	a0 = heat rate base (intercept term); the calculated fuel requirement (per hour) to run the generating unit at zero MW output
Quadratic Term (a2):*	a1 = (linear term) is heat rate increment a2 = (quadratic term) is heat rate increment
IO Curve Source:*	Origin of the IO curve coefficients
Operating/Maintenance costs	
Energy VOM (\$/MWh):*	Variable operating and maintenance (VOM) costs directly related to the level of MW output (\$/MWh)
No Load VOM (\$/hr):*	VOM costs incurred directly to the operating hours of the unit (\$/hour)
IO Curve Graph Tool	Tool that will estimate average and incremental heat rate based on the IO coefficients; default is current values on record of the unit

Configuration/Supplemental Energy Tab

Parameter	Parameter Description
Segment #1 Begin MW:	MW value defining the beginning of the duct fire or Upper Block range
# ↑	Duct fire or Upper Block range segment number (not the offer segment number)
Type	UB (Upper Block) or DF (Duct Fire).
Begin MW	MW value where duct fire or other type of supplemental energy (Upper Block) begins
Heat Rate (mmBTU/MWh)	Duct firing heat rate
VOM Cost (\$/MWh)	VOM cost that may be associated with the Upper Block or Duct Firing range

Configuration/Reference Offer Tab

Parameter	Parameter Description
Cold Start%:	Fuel percentage blend for a cold start condition
Intr Start%:	Fuel percentage blend for an intermediate start condition
Hot Start%:	Fuel percentage blend for a hot start condition
No Load%:	No load fuel percentage blend

Thresholds Tab

Parameter	Parameter Description
ID ↑	Threshold parameter
Effective	Implementation date of parameter
Expires	Expiration date of parameter
Name	Name of parameter
Description	Description of parameter
Default	Default value of parameter
Override	Threshold override value
Updated	Date updated
Updated By	Analyst name

Attachments Tab

Parameter	Parameter Description
File ID	IMM internal designation
CR ID	Number assigned to discreet change request
File Name	Name of file uploaded
File Description	Brief description of file contents
Updated	Date of file upload
Updated By	CAMS ID number of person uploading file

CR History Tab

Parameter	Parameter Description
CR ID ↓	Number assigned to discreet change request
CR Date	Effective date when the changes will be applied if the request is approved
Status	Draft, Pending, Approved, Rejected, Cancelled
Created	Date when the change request was created
Created By	CAMS ID number of person who created the change request
Updated	Date when the change request was last updated
Updated By	CAMS ID number of person who last updated the change request