Draft

Technical Interface Specification
For Master File Data Exchange Services

Version: 4.1.1

Revision History

Date	Version	Description
05/29/09	1.13	Project First Released Version.
12/15/09	2.1	Project MSG input date introduced into SubmitGeneratorRDT & RetrieveGeneratorRDT Services
2/4/10	2.2	• Renamed “transitionTime” to “transitionRampTime” • Converted “Time” attributes from integer data type to float • Added location for B2B Security Specification
06/15/10	2.3	Updated description for CERT_PIRP to include values ‘M’ and ‘Q’. Updated description for PRIOR_TYPE.
1/24/11	2.5	Added SUCostBasis, MLCostBasis, hourlyPredispatch, certifiedDAM, certifiedRTM, and strandedLoad to GRDT. Removed costBasis from GRDT. Added strandedLoad to IRDT.
6/21/2011	2.6	MF changes for 2011 Fall Release (including RDRP, Group Constraints project, as well as maintenance change).
7/6/2011	2.7	Updated to show 2 new Group Constraint (Pump) attributes will be modifiable. Leaving Fuel Cost Curve untouched.
8/5/2011	2.8	Modify Intertie services for Winter Release (NRS RA and other updates). Adding 3 columns, removing 5 columns.

Date	Version	Description
9/15/2011	2.9	For Interties, moved Stranded_Load after Wheeling Reference Number.
9/30/2011	2.10	Added 5 columns to GRDT for NGR-REM. Made Startup_Ramp_Time read-only at the Resource and Configuration level. Made Cert_Spin, Cert_NSpin_DAM, Cert_NSpin_RTM, and Cert_Reg modifiable.
12/9/11	2.11	Fixed MinOn and MinOff typos.
7/12/11	2.12	Updated for NGR, RMTG, GHG, and MLCA. Added 4 modifiable and 5 non-modifiable attributes to the Generator RDT. Renamed CONT_ENERGY_LIMIT to MAX_CONT_ENERGY_LIMIT in GRDT. Added MLCA (non-modifiable) to Intertie RDT.
11/7/12	2.13	Removed CERT_REG at Resource and Configuration level. Added CERT_REG_DOWN and CERT_REG_UP at Resource and Configuration level.
9/13/13	2.14	Removed RA Flag and RA Capacity from IRDT and GRDT. Removed Default RA Provider and Default RA Path Sequence from GRDT. Added Serve Load Only to IRDT. Added Min Load MMA and Startup MMA to Resource and Configuration (GRDT). Added CERT_BLKSTRT to GRDT. Added RA Range Min and Max to GRDT. Added VER Flag and Forecast Selection for FERC 764.
10/3/13	2.14.1	Renamed FORECAST_OWNER to FORECAST_SELECTION in RDT (xls).
10/10/13	2.14.2	Renamed VER_YN to VER in RDT (xls). Redacted changes

Date	Version	Description
		to IRDT since Circular Scheduling is no longer part of Spring 2014.
12/9/13	2.14.3	Added HR_PRE_DISP to IRDT. RA Flag and RA Capacity have been removed from IRDT. Hourly Pre-dispatch is modifiable in GRDT and IRDT.
2/19/2014	2.14.4	Added explanation for namespace differences
03/05/2014	3.0	Added EIM Participation Flag and Host Control Area (BAA).
4/7/2014	3.0.1	Updated per Web Posting request.
5/22/2014	3.1	Added new section for Aggregated Generators
5/29/2015	3.2	Added GHG Cost (EIM Y1) and Startup Flag (CCE2); added Version to Message Header
7/16/2015	3.3	Added 'DYN' (Dynamic Interchange) as a valid Energy Type for Interties
9/23/2015	3.4	Change Use Limit flag to Modifiable (previously non-modifiable)
4/5/2016	3.5	In GRDT: Added O&M Adder, Transition Midpoint MW, and Transition Midpoint Time; Removed Green House Gas Cost, MOO Flag, Stranded Load, Config Startup Heat Input, Transition Fuel, Transition Energy, and Max Transition Cost.
3/27/2017	4.0	In GRDT: Added Electric Region, Commercial Operation-for-Market MW, Market Max Daily Starts, Energy Adder Type, Run Hours Adder Type, Start Adder Type, Market Ramp Rate (Resource and Config level), Market Max Daily Transitions,

Date	Version	Description
		CT Start Count (Config and Transition level).
6/2/2017	4.1	Changed m:commercialOperationToMarket element name to m:commercialOperationForMarket
6/30/2017	4.1.1	Replace CT Start Count with Implied Starts. Remove Energy Adder Type, Run Hours Adder Type, and Start Adder Type. Market Ramp Rate (Resource and Config) applies to Operational, Operating Reserve, and Regulation Ramp types.

TABLE OF CONTENTS

1 Introduction

1.1 Purpose

This document describes the Market Participant interface to CAISO's Master File Data Exchange Services. It provides the WSDL, XSD, and XML information required by application programmers to create and send messages and to process response messages.

1.2 Contact Information

Please email any questions regarding business content (business scenarios, data definitions, etc.) to RDT@caiso.com. Please email any questions regarding integrating applications with CAISO's Master File's web services, usage of the APIs, or API development to SOAIntegrationGroup@caiso.com

1.3 Release Notes for Master File Data Exchange Version 4.0

Release 4.0 includes the addition of several new Generator attributes including:

1. Resource – Electric Region, Commercial Operation-for-Market MW, Market Max Daily Starts, Energy Adder Type, Run Hours Adder Type, Start Adder Type
2. Configuration – Count CT Starts
3. Transition – Count CT Starts, Market Max Daily Transitions
4. Ramp Rate (Resource and Configuration) – Market Ramp Rate

1.4 Location of .XSD and .WSDL files

The file names are listed in the Operational Details section of each service. All posted files can be found at the link below. The posted XSD represents the payload, all the supporting details including all the XSDs and WSDLs for each service are included in the posted zip file.

Fall 2017 Release

1.5 Related Documents

CAISO has produced a set of documents describing its web services architecture and associated interfaces to the Bidding, Market Results, and Sandbox Services. *CAISO's Market Notification Services Design* is the top-level document in this set; Market Participants and their application programmers should read this document to gain an overall understanding of CAISO's web services architecture prior to reading any of the detailed documents shown below.

Please refer to the Appendix 2 – Getting Access to Master File API for access information.

Access to the Master File API follows the same standards as existing CAISO market services. Client Development should follow similar patterns.

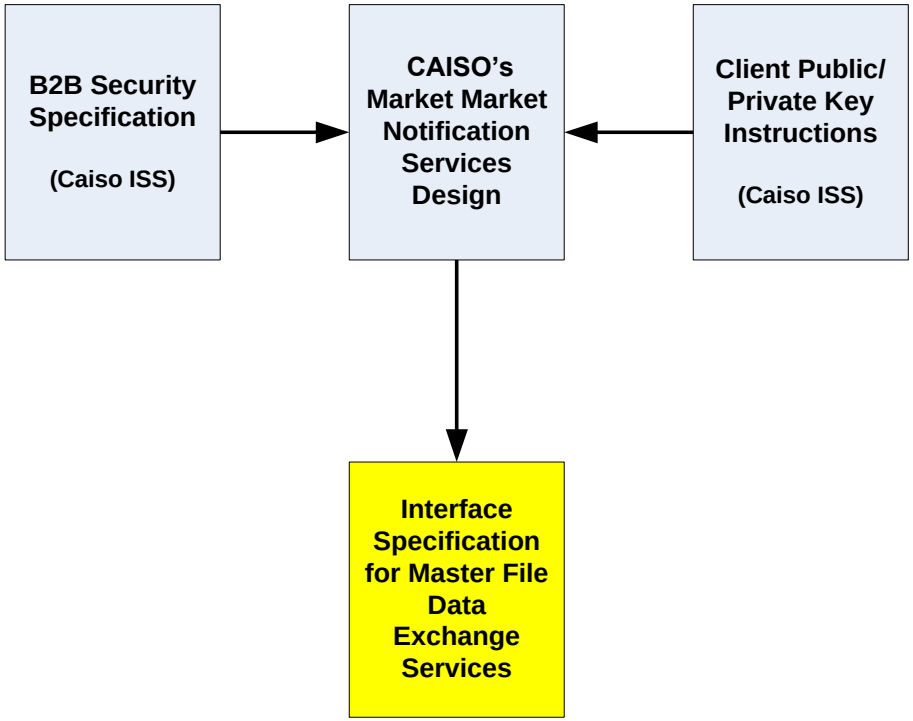

Figure 1 – Web Services Interface Specification Document Set

The Web Services Interface Specification Document Set is available online at the locations indicated below.

Doc. No.	Document Name	Location
1	B2B Security Specification	https://portal.caiso.com (you must have access to SIBR or CMRI)
2	California ISO Market Notification Service Design	http://www.caiso.com/Documents/MarketNotificationServiceDesign.pdf
4	Interface Specification for Master File Data Exchange Services	http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx

2 Services Overview

The Web Services provided to support the Master File Data Exchange are intended for external Market Participants usage.

2.1 External Market Participant Web Services

The external Market Participant Web Services for Master File Data Exchange are:

Service	Schema	Use
submitIntertieRDT_v1.wsdl submitIntertieRDT_v1_DocAttach.wsdl	IntertieRDT_v1.xsd	Allows the Market Participants to submit updates to Intertie resources.
retrieveIntertieRDT_v1.wsdl retrieveIntertieRDT_v1_DocAttach.wsdl	IntertieRDT_v1.xsd	Allows the Market Participants to retrieve 1 or all Intertie RDTs for a particular SC ID.
submitGeneratorRDT_v4.wsdl submitGeneratorRDT_v4_DocAttach.wsdl	GeneratorRDT_v4.xsd	Allows the Market Participants to submit updates to Generator Resources.
retrieveGeneratorRDT_v4.wsdl retrieveGeneratorRDT_v4.wsdl	GeneratorRDT_v4.xsd	Allows the Market Participants to retrieve 1 or all Generator RDTs for a particular SC ID.

retrieveRDTSubmissionStatus.wsdl	RDTSubmissionStatus.xsd	Allows the Market Participants to request the status of batch submissions of RDTs.
retrieveApprovedResourceChanges.wsdl	ApprovedResourceChanges.xsd	Allows the Market Participants to request a list of approved resources that are about to become effective based on a date range.

2.2 Service Dependencies

There are dependencies between the submit services (IntertieRDT and GeneratorRDT) and the retrieveRDTSubmissionStatus. The consumer of the submit services should expect to wait for at least 30 minutes for the results of the submission to become available to the Submission Status service. The submission service submits a request to a work queue that ensures a short transaction time. When the system is ready, it picks up the submission request and processes it. Updating of the submission status may be delayed due to the size and number of submissions on the queue and the content of each submission.

The retrieve (IntertieRDT and GeneratorRDT) services are not directly related to the submit services since the retrieve service returns only approved resource information. The submission service initiates the data change request, but CAISO staff must approve the changed data before the changes can become effective. There will be a lag of up to 24 hours between the time the data change was approved and when it will be available to the Retrieve Service.

The Retrieve Approved Resource Changes service has business dependency on the submit services and the business approving their requests. Additionally there is a lag of up to 24 hours based on the time of approval until the information is available for a resource to show up on the Approved Resource Changes output.

3 Submit Intertie RDT

3.1 *Business Scenario*

Scheduling Coordinators submit Intertie RDT updates to modify particular data parameters of their existing resources in the Master File. While many Scheduling Coordinators submit their RDT updates via the UI manually, some Scheduling Coordinators will submit their RDT updates in batch mode through an automated process using this API. This service allows only updates to RDT (Resource) information. Other functionality, such as adding or deleting resources, is not currently available through this automated process.

3.2 Service Level Agreement

The following service level agreement defines the business and technical requirements for service availability and performance.

Service availability	Service level goal is 99%.
Expected size of payload (average and maximum)	The intertie batch payload average size is 2.5k and the max size is 4MB (basing it on 1500 resources)
Expected frequency (average and maximum)	Average of 2 and maximum of 200 updates per day
Longest time the service can be unavailable before business is impacted	One Day
Business impact if is unavailable	Schedule Coordinators utilizing the service may not complete submitting all their updates. They would have to wait longer for updates to be available. CAISO has a minimum 5 business day turn around time based on Tariff
Expected response time for the service	60 Seconds

3.3 *Use Model*

The service interaction between Scheduling Coordinators and the Master File System is a synchronous submission process.

The data exchange follows CAISO SOA Submit messaging pattern. In this pattern, the data source system is the Scheduling Coordinator who initiates a data transaction by invoking a submitIntertieRDT service provided by Master File. The consumer of the Web service is Scheduling Coordinator or a Web portal. The consumer makes a request to Master File with Intertie RDT resource data by invoking the submit Web service. The Master File system is the provider of the Web service.

The following steps are involved in the submission process:

1) Scheduling Coordinator prepares the Intertie RDT Update data set in XML format, which includes all data fields. Not providing a field indicates that, you want to remove the existing data.
2) Scheduling Coordinator validates the data set is compliant with the XML schema.
3) Scheduling Coordinator invokes the SubmitIntertieRDT Web Service directly to send a request to Master File with the Intertie RDT resource data set
4) Master File returns an acknowledgment message back to Scheduling Coordinator. This message contains the Batch Id when successful. If a structural or basic validation error occurs, the system will return a list of the errors in an XML formatted output.

There is one web service involved: ***SubmitIntertieRDT_v1***

3.4 *Operation Details*

The service has one operation with three message types. All input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
SubmitIntertieRDT_v1	Input	SubmitIntertieRDTRequest	submitIntertieRDT_v1.wsdl submitIntertieRDT_v1_DocAttach.wsdl	StandardAttachmentInfor.xsd IntertieRDT_v1.xsd
	Output	SubmitIntertieRDTResponse		SubmitIntertieRDTStandardOutput.xsd
	Fault	FaultReturnType		StandardOutput.xsd

3.4.1 Operation Details – WSDL URLs

Production Environment – TBD

3.5 *WSDLs*

3.5.1 SubmitIntertieRDT_v1.wsdl – Used for normal SOAP messaging

3.5.2 SubmitIntertieRDT_v1_DocAttach.wsdl – Used when .Net is the source of processing

3.6 Standard Attachment Information

The attachment information schema, StandardAttachmentInfor.xsd, is used to provide general information for an SOAP attachment. The root element in the schema is *standardAttachmentInfor*, which can contain one or more attachment elements.

3.6.1 Element table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:Attachment/	
id	Globally unique identifier.	N/A	No	m:id	string
name	Attachment filename.	N/A	No	m:name	string
description	Description of attachment.	N/A	No	m:description	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
version	Version ID of attachment file	N/A	No	m:version	string
Sequence Number	Sequence number if there are multiple attachments.	N/A	No	m:sequenceNumber	string
type	Attachment file type, such as zip or jpeg.	N/A	No	m:type	string
size	Size of attachment file.	N/A	No	m:size	string
source	Source of attachment file.	N/A	No	m:source	string
tool	Tool used to generate attachment.	N/A	No	m:tool	string
Creation Time	Time attachment file was created.	N/A	No	m:creationTime	dateTime
Compress Flag	Indicates whether or not attachment has been compressed (YES or NO).	N/A	No	m:compressFlag	string
Compress Method	Compress method used (if attachment file compressed).	N/A	No	m:compressMethod	string
				//m:Attachment/m:AttributeList 0 – unbounded repeats	
Attribute List Sequence	Attribute list sequence number.	N/A	No	m:AttributeList/m:Sequence	string
Attribute List Name	Name of an attribute	N/A	No	m:AttributeList/m:Name	string
Attribute List Value	Value of an attribute	N/A	No	m:AttributeList/m:Value	string

3.6.2 Schema

3.6.2.1 StandardAttachmentInfor.xsd

3.6.3 Example XML File (StandardAttachmentInforExample.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
Sample XML file generated by XMLSpy v2006 U (http://www.altova.com)
-->
<standardAttachmentInfor xmlns="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.caiso.com/soa/2006-06-
   13/StandardAttachmentInfor.xsd">
   <Attachment>
      <id> 15798563</id>
      <name>GWED_11</name>
      <description>SUBMIT INTERTIE RDT</description>
      <version>1.1</version>
      <sequenceNumber>12</sequenceNumber>
      <type>ZIP</type>
      <size>180</size>
      <source>GWED</source>
      <tool>GZIP</tool>
      <creationTime>2006-12-17T09:30:47.0-08:00</creationTime>
      <compressFlag>yes</compressFlag>
      <compressMethod>ZIP</compressMethod>
      <AttributeList>
         <Sequence>2</Sequence>
         <Name>GWED</Name>
         <Value>1</Value>
      </AttributeList>
   </Attachment>
</standardAttachmentInfor>
```

3.7 Submit Intertie RDT Element Information

An Intertie RDT Update occurs when Scheduling Coordinator submits an XML file with a batch of RDT changes.

3.7.1 Element Table:

Element	Data Description	RDT XLS Field [Column[1]]	Req'd	Modify	XPath	Type
Message Header					**//m:MessageHeader/**	
Time Date	The dateTime, in GMT, when the payload is published.	N/A	Yes		m:TimeDate	dateTime See Appendix 1
Source	The source of published data. The value for this payload is CAISO.	N/A	No		m:Source	string
Message Payload					**//m:MessagePayload/m:MasterFile RDTRecord/**	
Effective Date	The requested effective date of the Intertie RDT submission. The time component should be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable) else a validation error will occur.	N/A	Yes		m:RDTEffectiveDate	dateTime See Appendix 1

[1] Refer to Intertie RDT Format

Element	Data Description	RDT XLS Field [Column[1]]	Req'd	Modify	XPath	Type
Scheduling Coordinator	The Scheduling Coordinator Id is used as a key to associate resources to participants. The Scheduling Coordinator must have an active relationship with a resource in order to view or maintain it.	N/A	Yes		m:SchedulingCoordinator	string
Comment[2]	Comments submitted by the Scheduling Coordinator to alert CAISO staff about special conditions of the RDT Submission.	N/A	Yes		m:Comment	string
Registered Intertie					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredInterTie/**	
Mrid	The ISO resource identifier used for tracking each resource for market scheduling.	RES_ID [**A**]	Yes	No	m:mrid	string
Must Offer Flag	An identifier of a resource that has a must offer obligation, either due to a RA obligation or through other obligation (i.e. future capacity market procurement, RCST, etc.). The acceptable values are 'YES' or 'NO'.	MOO_FLAG [**I**]	No	No	m:mustOfferFlag	string

[1] Refer to Intertie RDT Format

Element	Data Description	RDT XLS Field [Column[1]]	Req'd	Modify	XPath	Type
Must Offer Obligation Qualified	Y - Resource is Must Offer N - Resource is not Must Offer R - Resource is eligible for Must Offer based on RA Capacity or RCST designation in any given trading hour	MOO_QUALIFIED [**K**]	No	No	m:mustOfferObligationQualified	string
Energy Product Type	Energy Type: FIRM - Firm Import/Export NFRM - Non Firm Import/Export WHL - Wheeling UCTG - Unit Contingent DYN – Dynamic Interchange	ENERGY_TYPE [**B**]	No	No	m:energyProductType	string
Min Hourly Block Limit	Represents the maximum number of consecutive Trading Hours that an Intertie resource can be bid in, if a Minimum Hourly Block is specified in the Bid.	MIN_HR_BLK_LIM [**C**]	No	Yes	m:minHourlyBlockLimit	integer
Wheeling Counter Party	Represents the wheeling counter resource that can be used in the Wheeling Bid Component of an Intertie resource bid. This ID is created in Master File and corresponds to the import wheel resource ID	WHEEL_REFERENCE_NUM [**K**]	No	No	m:WheelingCounterParty/m:mrid	string

Element	Data Description	RDT XLS Field [Column[1]]	Req'd	Modify	XPath	Type
GMC Rank LMPM	A method of calculating Default energy Bids based Locational Marginal Prices. Acceptable values for Rank 1 or 2	GMC_RANK_LMPM [D]	No	Yes	m:GMCRankLMPM	string
Negotiated Rank LMPM	A method of calculating Default energy Bids based on a negotiation with the CAISO or the Independent Entity. Rank 1 or 2	NEGO_RANK_LMPM [E]	No	Yes	m:negotiateRankLMPM	string
Price Rank LMPM	A method of calculating Default energy Bids based Locational Marginal Prices. Acceptable values for Rank 1	PRC_RANK_LMPM [F]	No	Yes	m:priceRankLMPM	string
Hourly Pre-Dispatch	Indicates need to dispatch before the start of the operating hour. Only relevent in Real-Time Market.	HR_PRE_DISP [G]	No	Yes	M:hourlyPredispatch	string
Certified RUC	An intertie resource that can participate in RUC market. The acceptable values are 'YES' or 'NO'.	CERT_RUC [**H**]	No	No	m:ResourceCertification/m:certifiedRUC	string
Stranded Load	Represents an intertie resource that is subject to Isolated Tie / Stranded Load conditions	STRANDED_LOAD [L]	No	No	m:strandedLoad	string
Marginal Loss Cost Adjustment	Identifies whether or not the Intertie is eligible for MLCA (Marginal Loss Cost Adjustment).	MLCA [M]	No	No	m:MLCAFlag	string

3.7.2 Schema

3.7.2.1 IntertieRDT_v1.xsd

3.7.3 Example XML File (IntertieRDTExample.xml)

```
    NOTE: This example shows updates to an Intertie RDT submitted by the SC ID
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<IntertieRDT xmlns="http://www.caiso.com/soa/2011-10-01/IntertieRDT_v1.xsd">

<MessageHeader>
    <TimeDate>2017-03-31T14:34:41.746-07:00</TimeDate>
    <Source>MF</Source>
    <Version>v20171001</Version>
  </MessageHeader>
  <MessagePayload>
    <MasterFileRDTRecord>
      <RDTEffectiveDate>2011-10-01T00:00:00.000-08:00</RDTEffectiveDate>
      <SchedulingCoordinator>ABCD</SchedulingCoordinator>
      <Comment/>
      <RegisteredInterTie>
        <mrid>ABCD_M500_I_WHL_XXXX11</mrid>
        <mustOfferFlag>YES</mustOfferFlag>
        <mustOfferObligationQualified>R</mustOfferObligationQualified>
       <strandedLoad>YES</strandedLoad>
       <priceRankLMPM>1</priceRankLMPM>
```

```
        <negotiateRankLMPM>2</negotiateRankLMPM>
        <energyProductType>WHL</energyProductType>
        <minHourlyBlockLimit>24</minHourlyBlockLimit>
        <hourlyPredispatch>NO</hourlyPredispatch>
        <WheelingCounterParty>
          <mrid>ABCD_MALIN500_XXXX11</mrid>
        </WheelingCounterParty>
        <ResourceCertification>
          <certifiedRUC>YES</certifiedRUC>
        </ResourceCertification>
      </RegisteredInterTie>
    </MasterFileRDTRecord>
  </MessagePayload>
</IntertieRDT>
```

3.8 Submit Intertie RDT Response

3.8.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event Log				**//m:EventLog/**	
Event				**//m:EventLog/m:Event/**	

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event Result	The result of the submission. On success it will say "Records Received =XX, BatchId=XXXX". When there is a failure the result will say "Errors Encountered"	N/A	Yes	m:result	string
Id	On success, the batch id will be returned. On failure, the id will be -1.	N/A	Yes	m:id	string
Event Description	The description of the event	N/A	No	m:description	string
Creation Date Time	The creation date and time of the output	N/A	No	m:creationTime	dateTime See Appendix 1
Service				**//m:EventLog/m:Service/**	
Id	The UUID generated unique service Id. It is different on every submission.	N/A	Yes	m:id	string
Name	The service name which is "SubmitIntertieRDT"	N/A	Yes	m:name	string
IntertieRDT Specific – Validation Errors – Repeat 0 → Unbounded numbers of IntertieRDTs				**//m:EventLog/m:IntertieRDT/**	
Resource Id	The resource id that there is a problem with. If it is not a resource related problem then this field element will be null.	N/A	No	m:resource_ID	string
Results	The problem description, for example "Not authorized to update this resource". It is possible that the error is not specific to a resource. An example of this is when the effective date is less than 5 business days from today. In that case, the Resource Id would not be filled in and the results would be.	N/A	No	m:results	string

3.8.2 Schema

3.8.2.1 SubmitIntertieRDTStandardOutput.xsd

3.8.3 Example XML File (SubmitIntertieUpdateStandardOutputExample.xml)

```
<submitIntertieRDT
 xmlns="http://www.caiso.com/soa/2008-05-21/submitIntertieRDT">
<outputDataType xmlns="http://www.caiso.com/soa/2008-05-21/SubmitIntertieRDTStandardOutput.xsd">
 <EventLog>
  <Event>
   <result>Records received=2, batchId=2962</result>
   <id>2962</id>
   <description>Intertie updates were successfully received.</description>
   <creationTime>2008-12-22T10:21:04.558-08:00</creationTime>
  </Event>
  <Service>
   <id>d00cf28b-a1bb-41aa-9abf-3031f420b4f0</id>
   <name>submitIntertieRDT</name>
  </Service>
 </EventLog>
</outputDataType>
</submitIntertieRDT>
```

3.9 Fault Return

3.9.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	
Id	Event log identifier.	N/A	No	m:id	string
Name	Event log name.	N/A	No	m:name	string
description	Event log description.	N/A	No	m:description	string
Type	Event log type.	N/A	No	m:type	string
creationTime	Event log creation time.	N/A	No	m:creationTime	date
Collection Type	Event log collection type.	N/A	No	m:collectionType	string
Collection Quantity	Event log collection quantity.	N/A	No	m:collectionQuantity	string
Event Result	Event result.	N/A	Yes	m:Event/m:result	string
Event. Id	Event identifier.	N/A	No	m:Event/m:id	string
Event Name	Event name.	N/A	No	m:Event/m:name	string
Event Description	Event description.	N/A	No	m:Event/m:description	string
Event Creation Time	Event creation time.	N/A	No	m:Event/m:creationTime	dateTime
Event Severity	Event severity.	N/A	No	m:Event/m:severity	string
Event Priority	Event priority.	N/A	No	m:Event/m:priority	string
Event Sequence Number	Event sequence number.	N/A	No	m:Event/m:sequenceNumber	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event Type	Event type.	N/A	No	m:Event/m:eventType	string
Service Id	Service identifier.	N/A	Yes	m:Service/m:id	string
Service Name	Service name.	N/A	Yes	m:Service/m:name	string
Service Description	Service description.	N/A	Yes	m:Service/m:description	string
Service Comments	Service comments.	N/A	Yes	m:Service/m:comments	string

3.9.2 Schema

3.9.2.1 StandardOutput.xsd

3.9.3 Example XML File (StandardOutput.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<m:outputDataType xsi:schemaLocation="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd StandardOutput.xsd"
xmlns:m="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:EventLog>
        <m:id>Event-123</m:id>
        <m:name>Event Name</m:name>
        <m:description>The Event Description</m:description>
        <m:type>Error Event</m:type>
        <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
        <m:collectionType>Submit Intertie Update</m:collectionType>
        <m:collectionQuantity>1</m:collectionQuantity>
        <m:Event>
```

```
            <m:result>Invalid Value Found in Field XX</m:result>
            <m:id>1234</m:id>
            <m:name>Error Event 1234</m:name>
            <m:description>An invalid data value was presented</m:description>
            <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
            <m:severity>High</m:severity>
            <m:priority>High</m:priority>
            <m:sequenceNumber>1</m:sequenceNumber>
            <m:eventType>Initiated by MF API</m:eventType>
        </m:Event>
        <m:Service>
            <m:id>1234567</m:id>
            <m:name>Submit Intertie Update</m:name>
            <m:description>Having problems - Invalid data has been presented</m:description>
            <m:comments>Some one needs to fix the data and resubmit</m:comments>
        </m:Service>
    </m:EventLog>
</m:outputDataType>
```

4 Retrieve Intertie RDT Data

4.1 *Business Scenario*

Scheduling Coordinators retrieve Intertie RDT Data to view operational data parameters for their resources that reside in the Master File. While many Scheduling Coordinators Retrieve their RDT Data via the UI manually, somet Scheduling Coordinators Retrieve their RDT Data in batch mode through an automated process using the API.

4.2 Service Level Agreement

The following service level agreement defines the business and technical requirements for service availability and performance.

Service availability	Service level goal is 99%.
Expected size of payload (average and maximum)	The intertie batch payload average size is 2.5k and the max size is 4MB (basing it on 1500 resources)
Expected frequency (average and maximum)	Average of 10 and maximum of 200 RDT Data retrievals per day.
Longest time the service can be unavailable before business is impacted	One Hour
Business impact if is unavailable	Schedule Coordinators utilizing the service may not be able to retrieve the latest values of their Data. They would not be able to confirm that the resources that are scheduled have the correct or latest data. This is a read only transaction.
Expected response time for the service	60 Seconds

4.3 *Use Model*

The service interaction between Scheduling Coordinators and the Master File System is a synchronous submission process.

The data exchange follows CAISO SOA Retrieve messaging pattern. In this pattern, the data source system is the Scheduling Coordinator who initiates a data transaction by invoking a RetrieveIntertieRDTData service provided by Master File. The consumer of the Web service is Scheduling Coordinator or a Web portal. The consumer makes a request to Master File with Intertie RDT resource data by invoking the Retrieve Web service. The Master File system is the provider of the Web service.

The following steps are involved in the submission process:

1) Scheduling Coordinator provides criteria to find one or more Intertie RDTs, the input criteria provided to the Master File is in XML format.
2) Scheduling Coordinator validates the data set based on the XML schema.
3) Scheduling Coordinator invokes the RetrieveIntertieRDT Web service directly to send a request to Master File with the Intertie RDT resource data set
4) Master File returns the requested payload of an Intertie resource message back to the Scheduling Coordinator.

There is one web service involved: ***RetrieveIntertieRDT_v1***

4.4 *Operation Details*

The service has one operation with three message types. All input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
retrieveIntertieRDT_v1	Input	RetrieveIntertieRDTRequest	retrieveIntertieRDT_v1.wsdl	RequestIntertieRDT.xsd
	Output	RetrieveIntertieRDTResponse	retrieveIntertieRDT_v1_DocAttach.wsdl	IntertieRDT_v1.xsd
	Fault	FaultReturnType		StandardOutput.xsd

4.4.1 Operation Details – WSDL URLs

Production Environment - TBD

4.5 *WSDL*

4.5.1 RetrieveIntertieRDT_v1.wsdl - Used for normal SOAP messaging

4.5.2 RetrieveIntertieRDT_v1_DocAttach.wsdl - Used when .Net is the source of processing

4.6 Request Intertie RDT Information

The attachment information schema, StandardAttachmentInfor.xsd, is used to provide general information for an SOAP attachment. The root element in the schema is *standardAttachmentInfor*, which can contain one or more attachment elements.

4.6.1 Element table

Element	Data Description	Req'd	XPath	Type
			//RequestIntertieRDT/	
Trade Date	The point in time when the system is to search for resources of the specified SC ID. The time component should be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable). Data from the wrong date may be returned if time is not set to midnight.	Yes	tradeDate	dateTime See Appendix 1
Scheduling Coordinator	The ID of the Scheduling Coordinator	Yes	schedulingCoordinator	string
Resource Type	Type of Intertie (ALL, ITIE or ETIE)	Yes	resourceType	string
Resource ID	Either ALL resources or one specific resource ID	Yes	resourceId	string

4.6.2 Schema

4.6.2.1 RequestIntertie.xsd

4.6.3 Example XML File (RequestIntertieRDTExample.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
<RequestIntertieRDT xsi:schemaLocation="http://www.caiso.com/soa/2008-05-21/RequestIntertieRDT.xsd RequestIntertieRDT.xsd"
xmlns="http://www.caiso.com/soa/2008-05-21/RequestIntertieRDT.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <tradeDate> 2008-08-01T00:00:00.000-07:00</tradeDate>
      <schedulingCoordinator>ABCD</schedulingCoordinator>
      <resourceType>ALL</resourceType>
      <resourceID>ALL</resourceID>
</RequestIntertieRDT>
```

4.7 Retrieve Intertie RDT Data

Intertie RDT output from a Scheduling Coordinator's retrieve request.

```
<ns1814:ResourceCertification xmlns:ns1814="http://www.caiso.com/soa/2012-10-01/IntertieRDT_v20121001.xsd">
<ns1815:certifiedRUC xmlns:ns1815="http://www.caiso.com/soa/2012-10-01/IntertieRDT_v20121001.xsd">NO</ns1815:certifiedRUC>
</ns1814:ResourceCertification>
```

4.7.1 Element Table:

Element	Data Description	RDT XLS Field [Column[3]]	Req'd	XPath	Type
Message Header			**//m:MessageHeader/**		
Time Date	The dateTime, in GMT, when the payload is published.		Yes	m:TimeDate	dateTime See Appendix 1
Source	The source of published data. The value for this payload is CAISO.		No	m:Source	string
Message Payload			**//m:MessagePayload/m:MasterFileRDTRecord/**		
Requested Trade Date	The trade date specified in the Intertie RDT retrieval request. The time component will be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	N/A	Yes	m:RDTEffectiveDate	dateTime See Appendix 1
Scheduling Coordinator	The Scheduling Coordinator Id is used as a key to associate resources to participants. The Scheduling Coordinator must have an active relationship with a resource in order to view or maintain it.	N/A	Yes	m:SchedulingCoordinator	string

[3] Refer to Intertie RDT Format

Element	Data Description	RDT XLS Field [Column[3]]	Req'd	XPath	Type
Comment	Comments submitted by the Scheduling Coordinator to alert CAISO staff about special conditions of the RDT Submission.	N/A	Yes	m:Comment	string
Registered Intertie			**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredInterTie/**		
Mrid	The ISO resource identifier used for tracking each resource for market scheduling.	RES_ID [**A**]	Yes	m:mrid	string
Must Offer Flag	An identifier of a resource that has a must offer obligation, either due to a RA obligation or through other obligation (i.e. future capacity market procurement, RCST, etc.). Acceptable values are 'YES' or 'NO'.	MOO [I]	No	m:mustOfferFlag	string
Must Offer Obligation Qualified	Y - Resource is Must Offer N - Resource is not Must Offer R - Resource is eligible for Must Offer based on RA Capacity or RCST designation in any given trading hour	MOO_QUALIFIED [**J**]	No	m:mustOfferObligationQualified	string

Element	Data Description	RDT XLS Field [Column[3]]	Req'd	XPath	Type
Energy Product Type	Energy Type: FIRM - Firm Import/Export NFRM - Non Firm Import/Export WHL - Wheeling UCTG - Unit Contingent DYN – Dynamic Interchange	ENERGY_TYPE [**B**]	No	m:energyProductType	string
Minimum Hourly Block Limit	Represents the maximum number of consecutive Trading Hours that an Intertie resource can be bid in, if a Minimum Hourly Block is specified in the Bid.	MIN_HR_BLK_LIM [**C**]	No	m:minHourlyBlockLimit	integer
Wheeling Counter Party	Represents the wheeling counter resource that can be used in the Wheeling Bid Component of an Intertie resource bid. This ID is created in Master File and corresponds to the import wheel resource ID	WHEEL_REFERENCE_NUM [**K**]	No	m:WheelingCounterParty/m:mrid	string
GMC Rank LMPM	A method of calculating Default energy Bids based Locational Marginal Prices. Acceptable values for Rank 1 or 2	GMC_RANK_LMPM [D]	No	m:GMCRankLMPM	string
Negotiated Rank LMPM	A method of calculating Default energy Bids based on a negotiation with the CAISO or the Independent Entity. Rank 1 or 2	NEGO_RANK_LMPM [E]	No	m:negotiateRankLMPM	string

Element	Data Description	RDT XLS Field [Column[3]]	Req'd	XPath	Type
Price Rank LMPM	A method of calculating Default energy Bids based Locational Marginal Prices. Acceptable values for Rank 1	PRC_RANK_LMPM [F]	No	m:priceRankLMPM	string
Hourly Pre-Dispatch	Indicates need to dispatch before the start of the operating hour. Only relevent in Real-Time Market.	HR_PRE_DISP [G]	No	m:hourlyPredispatch	string
Certified RUC	An intertie resource that can participate in RUC market. Acceptable values are 'YES' or 'NO'.	CERT_RUC [**H**]	No	m:ResourceCertification/m:certifiedRUC	string
Stranded Load	Represents an intertie resource that is subject to Isolated Tie / Stranded Load conditions	STRANDED_LOAD [L]	No	m:strandedLoad	string
Marginal Loss Cost Adjustment	Identifies whether or not the Intertie is eligible for MLCA (Marginal Loss Cost Adjustment).	MLCA [M]	No	m:MLCAFlag	string

4.7.2 Schema

4.7.2.1 IntertieRDT_v1.xsd

4.7.3 Example XML File (IntertieRDTExample.xml)

```
NOTE: in this example Intertie RDTs have been retrieved from a search by the Scheduling Coordinator
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<IntertieRDT xmlns="http://www.caiso.com/soa/2011-10-01/IntertieRDT_v1.xsd">
  <MessageHeader>
    <TimeDate>2011-10-01T00:00:00.000-07:00</TimeDate>
    <Source>MF</Source>
  </MessageHeader>
  <MessagePayload>
    <MasterFileRDTRecord>
      <RDTEffectiveDate>2011-10-01T00:00:00.000-08:00</RDTEffectiveDate>
      <SchedulingCoordinator>ABCD</SchedulingCoordinator>
      <Comment/>
      <RegisteredInterTie>
        <mrid>ABCD_M500_I_WHL_XXXX11</mrid>
       <mustOfferFlag>YES</mustOfferFlag>
       <mustOfferObligationQualified>R</mustOfferObligationQualified>          <strandedLoad>YES</strandedLoad>
       <priceRankLMPM>1</priceRankLMPM>
       <negotiateRankLMPM>2</negotiateRankLMPM>
       <energyProductType>WHL</energyProductType>
        <minHourlyBlockLimit>24</minHourlyBlockLimit>
        <hourlyPredispatch>NO</hourlyPredispatch>
        <WheelingCounterParty>
          <mrid>ABCD_MALIN500_XXXX11</mrid>
```

```
            </WheelingCounterParty>
            <ResourceCertification>
               <certifiedRUC>YES</certifiedRUC>
            </ResourceCertification>
         </RegisteredInterTie>
      </MasterFileRDTRecord>
   </MessagePayload>
</IntertieRDT>
```

4.8 Retrieve Intertie RDT Data Response

4.8.1 Element Table

Element	Data Description	Req'd	XPath	Type
			//ISOAttachment/	
Attachment Value	Intertie RDT data	Yes	AttachmentValue	String of IntertieRDT data encrypted

4.8.2 Schema

4.8.2.1 ISOAttachment.xsd

4.8.3 Example XML File (ISOAttachmentExample)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
```

```
<ISOAttachment xsi:schemaLocation="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd ISOAttachment.xsd"
xmlns="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <AttachmentValue>contents of the IntertieRDT.xsd goes here in UUE format</AttachmentValue>
</ISOAttachment>
```

4.9 Fault Return

4.9.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	
Id	Event log identifier.	N/A	No	m:id	string
Name	Event log name.	N/A	No	m:name	string
description	Event log description.	N/A	No	m:description	string
Type	Event log type.	N/A	No	m:type	string
creationTime	Event log creation time.	N/A	No	m:creationTime	date
collectionType	Event log collection type.	N/A	No	m:collectionType	string
collectionQuantity	Event log collection quantity.	N/A	No	m:collectionQuantity	string
Event.result	Event result.	N/A	Yes	m:Event/m:result	string
Event.id	Event identifier.	N/A	No	m:Event/m:id	string
Event.name	Event name.	N/A	No	m:Event/m:name	string
Event.description	Event description.	N/A	No	m:Event/m:description	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event.creationTime	Event creation time.	N/A	No	m:Event/m:creationTime	dateTime
Event.severity	Event severity.	N/A	No	m:Event/m:severity	string
Event.priority	Event priority.	N/A	No	m:Event/m:priority	string
Event.sequence Number	Event sequence number.	N/A	No	m:Event/m:sequenceNumber	string
Event.eventType	Event type.	N/A	No	m:Event/m:eventType	string
Service.id	Service identifier.	N/A	Yes	m:Service/m:id	string
Service.name	Service name.	N/A	Yes	m:Service/m:name	string
Service.description	Service description.	N/A	Yes	m:Service/m:description	string
Service.comments	Service comments.	N/A	Yes	m:Service/m:comments	string

4.9.2 Schema

4.9.2.1 StandardOutput.xsd

4.9.3 Example XML File (StandardOutput.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<m:outputDataType xsi:schemaLocation="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd StandardOutput.xsd"
xmlns:m="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:EventLog>
        <m:id>Event-123</m:id>
        <m:name>Event Name</m:name>
```

```
        <m:description>The Event Description</m:description>
        <m:type>Error Event</m:type>
        <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
        <m:collectionType>Retrieve Intertie RDT</m:collectionType>
        <m:collectionQuantity>1</m:collectionQuantity>
        <m:Event>
            <m:result>Invalid Value Found in Field XX</m:result>
            <m:id>1234</m:id>
            <m:name>Error Event 1234</m:name>
            <m:description>An invalid data value was found</m:description>
            <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
            <m:severity>High</m:severity>
            <m:priority>High</m:priority>
            <m:sequenceNumber>1</m:sequenceNumber>
            <m:eventType>Initiated by MF API</m:eventType>
        </m:Event>
        <m:Service>
            <m:id>1234567</m:id>
            <m:name>Retrieve Intertie RDT</m:name>
            <m:description>Having problems - Invalid data has been found</m:description>
            <m:comments>Some one needs to fix the data</m:comments>
        </m:Service>
    </m:EventLog>
</m:outputDataType>
```

5 Submit Generator RDT

5.1 *Business Scenario*

Scheduling Coordinators submit Generator RDT updates to modify particular data parameters of their existing resources in the Master File. While many Scheduling Coordinators submit their RDT updates via the UI manually, some Scheduling Coordinators submit their RDT updates in batch mode through an automated process using the API. This service allows only updates to RDT (Resource) information. If a resource is a MSG (Multi-Staged Generator), multiple configurations and transitions must be submitted with the Generator. If it is not a MSG resource, those components should not be included. Other functionality, such as adding or deleting resources, is not currently available through this automated process.

5.2 Service Level Agreement

The following service level agreement defines the business and technical requirements for service availability and performance.

Service availability	Service level goal is 99%.
Expected size of payload (average and maximum)	6KB for one RDT, 1.2MB Max, 250 KB Average
Expected frequency (average and maximum)	3/day average, 80/day maximum
Longest time the service can be unavailable before business is impacted	One Day
Business impact if is unavailable	Schedule Coordinators utilizing the service may not complete submitting all their updates. They would have to wait longer for updates to be available. CAISO has a minimum 5 business day turnaround time based on Tariff
Expected response time for the service	60 Seconds

5.3 *Use Model*

The service interaction between Scheduling Coordinators and the Master File System is a synchronous submission process.

The data exchange follows CAISO SOA Submit messaging pattern. In this pattern, the data source system is the Scheduling Coordinator who initiates a data transaction by invoking a submitGeneratorRDT service provided by Master File. The consumer of the Web service is Scheduling Coordinator or a Web portal. The consumer makes request to Master File with Generator RDT resource data by invoking the submit Web service. The Master File system is the provider of the Web service.

The following steps are involved in the submission process:

1) Scheduling Coordinator has the Generator RDT update data set ready in XML format, which includes all data fields. Not providing a field indicates that, you want to remove the existing data.
2) Scheduling Coordinator validates the data set based on the XML schema.
3) Scheduling Coordinator invokes the SubmitGeneratorRDT Web service directly to send a request to Master File with the Generator RDT resource data set
4) Master File returns an acknowledge message back to Scheduling Coordinator that the RDT updates have been submitted to the Master File system. Basic structural validation will be performed, if a problem is found the ISO Framework will return an output message in the format specified in the Output Message xsd.

There is one web service involved: ***SubmitGeneratorRDT_v4***

5.4 *Operation Details*

The service has one operation with three message types. All input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
SubmitGeneratorRDT_v4	Input	SubmitGeneratorRDTRequest	submitGeneratorRDT_v4.wsdl SubmitGeneratorRDT_v4_DocAttach.wsdl	StandardAttachmentInfor.xsd GeneratorRDT_v4.xsd
	Output	SubmitGeneratorRDTResponse		SubmitGeneratorRDTStandardOutput.xsd

	Fault	FaultReturnType		StandardOutput.xsd

5.4.1 Operation Details – WSDL URLs

Production Environment - TBD

5.5 *WSDL (submitGeneratorRDT_v4.wsdl)*

5.5.1 SubmitGeneratorRDT_v4.wsdl - Used for normal SOAP messaging

5.5.2 SubmitGeneratorRDT_v4_DocAttach.wsdl - Used when .Net is the source of processing

5.6 Standard Attachment Information

The attachment information schema, StandardAttachmentInfor.xsd, is used to provide general information for an SOAP attachment. The root element in the schema is *standardAttachmentInfor*, which can contain one or more attachment elements.

5.6.1 Element table

Element	Data Description	Req'd	XPath	Type
			//m:standardAttachmentInfor/m:Attachment/	
Id	Globally unique identifier.	No	m:id	string
Name	Attachment filename.	No	m:name	string
Description	Description of attachment.	No	m:description	string
Version	Version ID of attachment file	No	m:version	string
Sequence Number	Sequence number if there are multiple attachments.	No	m:sequenceNumber	string

Element	Data Description	Req'd	XPath	Type
Type	Attachment file type, such as zip or jpeg.	No	m:type	string
Size	Size of attachment file.	No	m:size	string
Source	Source of attachment file.	No	m:source	string
Tool	Tool used to generate attachment.	No	m:tool	string
Creation Time	Time attachment file was created.	No	m:creationTime	dateTime
Compress Flag	Indicates whether attachment has been compressed (YES or NO).	No	m:compressFlag	string
Compress Method	Compress method used (if attachment file compressed).	No	m:compressMethod	string
Attribute List .Sequence	Attribute list sequence number.	No	m:AttributeList/m:Sequence	string
Attribute List. Name	Name of an attribute	No	m:AttributeList/m:Name	string
Attribute List .Value	Value of an attribute	No	m:AttributeList/m:Value	string

5.6.2 Schema

5.6.2.1 StandardAttachmentInfor.xsd

5.6.3 Example XML File (StandardAttachmentInfor.xml)

```
<?xml version="1.0" encoding="UTF-8" ?>
<!--
Sample XML file generated by XMLSpy v2006 U (http://www.altova.com)
-->
<standardAttachmentInfor xmlns="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.caiso.com/soa/2006-06-
  13/StandardAttachmentInfor.xsd">
```

```
    <Attachment>
      <id> 15798563</id>
      <name>GWED_11</name>
      <description>SUBMIT GENERATOR RDT</description>
      <version>1.1</version>
      <sequenceNumber>12</sequenceNumber>
      <type>ZIP</type>
      <size>180</size>
      <source>GWED</source>
      <tool>GZIP</tool>
      <creationTime>2008-12-17T09:30:47.0-08:00</creationTime>
      <compressFlag>yes</compressFlag>
      <compressMethod>ZIP</compressMethod>
      <AttributeList>
        <Sequence>2</Sequence>
        <Name>GWED</Name>
        <Value>1</Value>
      </AttributeList>
    </Attachment>
  </standardAttachmentInfor>
```

5.7 Submit Generator RDT

A Generator RDT Update occurs when Scheduling Coordinator submit an XML file with a batch of RDT changes.

5.7.1 Element Table:

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type

[4] Refer to the Generator RDT format

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Message Header					**//m:MessageHeader/**	
Time Date	The dateTime, in GMT, when the payload is published.	N/A	Yes		m:TimeDate	dateTime See Appendix 1
Source	The source of published data. The value for this payload is CAISO.	N/A	Yes		m:Source	string
Version	Date reflecting the release this latest version update was related to.	N/A	Yes		m:Version	string
Message Payload					**//m:MessagePayload/m:MasterFile RDTRecord/**	
Effective Date	The requested effective date of the Generator RDT submission. The time component should be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable) else, a validation error will occur.	n/a	Yes	Yes	m:RDTEffectiveDate	dateTime See Appendix 1

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Scheduling Coordinator	The Scheduling Coordinator Id is used as a key to associate resources to participants. The Scheduling Coordinator must have an active relationship with a resource in order to view or maintain it. An entity certified by the CAISO for the purposes of undertaking the functions specified in Section 4.5.3 of the CAISO Tariff.	SC_ID [**B**]	Yes	No	m:SchedulingCoordinator	string
Comment	Comments submitted by the Scheduling Coordinator to alert CAISO staff about special conditions of the RDT Submission.	n/a	No	Yes	m:Comment	string
Registered Generator						
Resource Details					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**	
Name	Descriptive name for the Resource.	RES_NAME [**D**]	No	No	m:name	string
Mrid	The ISO resource identifier used for tracking each resource for market scheduling and outage coordination purposes.	RES_ID [**C**]	Yes	No	m:mrid	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Resource Type	Descriptive identifier denoting the type of resource: Generating Unit, Tie Generator, Load. The acceptable values are: GEN, LOAD, and TG	RES_TYPE [**E**]	Yes	No	m:resourceType	string
Minimum Off Time Value	The minimum amount of time that a Generating Unit must stay off-line after being shut down, due to physical operating constraints. Minimum Off Time includes Startup Time.	MIN_OFF [**S**]	No	Yes	m:minOffTime/m:value	float
Minimum Off Time Unit	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minOffTime/m:units	string
Minimum On Time Value	The minimum amount of time that a Generating Unit must stay on-line after starting up and reaching PMin, prior to being shut down, due to physical operating constraints.	MIN_ON [**Q**]	No	Yes	m:minOnTime/m:value	float
Minimum On Time Unit	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minOnTime/m:units	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Maximum On Time Value	The maximum amount of time that a Generating Unit can stay on-line per day, due to environmental or physical operating constraints. If no constraint, then leave this field blank.	MAX_ON [**R**]	No	Yes	m:maxOnTime/m:value	float
Maximum On Time Unit	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maxOnTime/m:units	string
Dispatchable Flag	Designates a dispatchable resource. The acceptable values are 'YES' and 'NO'	DISP [**BK**]	No	No	m:dispatchFlag	string
An Aggregate Resource?	An aggregation that consists of several individual "child" resources. The acceptable values are 'YES' and 'NO'	AGGREGATE_YN [**F**]	Yes	No	m:isAggregatedRes	string
LMPM Flag	An identifier of a resource that is subject to the market power mitigation process. Defined per tariff. The acceptable values are 'YES' and 'NO'	LMPM [**AX**]	No	No	m:LMPMFlag	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Must Offer Obligation Qualified	Y - Resource is Must Offer N - Resource is not Must Offer R - Resource is eligible for Must Offer based on RA Capacity or RCST designation in any given trading hour	MOO_QUALIFIED [**AO**]	No	No	m:mustOfferObligationQualified	string
Market Participant Flag	An identifier of the PGA Resources that participates in the market. The acceptable values are 'YES' and 'NO'	PGA_PART [**AQ**]	No	No	m:marketParticipationFlag	string
Commercial Operation-for-Market MW	Commercial Operation-for-Market MW available to market as resource is being constructed.	COM_MW [AR]	No	No	m:commercialOperationForMarket	float
Price Set Flag for Day Ahead Market	Indicator of resource being able to set the price in DA market. The acceptable values are 'YES' and 'NO'	PRC_SET_DAM [**BO**]	No	No	m:priceSetFlagDA	string
Price Set Flag for Real Time Market	Indicator of resource being able to set the price in RT market. The acceptable values are 'YES' and 'NO'	PRC_SET_RTM [**BP**]	No	No	m:priceSetFlagRT	string
Maximum Operating MW Value	The maximum normal capability of the Generating Unit.	MAX_GEN [**N**]	No	Yes	m:maximumOperatingMW/m:value	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Maximum Operating MW Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maximumOperatingMW/m:units	string
Minimum Operating MW Value	For a Generating Unit, the minimum sustained operating level (Pmin or plant minimum) at which it can operate at a continuous level.	MIN_GEN [**O**]	No	Yes	m:minimumOperatingMW/m:value	float
Minimum Operating MW Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minimumOperatingMW/m:units	string
Raise Ramp Rate Value	Represents the fastest Best Operating Ramp Rate in the RAMP curve	MAX_RR [**BN**]	No	No	m:raiseRampRate/m:value	float
Raise Ramp Rate Units	This field is not used. The assumed unit of measure is MW/Min. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:raiseRampRate/m:units	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Unit Type	Description of prime mover technology associated with the Generating Unit; such as, Hydro Turbine, Gas Turbine, Combined Cycle, etc. The acceptable values are: "CCYC", "GTUR", "HYDR", "OTHR", "PHOT", "PTUR", "RECP", "STUR", "SYNC", "WIND", "PUMP"	GEN_TECH_TYPE [**I**]	No	No	m:unitType	string
Generator Type	'H' - Hydro resources 'T' - All other resources	GEN_ TYPE [**J**]		No	m:genType	string
RMR Flag	Designates a resource that has a Reliability Must Run contract. The acceptable values are 'YES' and 'NO'	RMR [**BM**]	No	No	m:RMRFlag	string
Use Limit	Identifier if a resource is energy use limited, such as limitation of energy or emission control, etc. The acceptable values are 'YES' and 'NO'	USE_LIMIT [**BG**]	No	Yes	m:useLimitFlag	string
Minimum Load Cost Value	The costs a Generating Unit or a Participating Load incurs operating at minimum load. The value is needed for a resource with the Cost Basis of Registered Cost (fixed value) only.	MIN_LOAD_COST [**V**]	No	Yes	m:minLoadCost/m:value	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Minimum Load Cost Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minLoadCost/m:units	string
Maximum Pumping Level Value	The Maximum Operating Level of a Pump or a Pumped-Storage Hydro Unit operating as a hydro pump.	MAX_PUMP [**Y**]	No	Yes	m:maxPumpingLevel/m:value	float
Maximum Pumping Level Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maxPumplingLevel/m:units	string
Operating Maintenance Cost Value	Variable operations and maintenance costs, a component of the Variable Cost option for calculating the Default Energy Bid.	OPER_MAINT_COST [**BH**]	No	No	m:operatingMaintenanceCost/m:value	float
Operating Maintenance Cost Units	This field is not used. The assumed unit of measure is $/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:operatingMaintenanceCost/m:units	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
MLCost Basis	Cost option (proxy or registered) for a generating resource's Minimum Load cost.	ML_COST_BASIS_TYPE [**W**]	No	Yes	m:MLCostBasis	string
SUCost Basis	Cost option (proxy or registered) for a generating Resource's Startup Cost.	SU_COST_BASIS_TYPE [**X**]	No	Yes	m:SUCostBasis	string
Fuel Source	Description of primary fuel type; such as, Natural Gas, Oil, Nuclear, etc. The acceptable values are: "BGAS", "BIOM", "COAL", "DIST", "GAS", "GEOT", "HRCV", "NONE", "NUCL", "OIL", "OTHR", "SOLR", "WAST", "WATR", "WIND", "LESR", "DDR"	FUEL_TYPE [**H**]	No	No	m:fuelSource	string
Constrained Output Flag	The output of the generation resources is not variable, i.e. PMax = PMin. Y: output is constrained. The acceptable values are 'YES' and 'NO'	COG [**AS**]	No	No	m:constrainedOutputFlag	string
Maximum Startups Per Day	The design maximum number of times a Generating Unit can be started up within one day, due to environmental or physical operating constraints.	MAX_STRT [**T**]	No	Yes	m:maxStartUpsPerDay	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Market Maximum Startups Per Day	The market maximum number of times a Generating Unit can be started up within one day, due to environmental or physical operating constraints.	MKT_MAX_STRT [U]	No	Yes	m:marketMaxStartUpsPerDay	integer
Pumping Cost Value	The minimum pumping cost	MIN_PUMP_CST [Z]	No	Yes	m:pumpingCost/m:value	float
Pumping Cost Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:pumpingCost/m:units	string
Pumping Factor	Pumping factor of a pumping resource	PUMPING_FACTOR [**AA**]	No	Yes	m:pumpingFactor	float
Qualifying Facility Owner	Identifier if a resource is a qualifying cogeneration facility or small qualifying power production facility, as defined in the Code of Federal Regulations, Title 18, Part 292	QF [**BF**]	No	No	m:qualifyingFacilityOwner	string
Pump Minimum Up Time Value	Minimum pumping run time	PUMP_MIN_UP_ TM [**AC**]	No	Yes	m:pumpMinUpTime/m:value	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Pump Minimum Up Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:pumpMinUpTime/m:units	string
Pump Minimum Down Time Value	The minimum amount of time that a pumping resource must stay off-line after shutting down.	PUMP_MIN_DWN_TM [**AD**]	No	Yes	m:pumpMinDownTime/m:value	float
Pump Minimum Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:pumpMinDownTime/m:units	string
Cost Rank LMPM	A method of calculating Default energy Bids based on fuel costs and variable operations and maintenance costs. Acceptable values for Rank 1, 2, or 3	COST_RANK_LMPM [**AI**]	No	Yes	m:costRankLMPM	string
Price Rank LMPM	A method of calculating Default energy Bids based Locational Marginal Prices. Acceptable values for Rank 1, 2, or 3	PRC_RANK_LMPM [**AK**]	No	Yes	m:priceRankLMPM	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Negotiated Rank LMPM	A method of calculating Default energy Bids based on a negotiation with the CAISO or the Independent Entity. Rank 1, 2, or 3	NEGO_RANK_LMPM [**AJ**]	No	Yes	m:negotiateRankLMPM	string
Load Following Up MSS	Identifier if a resource is load following up. The acceptable values are 'YES' or 'NO'.	MSS_LD_FLNG_UP [BE]	No	No	m:loadFollowingUpMSS	string
Load Following Down MSS	Identifier if a resource is load following down. The acceptable values are 'YES' or 'NO'.	MSS_LD_FLNG_DWN [**BD**]	No	No	m:loadFollowingDownMSS	string
Gen-to-Pump Minimum Down Time	The Gen-to-Pump minimum down time. Applies to Pump Storage Resource: Minimum time (in minutes) that resource must be offline (or self-scheduled) after being de-committed by Market system from generation operation and before being dispatched in pumping mode.	MIN_DWN_TM_GP [AE]	No	Yes	m: genToPumpMinDownTime	integer
Pump-to-Gen Minimum Down Time	The Pump-to-Gen minimum down time. Applies to Pump Storage Resources: Minimum time (in minutes) that resource must be offline (or self-scheduled) after being de-committed from pumping operation and before being dispatched in generation mode.	MIN_DWN_TM_PG [AF]	No	Yes	m: pumpToGenMinDownTime	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Pump Shutdown Time	The pump shutdown time	PUMP_SHTDWN_TM [**AH**]	No	Yes	m:pumpShutdownTime	integer
Pump Shutdown Cost	The maximum pump shutdown cost	MAX_PUMP_SD_CST [**AG**]	No	Yes	m:pumpShutdownCost	float
TG Energy Product Type	Energy Type: 'DYN' - Dynamic Resource (only if RES_TYPE='TG') 'FIRM' – is valid too	ENERGY_TYPE [**G**]	No	No	m:TGEnergyProductType	string
Air Quality Management District	The Air Quality Management District or Air Pollution Control District in which the resource is located.	AQM_DIST_TYPE [**M**]	No	No	m:AQMDistrict	string
Participating Generator Agreement Name	The name of an agreement between the CAISO and a Participating Generator; a pro forma version of which is set forth in Appendix B.2 of the CAISO Tariff.	PGA_NAME [**A**]	No	No	m:PGAName	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Priority Type	MT - Regulatory Must Take resources REGM - Regulatory Must-Run RMR - Reliability Must Run PIRP - Participate in PIRP program **This field will no longer be used as of Trade Date 7/1/2010.**	PRIOR_TYPE [**BJ**]	No	No	m:priorityType	string
Startup Code Type	Code used to determine the startup characteristics. **FAST:** Generating Units that have a Start Up Time of ten minutes or less and can provide non-spin. Blank: All other resources.	STARTUP_CD_TYPE [**AP**]	No	No	m:startUpCodeType	string
Minimum Dispatch Level Value	The minimum operating level at which a Generating Unit is able to readily respond to a dispatch instruction.	MIN_DISP_LEVEL [**P**]	No	Yes	m:MinDispatchLevel/m:value	float
Minimum Dispatch Level Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:MinDispatchLevel /m:units	string
Pump Maximum Start-ups Per Day	The maximum pump start ups per day	PUMP_MAX_STRT [**AB**]	No	Yes	m:pumpMaxStartUps	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Spin Capacity Value	The portion of unloaded synchronized generating capacity that is immediately responsive to system frequency and that is capable of being loaded in ten minutes, and that is capable of running for at least two hours.	RSRV_CAP_SPIN [**AL**]	Yes	Yes	m:ResourceCapacity[m:capacityType='**SR**']/m:defaultCapacity/m:value	float
Spin Capacity Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:ResourceCapacity[m:capacityType='**SR**']/m:defaultCapacity/m:units	string
Spin Capacity Type	Capacity Type must be set to '**SR**'.	n/a	No	n/a	m:ResourceCapacity/m:capacityType='**SR**'	string
Non-Spin Capacity Value	The portion of off-line generating capacity that is capable of being synchronized and Ramping to a specified load in ten minutes (or load that is capable of being interrupted in ten minutes) and that is capable of running (or being interrupted.)	RSRV_CAP_NSPIN [**AM**]	Yes	Yes	m:ResourceCapacity[m:capacityType='**NR**']/m:defaultCapacity/m:value	float
Non-Spin Capacity Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:ResourceCapacity[m:capacityType='**NR**']/m:defaultCapacity/m:units	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Non-Spin Capacity Type	Capacity Type must be set to '**NR**'	n/a	No	n/a	m:ResourceCapacity/m:capacityType ='**NR**'	string
Certified Nonspin DAM	An identifier of a resource that is certified to provide Non-Spinning Reserve in the DAM. The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_DAM [**BB**]	No	Yes	m:ResourceCertification/m:certifiedNonspinDAM	string
Certified Nonspin RTM	An identifier of a resource that is certified to provide Non-Spinning Reserve in the RTM. To be procured in the RTM, a unit must also have a Startup Code Type of FAST. The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_RTM [**BC**]	No	Yes	m:ResourceCertification/m:certifiedNonspinRTM	string
Certified PIRP	PIRP program identifier. Valid values are: 'YES' – is eligible for Settlements treatment as a PIRP participant. 'NO' – not a PIRP participant. 'M' – meterological data will be collected in the PIRP program. 'Q' – meterological data will be collected in the PIRP program and is subject to the 701 Settlement Forcast Fee.	CERT_PIRP [**AN**]	No	No	m:ResourceCertification/m:certifiedPIRP	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Certified Regulation Down	An identifier of a resource that is certified to provide Regulation Down Reserve. The acceptable values are 'YES' or 'NO'.	CERT_REG_DOWN [**AY**]	No	Yes	m:ResourceCertification/m:certifiedRegulationDown	string
Certified Regulation Up	An identifier of a resource that is certified to provide Regulation Up Reserve. The acceptable values are 'YES' or 'NO'.	CERT_REG_UP [**AZ**]	No	Yes	m:ResourceCertification/m:certifiedRegulationUp	string
Certified Spin	An identifier of a resource that is certified to provide Spinning Reserve.. The acceptable values are 'YES' or 'NO'.	CERT_SPIN [**BA**]	No	Yes	m:ResourceCertification/m:certifiedSpin	string
Certified RUC	A resource that can participate in RUC market. Currently all PGA resources can participate in the RUC market. The acceptable values are 'YES' or 'NO'.	CERT_RUC [**AW**]	No	No	m:ResourceCertification/m:certifiedRUC	string
Fuel Region Type	The area of the state where the Generator lies - used for Gas-fired and Coal Generators.	FUEL_REGN_TYPE [**K**]	No	No	m:FuelRegion/m:fuelRegionType	string
Electric Region	Electric Region	ELECTRIC_REGN [L]	No	No	M:ElectricRegion/m:mrid	String
MSG Resource Flag	Indicator of a resource that is modeled with multiple configurations under the Multi-Stage Generator (MSG) model. The acceptable values are 'YES' or 'NO'.	MSG_YN [**BQ**]	No	No		string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Ramp Time	Represents the time in minutes it takes to physically ramp from off-line to pmin. Even though it is modeled as a float, values will be rounded by normal rounding rules to an integer value.	STARTUP_RAMP_TIME [**BR**]	No	No		float
Supplied Configuration Flag	Placeholder for future functionality. This flag will indicate whether the online configuration ID for the MSG resource will be provided to the ISO in real-time. If "NO", ISO systems will derive the configuration ID based on telemetry or state estimator solution. The acceptable values are 'YES' or 'NO'.	SUPPLIED_CONFIG_YN [**BS**]	No	No		string
Hourly Predispatch Flag	Indicates need to dispatch before the start of the operating hour. Only relevent in Real-Time Market.	HR_PRE_DISP [**BT**]	No	Yes	m:hourlyPredispatch	string
CertifiedBlackStart	BlackStartCertification: Y: Certified for Black Start; N: Not Certified for Black Start; Will be null for non-Generators	CERT_BLKSTRT [AT]	No	No	m:ResourceCertification/m:certifiedBlackStart	string
Certified DAM	Certified for Day-Ahead Market	CERT_DAM [AU]	No	No	m:ResourceCertification/m:certifiedDAM	string
Certified RTM	Certified for Real-Time Market	CERT_RTM [AV]	No	No	m:ResourceCertification/m:certifiedRTM	string
NGR	Indicates a non-generator resource that can operate as either Gen or Load. The acceptable values are 'YES' or 'NO'.	NGR [BU]	No	No	m:NGResourceFlag	String

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
REM	Indicates an NGR resource electing Regulation Energy Management (REM) and can only provide Regulation service. The acceptable values are 'YES' or 'NO'.	REM [BV]	No	Yes	m:REMFlag	string
Minimum Continuous Energy Limit	The minimum energy (MWh) that the LESR device can store.	MIN_CONT_ENERGY_LIMIT [BW]	No	Yes	m:minContinuousEnergyLimit	float
Maximum Continuous Energy Limit	The maximum energy (MWh) that the LESR device can store.	MAX_CONT_ENERGY_LIMIT [BX]	No	Yes	m:maxContinuousEnergyLimit	float
Curtailment Energy Limit	The maximum reduction of energy consumption (MWh) that the DDR device can incur.	CURT_ENERGY_LIMIT [BY]	No	Yes	m:curtailmentEnergyLimit	float
Energy Efficiency	Percent of charging energy that the device can discharge.	ENERGY_EFFIC [BZ]	No	Yes	m:energyEfficiency	float
Combined Heat and Power Resource	Identifies resource that has been approved as Combined Heat and Power resource (producing electric energy and forms of useful thermal energy).	CHP [CA]	No	No	m:CHPResourceFlag	String

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
RMT Max On Peak	RMTG *On Peak* capacity value	RMT_MAX_ON_PEAK [CB]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/value where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOnPeak'**	Float
RMT On Peak Expiration Date	Due date by when RMTG *On Peak* capacity value must be renewed.	RMT_MAX_ON_PEAK_EXP_DT [CC]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/RMTGCapacityExpDate where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOnPeak'**	Date
RMT Max Off Peak	RMTG *Off Peak* capacity value	RMT_MAX_OFF_PEAK [CD]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/value where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOffPeak'**	Float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
RMT Off Peak Expiration Date	Due date by when RMTG *Off Peak* capacity value must be renewed.	RMT_MAX_OFF_PEAK_EXP_DT [CE]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/RMTGCapacityExpDate where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOffPeak'**	Date
Emission Rate	Factor was used by CARB to determine resource's obligation for compliance with CA Greenhouse Gas Emission Cap-and-Trade program.	GHG_EMISSION_RATE [CF]	No	Yes	m:GHGEmissionFactor	Float
Green House Gas Compliance Obligation	Identifies a resource that has obligation to comply with CA Greenhouse Gas Emission Cap-and-Trade program.	GHG_COMPLIANCE_OBLIG [CG]	No	Yes	m:GHGComplianceObligFlag	string
Min Load Major Maintenance Adder	This is a fixed adder which modifies the proxy minimum load in order to account for major maintenance expenses.	ADDER_AMT [CH]	No	No	m:minLoadMMA	Float
Variable Energy Resource Flag	Variable Energy Resource (VER) identification flag; Y: It is a VER; N: It is not a VER. If no data, it is assumed to not be a VER	VER [CI]	No	Yes	m:VERFlag	string
Forecast Selection	Variable energy resource forecast selection	FORECAST_SELECTION [CJ]	No	Yes	m:ForecastSelection	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Energy Imbalance Market Participating Flag	Energy Imbalance Market (EIM) participation flag. Identifies if the resource is participating in the EIM.	EIM_PARTICIPATING [CK]	No	No	m:EIMParticipationFlag	string
Balancing Authority Area	The Balancing Authority Area to which the resource belongs.	BAA [CL]	No	No	m:HostControlArea/m:mrid	string
O&M Adder Type	Identifies the type of Operating Maintenance Cost. Valid Types are D (Default) and N (Negotiated).	OPER_MAINT_ADDER_TYPE [BI]	No	No	m:operatingMaintenanceCostType	string
Regulation Segments (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:RegulatingLimit/**	
High Limit Value	Higher level of the Regulation Range.	Higher MW for Regulation [**E**]	No	Yes	m:highLimit/m:value	float
High Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:highLimit/m:units	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Low Limit Value	Lower level of the Regulation Range.	Lower MW for Regulation [**D**]	No	Yes	m:lowLimit/m:value	float
Low Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:lowLimit/m:units	string
Segment Number	Number of the regulation range. Up to two segments allowed. If two are submitted, then segment number 1 must describe the lower range and segment number 2 must describe the upper range.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Forbidden Region Segments (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:ForbiddenRegion/**	
Crossing Time	The time a generator needs to move through the Forbidden Region.	Forbidden Region Crossing Time [**F**]	No	Yes	m:crossTime	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
High MW	The upper MW output of the forbidden region of the current segment. The forbidden region should be inside of segment (i); meaning a forbidden region cannot cross two segments and the segment cannot be overlapped. Note: Forbidden regions cannot include nor overlap regulation ranges or heat segments.	Upper MW of Forbidden Region [**E**]	No	Yes	m:highMW	float
Low MW	The lower MW output of the forbidden range of the current segment. The forbidden region should be inside of segment (i); meaning a forbidden region cannot cross two segments and the segment cannot be overlapped. Note: forbidden regions cannot include nor overlap regulation ranges or heat segments.	Lower MW of Forbidden Region [**D**]	No	Yes	m:lowMW	float
Segment Number	This number represents a given forbidden region. Segment number 1 should be the forbidden region at the lowest level in the operating range. Segment numbers should correspond to sequential regions along the operating range, ending with segment (n) at the highest operating level. Up to four (4) segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Ramp Rates (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:RampRateCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Ramp MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Ramp Min Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Ramp Max Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Ramp Rate Type	The legitimate values are as follows: OP – Operational Ramp Rate REG – Regulation Ramp Rate OP_RES – Operating Reserve Ramp Rate	Based on the sheet name **OP**=RAMPRATE Sheet **REG**=REGRAMP Sheet **OP_RES**=OP RES RAMP Sheet [B]	Yes	Yes	m:rampRateType	string
Individual Ramp Rate Data (0 to unbounded) Substitute Ramp Rate Type for 'XX' to retrieve values by type					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:RampRateCurve[m:rampRateType='XX'] /m:CurveScheduleDatas/**	
Ramp MW Output Value	The Generating Unit MW output of point i. The first point (1) of MW output must begin at the Generating Unit's PMin. The last point (n) of MW output must end at the Generating Unit's PMax. This field only applies to ramp rate type "OP". Other types ("REG" and "OP_RES") should not include this field.	Operating Level [D]	No	Yes	m:xAxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Ramp Min Rate Value	The maximum ramp rate under the worst operating condition of the Generating Unit between point (i) and the point (i+1). The minimum ramp rate of the last point should = the previous one. This requires providing the minimum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Worst Operational Ramp Rate [E]	No	Yes	m:y1AxisData	float
Ramp Max Rate Value	The maximum ramp rate under the best operating condition of the Generating Unit between point (i) and the point (i+1). The maximum ramp rate of the last point should = the previous one. This requires providing the maximum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Best Operational Ramp Rate [F]	No	Yes	m:y2AxisData	float
Market Ramp Rate Value	Market value counterpart to existing Design value	Market Ramp Rate [G]	No	Yes	m:y3AxisData	float
Segment Number	Point numbers between the PMin and PMax of the Generating Unit output. The point numbering starts at 1. Up to 5 points allowed.	Segment Number [C]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat Rate – Heat Rate Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:HeatRateCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Heat Heat Rate Units	This field is not used. The assumed unit of measure is BTU/KW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Heat Emission Rate Units	This field is not used. The assumed unit of measure is lbs of NOx/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat Rate Curve Data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:HeatRateCurve/m:CurveScheduleDatas/**	
Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float
Heat – Heat Rate Value	For gas-fired units only, the average heat rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Heat rate must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable). If not a gas-fired unit, leave blank and instead complete the Average Heat Cost field.	Heat Rate [**E**]	No	Yes	m:y1AxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat Emission Rate Value	The emission rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Emission rate must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable).	Heat Emission Rate [**F**]	No	Yes	m:y2AxisData	float
Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Heat - Fuel Cost Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:FuelCostCurve/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Average Cost Units	This field is not used. The assumed unit of measure is $/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Fuel Cost Curve Data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:FuelCostCurve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float
Average Cost Value	Use this value for non-gas fired units instead of Heat Rate. The average cost of the Generating Unit on point (i) in $. If value at point (i) is not available, linear interpolation can be used to approximate the value. Average cost must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable). If gas-fired, make sure to enter a value in Heat Rate and leave this field blank.	Average Cost [**G**]	No	Yes	m:y1AxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Startup – Time (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:StartUpTimeCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Time data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpTimeCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** Downtime must be set to the same value for each element of a segment (Time, Fuel, Aux, and Energy) to ensure consistent startup data content. If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Time Value	Startup Time is the time (in whole minutes) it takes a resource to achieve PMin from an off-line position given the corresponding Down Time (Registered Cooling Time). The startup time of the Generating Unit (in minutes) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup time (in minutes) from cooling time (n) to infinity. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.**	Start-Up Time [**E**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Startup – Energy (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:StartUpEnergyCurve/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is MW/Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Energy data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpEnergyCurve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float
Startup Energy Value	The electrical power used by a Generating Unit during startup. The Generating Unit's startup auxiliary power (in MWh) from the down time (i) to down time (i + 1). The last sequence is the startup auxiliary power (in MWh) from current sequence to infinite.	Start-Up Aux [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold). Up to 9 segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup – Fuel (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:StartUpFuelCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Fuel Value Units	This field is not used. The assumed unit of measure is Million BTU. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Fuel data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:StartUpFuelCurve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [D]	No	Yes	m:xAxisData	float
Startup Fuel Value	The fuel use (in mBTU per start) expected for the startup of a natural gas fired Generating Unit that has been off-line for a substantial period of time. The startup fuel of the Generating Unit (in mBTU) from the down time (i) to down time (i + 1). The last sequence is the startup fuel (in mBTU) from current sequence to infinite.	Start-Up Fuel [**H**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup – Cost (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:StartUpCostCurves/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Cost data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:StartUpCostCurves/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float
Startup Cost Value	The startup cost of non-natural gas fired Generating Units (in dollars) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup cost (in dollars) from cooling time (n) to infinity.	Start-Up Cost [**F**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold). Up to 9 segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Major Maintenance Adder	The Major Maintenance Adder (MMA) provides for the definition of a cost adder curve used as an overlay to the initial StartUpCostCurve to account for major maintenance expenses	Start-Up MMA [I]	No	No	m:AdderCurve	float
MSG Configurations – configurations (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:Configuration/**	
Configuration Name	Descriibes the configuration from a human readable point of view	On MSG_CONFIG Sheet – CONFIG_NAME [**C**]	No	Yes	m:name	string
Configuration ID	Must be unique within the MSG Resource	CONFIG_ID [**B**]	Yes	No	m:mrid	string
Startup Code Type	Represents the startup speed of a configuration. **FAST**: configuration that can startup within ten minutes. Leave blank for all other configurations.	STARTUP_CD_TYPE [**N**]	No	Yes	m:LogicalGenerator/startUpCodeType	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Maximum Generation	Maximum generation for this configuration. This value must be < = to Maximum Generation of its parent resource.	MAX_GEN [**D**]	Yes	Yes	m:LogicalGenerator/m:maximumOperatingMW/m:value	float
Minimum Generation	Minimum generation for this configuration. This value must > = to the minimum generation of its parent resource.	MIN_GEN [**E**]	Yes	Yes	m:LogicalGenerator/m:minimumOperatingMW/m:value	float
Minimum Load Cost	Minimum load cost for this configuration.	MIN_LOAD_COST [**H**]	No	Yes	m:LogicalGenerator/m:minLoadCost/m:value	float
Minimum Off Time	Minimum off time for this configuration, this is when its down what's the minimum time before you can restart	MIN_OFF [**G**]	No	Yes	m:LogicalGenerator/m:minOffTime/m:value	float
Minimum On Time	Minimum on time that a configuration once started must run for.	MIN_ON [**F**]	No	Yes	m:LogicalGenerator/m:minOnTime/m:value	float
Startup Ramp Time	Startup Ramp Time	STARTUP_RAMP_TIME [**M**]	No	No	m:LogicalGenerator/m:StartUpRampTime	float
Startup Flag	Whether Combined Cycle Plant can be started in this Logical Configuration. The acceptable values are 'YES' or 'NO'.	STARTUP_YN [K]	Yes	Yes	m:LogicalGenerator/m:startUpFlag	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Shutdown Flag	Can you shutdown from this configuration? The acceptable values are 'YES' or 'NO'.	SHUTDOWN_YN [L]	No	Yes	m:LogicalGenerator/m:shutDownFlag	string
Reserve Capacity Non-Spinning	The amount of reserve capacity available in non-spinning mode.	RSRV_CAP_NSPIN [**J**]	No	Yes	m:LogicalGenerator/ m:ResourceCapacity[m:capacityType='**NR**']/m:defaultCapacity/m:value	float
Reserve Capacity Spinning	The amount of reserve capacity available in spinning mode	RSRV_CAP_SPIN [**I**]	No	Yes	m:LogicalGenerator/ m:ResourceCapacity[m:capacityType='**SR**']/m:defaultCapacity/m:value	float
Certified for Non Spin DAM (Day Ahead Market)	Configuration is certified for Non-Spinning DAM (Day Ahead Market). The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_DAM [**R**]	No	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedNonspinDAM	string
Certified for Non-Spin RTM (Real Time Market)	Configuration is certified for Non-Spinning RTM (Real Time Market). The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_RTM [**S**]	No	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedNonspinRTM	string
Certified for Regulation Down	Configuration is certified for Regulation Down. The acceptable values are 'YES' or 'NO'.	CERT_REG_DOWN [**O**]	No	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedRegulationDown	string
Certified for Regulation Up	Configuration is certified for Regulation Up. The acceptable values are 'YES' or 'NO'.	CERT_REG_UP [**P**]	No	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedRegulationUp	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Certified for Spin	Configuration is certified for Spinning. The acceptable values are 'YES' or 'NO'.	CERT_SPIN [**Q**]	No	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedSpin	string
Min Load Major Maintenance Adder	This is a fixed adder which modifies the proxy minimum load in order to account for major maintenance expenses.	ADDER_AMT [T]	No	No	m:LogicalGenerator/m:minLoadMMA	float
RA Range Min	Together with RARangeMax, used to determine the default RA Provider (configuration) based on RA value; null means configuration will not be a default provider	MIN_RA_LIMIT [U]	No	Yes	m:LogicalGenerator/m:RARangeMin	float
RA Range Max	Together with RARangeMin, used to determine the default RA Provider (configuration) based on RA value; null means configuration will not be a default provider	MAX_RA_LIMIT [V]	No	Yes	m:LogicalGenerator/m:RARangeMax	float
Implied Starts	The number of starts of physical units within an ISO modeled resource or MSG configuration.For an MSG Configuration, the number of startable CTs (Combustion Turbines) for a given configuration	IMPLIED_STRTS [W]	No	Yes	m:LogicalGenerator/m:ImpliedStartsCount	integer
Configuration - Regulation Segments (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator/**m:RegulatingLimit/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
High Limit Value	Higher level of the Regulation Range.	Higher MW for Regulation [**E**]	No	Yes	m:highLimit/m:value	float
High Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:highLimit/m:units	string
Low Limit Value	Lower level of the Regulation Range.	Lower MW for Regulation [**D**]	No	Yes	m:lowLimit/m:value	float
Low Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:lowLimit/m:units	string
Segment Number	Number of the regulation range. Up to two segments allowed. If two are submitted, then segment number 1 must describe the lower range and segment number 2 must describe the upper range.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Configuration - Ramp Rates (0 to unbounded)					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:RampRateCurve/	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Ramp MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Ramp Min Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Ramp Max Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Ramp Rate Type	The legitimate values are as follows: OP – Operational Ramp Rate REG – Regulation Ramp Rate OP_RES – Operating Reserve Ramp Rate	Based on the sheet name **OP**=RAMPRATE Sheet **REG**=REGRAMP Sheet **OP_RES**=OP RES RAMP Sheet [C]	Yes	Yes	m:rampRateType	string
Individual Ramp Rate Data (0 to unbounded) Substitute Ramp Rate Type for 'XX' to retrieve values by type					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:RampRateCurve[m:rampRateType='XX']/m:CurveScheduleDatas/	
Ramp MW Output Value	The Generating Unit MW output of point i. The first point (1) of MW output must begin at the Generating Unit's PMin. The last point (n) of MW output must end at the Generating Unit's PMax. This field only applies to ramp rate type "OP". Other types ("REG" and "OP_RES") should not include this field.	Operating Level [E]	No	Yes	m:xAxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Ramp Min Rate Value	The maximum ramp rate under the worst operating condition of the Generating Unit between point (i) and the point (i+1). The minimum ramp rate of the last point should = the previous one. This requires providing the minimum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Worst Operational Ramp Rate [F]	No	Yes	m:y1AxisData	float
Ramp Max Rate Value	The maximum ramp rate under the best operating condition of the Generating Unit between point (i) and the point (i+1). The maximum ramp rate of the last point should = the previous one. This requires providing the maximum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Best Operational Ramp Rate [G]	No	Yes	m:y2AxisData	float
Segment Number	Point numbers between the PMin and PMax of the Generating Unit output. The point numbering starts at 1. Up to 5 points allowed.	Segment Number [D]	Yes	Yes	m:segmentNumber	integer
Market Ramp Rate Value	Market value counterpart to existing Design value	Market Ramp Rate [H]	No	Yes	m:y3AxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Configuration - Heat Rate – Heat Rate Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator/**m:HeatRateCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Heat Heat Rate Units	This field is not used. The assumed unit of measure is BTU/KW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat Emission Rate Units	This field is not used. The assumed unit of measure is lbs of NOx/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string
Heat Rate Curve Data (0 to unbounded)					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:HeatRateCurve/m:CurveScheduleDatas/	
Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float
Heat – Heat Rate Value	For gas-fired units only, the average heat rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Heat rate must be provided at the first point (1) (PMin) and the last point (n) (PMax). If not a gas-fired unit, leave blank and instead complete the Average Heat Cost field.	Heat Rate [**E**]	No	Yes	m:y1AxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat Emission Rate Value	The emission rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Emission rate must be provided at the first point (1) (PMin) and the last point (n) (PMax).	Heat Emission Rate [**F**]	No	Yes	m:y2AxisData	float
Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Heat - Fuel Cost Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:FuelCostCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Average Cost Units	This field is not used. The assumed unit of measure is $/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Fuel Cost Curve Data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:FuelCostCurve/m:CurveScheduleDatas/**	
Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Average Cost Value	Use this value for non-gas fired units instead of Heat Rate. The average cost of the Generating Unit on point (i) in $. If value at point (i) is not available, linear interpolation can be used to approximate the value. Average cost must be provided at the first point (1) (PMin) and the last point (n) (PMax). If gas-fired, make sure to enter a value in Heat Rate and leave this field blank.	Average Cost [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Configuration - Startup – Time (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpTimeCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Time data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerato r/**m:LogicalGenerator**/m:StartUpTime Curve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** Downtime must be set to the same value for each element of a segment (Time, Fuel, Aux, and Energy) to ensure consistent startup data content. If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Time Value	Startup Time is the time (in whole minutes) it takes a resource to achieve PMin from an off-line position given the corresponding Down Time (Registered Cooling Time). The startup time of the Generating Unit (in minutes) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup time (in minutes) from cooling time (n) to infinity. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.**	Start-Up Time [**E**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponds to cooling time of the unit. The segment starts at 1. Up to 3 segments are allowed (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Configuration - Startup – Energy (0 to unbounded)					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:StartUpEnergyCurve/	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is MW/Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Energy data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerato r/**m:LogicalGenerator**/m:StartUpEner gyCurve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float
Startup Energy Value	The electrical power used by a Generating Unit during startup. The Generating Unit's startup auxiliary power (in MWh) from the down time (i) to down time (i + 1). The last sequence is the startup auxiliary power (in MWh) from current sequence to infinite.	Start-Up Aux [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponds to cooling time of the unit. The segment starts at 1. Up to 3 segments are allowed (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Configuration - Startup – Fuel (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpFuel Curve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Fuel Value Units	This field is not used. The assumed unit of measure is Million BTU. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Fuel data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpFuel Curve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [D]	No	Yes	m:xAxisData	float
Startup Fuel Value	The fuel use (in mBTU per start) expected for the startup of a natural gas fired Generating Unit that has been off-line for a substantial period of time. The startup fuel of the Generating Unit (in mBTU) from the down time (i) to down time (i + 1). The last sequence is the startup fuel (in mBTU) from current sequence to infinite.	Start-Up Fuel [**H**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponds to cooling time of the unit. The segment starts at 1. Up to 3 segments are allowed (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Configuration - Startup – Cost (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpCost Curve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Cost data (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpCost Curve/m:CurveScheduleDatas/**	

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**E**]	No	Yes	m:xAxisData	float
Startup Cost Value	The startup cost of non-natural gas fired Generating Units (in dollars) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup cost (in dollars) from cooling time (n) to infinity.	Start-Up Cost [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponds to cooling time of the unit. The segment starts at 1. Up to 3 segments are allowed (hot, warm and cold).	Segment Number [**D**]	Yes	Yes	m:segmentNumber	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Startup Major Maintenance Adder	The Major Maintenance Adder (MMA) provides for the definition of a cost adder curve used as an overlay to the initial StartUpCostCurve to account for major maintenance expenses	Start-Up MMA [J]	No	No	m:AdderCurve	float
Transitions (0 to unbounded)					**//m:MessagePayload/m:MasterFile RDTRecord/m:RegisteredGenerator/m:Transition/**	
From Configuration ID	This configuration ID is the starting point for a transition between two configurations.	TRANSITION Sheet CONFIG_ID_FROM [**B**]	Yes	Yes	m:FromConfiguration/mrid	string
To Configuration ID	This configuration ID is the ending point for a transition between two configurations.	CONFIG_ID_TO [**C**]	Yes	Yes	m:ToConfiguration/mrid	string
Maximum Daily Transitions	Denotes the maximum number of times that this transition can be performed per day.	MAX_DAILY_TRANSITIONS [**G**]	Yes	Yes	m:maxDailyTransitions	integer
Market Maximum Daily Transitions	Market value counterpart to existing Design value	MKT_MAX_DAILY_TRANS [H]	No	Yes	m:marketMaxDailyTransitions	integer

Element	Data Description	RDT XLS Field [Column[4]]	Req'd	Modify	XPath	Type
Notification Time	The time in minutes 'Configuration ID-To' requires before deployment. Notification time includes transition time.	NOTIFICATION_TIME [**F**]	No	Yes	m:notificationTime	float
Transition Cost	The cost of moving from 'Configuration ID-From' to 'Configuration ID-To'.	TRANSITION_COST [**D**]	No	Yes	m:transitionCost	float
Transition Ramp Time	The time in minutes it takes to move from 'Configuration ID-From' to 'Configuration ID-To'	TRANSITION_RAMP_TIME [**E**]	Yes	Yes	m:transitionRampTime	float
Transition Midpoint MW	The MW level of the midpoint for a transition	TRANSITION_MIDPOINT_MW [I]	No	Yes	m:transitionMidpointMW/m:value	float
Transition Midpoint Time	The time taken to reach the MW level of the midpoint for a transition	TRANSITION_MIDPOINT_TIME [J]	No	Yes	m:transitionMidpointTime	Integer
Implied Starts	The number of starts of physical units within an ISO modeled resource or MSG configuration. For an MSG Transition, the number of startable CT (Combustion Turbine) units between the Configurations within a Transition	IMPLIED_STRTS [K]	No	Yes	m:ImpliedStartsCount	integer

5.7.2 Schema

5.7.2.1 GeneratorRDT_v4.xsd

5.7.3 Example XML File (GeneratorRDTExample.xml)

```
<?xml version="1.0" encoding="UTF-8" ?>
- <!--
Sample XML file generated by XMLSpy v2013 rel. 2 sp2 (x64) (http://www.altova.com)
  -->
- <GeneratorRDT xsi:schemaLocation="http://www.caiso.com/soa/GeneratorRDT_v4.xsd# GeneratorRDT_v4.xsd"
    xmlns="http://www.caiso.com/soa/GeneratorRDT_v4.xsd#" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
    instance">
    -
     <MessageHeader>
          <TimeDate>2017-03-31T14:34:41.746-07:00</TimeDate>
          <Source>MF</Source>
          <Version>v20171001</Version>
       </MessageHeader>
- <MessagePayload>
- <MasterFileRDTRecord>
  <Comment>String</Comment>
  <RDTEffectiveDate>2001-12-17T09:30:47Z</RDTEffectiveDate>
```

```
<SchedulingCoordinator>String</SchedulingCoordinator>
- <RegisteredGenerator>
<mrid>a</mrid>
<name>String</name>
<dispatchFlag>NO</dispatchFlag>
<EIMParticipationFlag>NO</EIMParticipationFlag>
<hourlyPredispatch>NO</hourlyPredispatch>
<isAggregatedRes>NO</isAggregatedRes>
<LMPMFlag>NO</LMPMFlag>
<marketParticipationFlag>NO</marketParticipationFlag>
<mustOfferObligationQualified>N</mustOfferObligationQualified>
<priceSetFlagDA>NO</priceSetFlagDA>
<priceSetFlagRT>NO</priceSetFlagRT>
<resourceType>GEN</resourceType>
- <ForbiddenRegion>
<crossTime>0</crossTime>
<highMW>3.14159E0</highMW>
<lowMW>3.14159E0</lowMW>
<segmentNumber>0</segmentNumber>
  </ForbiddenRegion>
- <HostControlArea>
<mrid>a</mrid>
```

```
    </HostControlArea>
- <maxOnTime>
  <units>String</units>
  <value>3.14159E0</value>
    </maxOnTime>
- <minOffTime>
  <units>String</units>
  <value>3.14159E0</value>
    </minOffTime>
- <minOnTime>
  <units>String</units>
  <value>3.14159E0</value>
    </minOnTime>
- <RampRateCurve>
  <description>a</description>
  <xAxisUnits>MW</xAxisUnits>
  <y1AxisUnits>MVAr</y1AxisUnits>
  <y2AxisUnits>MVAr</y2AxisUnits>
- <CurveScheduleDatas>
  <segmentNumber>0</segmentNumber>
  <xAxisData>3.14159E0</xAxisData>
  <y1AxisData>3.14159E0</y1AxisData>
```

```
<y2AxisData>3.14159E0</y2AxisData>
<y3AxisData>3.14159E0</y3AxisData>

  </CurveScheduleDatas>
<rampRateType>OP</rampRateType>
  </RampRateCurve>
- <ResourceCapacity>
<capacityType>NR</capacityType>
- <defaultCapacity>
<units>String</units>
<value>3.14159E0</value>
  </defaultCapacity>
  </ResourceCapacity>
- <ResourceCertification>
<certifiedBlackStart>NO</certifiedBlackStart>
<certifiedDAM>NO</certifiedDAM>
<certifiedNonspinDAM>NO</certifiedNonspinDAM>
<certifiedNonspinRTM>NO</certifiedNonspinRTM>
<certifiedPIRP>String</certifiedPIRP>
<certifiedRegulationDown>NO</certifiedRegulationDown>
<certifiedRegulationUp>NO</certifiedRegulationUp>
<certifiedRTM>NO</certifiedRTM>
```

<certifiedRUC>**NO**</certifiedRUC>
<certifiedSpin>**NO**</certifiedSpin>
</ResourceCertification>
<AQMDistrict>**String**</AQMDistrict>
<CHPResourceFlag>**NO**</CHPResourceFlag>
<constrainedOutputFlag>**NO**</constrainedOutputFlag>
<costRankLMPM>**1**</costRankLMPM>
<discreteDispatchFlag>**NO**</discreteDispatchFlag>
<energyEfficiency>**3.14159E0**</energyEfficiency>
<forecastSelection>**ISO**</forecastSelection>
<fuelSource>**BGAS**</fuelSource>
<genToPumpMinDownTime>**0**</genToPumpMinDownTime>
<genType>**H**</genType>
<GHGEmissionFactor>**3.14159E0**</GHGEmissionFactor>
<GHGComplianceObligFlag>**NO**</GHGComplianceObligFlag>
<GHGCost>5.**00**</GHGCost>
<loadFollowingDownMSS>**NO**</loadFollowingDownMSS>
<loadFollowingUpMSS>**NO**</loadFollowingUpMSS>
<marketMaxStartUpsPerDay>**2**</marketMaxStartUpsPerDay>
<maxStartUpsPerDay>**2**</maxStartUpsPerDay>
<MLCostBasis>**PRXC**</MLCostBasis>
<MSGResourceFlag>**NO**</MSGResourceFlag>

<negotiateRankLMPM>**1**</negotiateRankLMPM>
<NGResourceFlag>**NO**</NGResourceFlag>
<PGAName>**String**</PGAName>
<priceRankLMPM>**1**</priceRankLMPM>
<priorityType>**String**</priorityType>
<pumpingFactor>**3.14159E0**</pumpingFactor>
<pumpMaxStartUps>**0**</pumpMaxStartUps>
<pumpShutdownCost>**3.14159E0**</pumpShutdownCost>
<pumpShutdownTime>**0**</pumpShutdownTime>
<pumpToGenMinDownTime>**0**</pumpToGenMinDownTime>
<qualifyingFacilityOwner>**String**</qualifyingFacilityOwner>
<REMFlag>**NO**</REMFlag>
<RMRFlag>**NO**</RMRFlag>
<startUpCodeType>**String**</startUpCodeType>
<startUpRampTime>**3.14159E0**</startUpRampTime>
<SUCostBasis>**PRXC**</SUCostBasis>
<suppliedConfigFlag>**NO**</suppliedConfigFlag>
<TGEnergyProductType>**DYN**</TGEnergyProductType>
<unitType>**CCYC**</unitType>
<useLimitFlag>**NO**</useLimitFlag>
<VERFlag>**NO**</VERFlag>
<AdderComponent>

```
<adderCategory>ENERGYDEB</adderCategory>
<adderType>CALCULATED</adderType>
<adderCategory>RUNHOURMLC</adderCategory>
<adderType>CALCULATED</adderType>
<adderCategory>STARTSUC</adderCategory>
<adderType>CALCULATED</adderType>
  </AdderComponent>
- <Configuration>
<mrid>a</mrid>
<name>String</name>
- <LogicalGenerator>
<ImpliedStartsCount>1</ImpliedStartsCount>
<minOffTime>3.14159E0</minOffTime>
<minOnTime>3.14159E0</minOnTime>
<RARangeMax>3.14159E0</RARangeMax>
<RARangeMin>3.14159E0</RARangeMin>
<startUpFlag>YES</startUpFlag>
<shutDownFlag>NO</shutDownFlag>
<startUpCodeType>String</startUpCodeType>
<startUpRampTime>3.14159E0</startUpRampTime>
- <FuelCostCurve>
<description>a</description>
<xAxisUnits>MW</xAxisUnits>
```

```
  <y1AxisUnits>MVAr</y1AxisUnits>
- <CurveScheduleDatas>
  <segmentNumber>0</segmentNumber>
  <xAxisData>3.14159E0</xAxisData>
  <y1AxisData>3.14159E0</y1AxisData>
    </CurveScheduleDatas>
    </FuelCostCurve>
- <HeatRateCurve>
  <description>a</description>
  <xAxisUnits>MW</xAxisUnits>
  <y1AxisUnits>MVAr</y1AxisUnits>
  <y2AxisUnits>MVAr</y2AxisUnits>
- <CurveScheduleDatas>
  <segmentNumber>0</segmentNumber>
  <xAxisData>3.14159E0</xAxisData>
  <y1AxisData>3.14159E0</y1AxisData>
  <y2AxisData>3.14159E0</y2AxisData>
    </CurveScheduleDatas>
    </HeatRateCurve>
- <maximumOperatingMW>
  <units>String</units>
  <value>3.14159E0</value>
```

```
    </maximumOperatingMW>
- <minimumOperatingMW>
  <units>String</units>
  <value>3.14159E0</value>
    </minimumOperatingMW>
- <minLoadCost>
  <units>String</units>
  <value>3.14159E0</value>
    </minLoadCost>
- <minLoadMMA>
  <units>String</units>
  <value>3.14159E0</value>
    </minLoadMMA>
- <RampRateCurve>
  <description>a</description>
  <xAxisUnits>MW</xAxisUnits>
  <y1AxisUnits>MVAr</y1AxisUnits>
  <y2AxisUnits>MVAr</y2AxisUnits>
- <CurveScheduleDatas>
  <segmentNumber>0</segmentNumber>
  <xAxisData>3.14159E0</xAxisData>
  <y1AxisData>3.14159E0</y1AxisData>
```

<y2AxisData>**3.14159E0**</y2AxisData>
<y3AxisData>**3.14159E0**</y3AxisData>

</CurveScheduleDatas>
<rampRateType>**OP**</rampRateType>
</RampRateCurve>
- <RegulatingLimit>
<segmentNumber>**0**</segmentNumber>
- <highLimit>
<units>**String**</units>
<value>**3.14159E0**</value>
</highLimit>
- <lowLimit>
<units>**String**</units>
<value>**3.14159E0**</value>
</lowLimit>
</RegulatingLimit>
- <ResourceCapacity>
<capacityType>**NR**</capacityType>
- <defaultCapacity>
<units>**String**</units>
<value>**3.14159E0**</value>

```
    </defaultCapacity>
    </ResourceCapacity>
- <ResourceCertification>
  <certifiedNonspinDAM>NO</certifiedNonspinDAM>
  <certifiedNonspinRTM>NO</certifiedNonspinRTM>
  <certifiedRegulationDown>NO</certifiedRegulationDown>
  <certifiedRegulationUp>NO</certifiedRegulationUp>
  <certifiedSpin>NO</certifiedSpin>
    </ResourceCertification>
- <StartUpCostCurve>
  <description>a</description>
  <xAxisUnits>MW</xAxisUnits>
  <y1AxisUnits>MVAr</y1AxisUnits>
- <CurveScheduleDatas>
  <segmentNumber>0</segmentNumber>
  <xAxisData>3.14159E0</xAxisData>
  <y1AxisData>3.14159E0</y1AxisData>
    </CurveScheduleDatas>
- <AdderCurve>
  <description>a</description>
  <xAxisUnits>MW</xAxisUnits>
  <y1AxisUnits>MVAr</y1AxisUnits>
```

- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</AdderCurve>
</StartUpCostCurve>
- <StartUpEnergyCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</StartUpEnergyCurve>
- <StartUpFuelCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>

```
<segmentNumber>0</segmentNumber>
<xAxisData>3.14159E0</xAxisData>
<y1AxisData>3.14159E0</y1AxisData>
  </CurveScheduleDatas>
  </StartUpFuelCurve>
- <StartUpTimeCurve>
<description>a</description>
<xAxisUnits>MW</xAxisUnits>
<y1AxisUnits>MVAr</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>0</segmentNumber>
<xAxisData>3.14159E0</xAxisData>
<y1AxisData>3.14159E0</y1AxisData>
  </CurveScheduleDatas>
  </StartUpTimeCurve>
  </LogicalGenerator>
  </Configuration>
- <curtailmentEnergyLimit>
<units>String</units>
<value>3.14159E0</value>
  </curtailmentEnergyLimit>
- <FuelCostCurve>
```

<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</FuelCostCurve>
- <FuelRegion>
<fuelRegionType>**String**</fuelRegionType>
</FuelRegion>
- <HeatRateCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
<y2AxisUnits>**MVAr**</y2AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
<y2AxisData>**3.14159E0**</y2AxisData>

```
    </CurveScheduleDatas>
    </HeatRateCurve>
- <maxContinuousEnergyLimit>
  <units>String</units>
  <value>3.14159E0</value>
    </maxContinuousEnergyLimit>
- <maximumOperatingMW>
  <units>String</units>
  <value>3.14159E0</value>
    </maximumOperatingMW>
- <maxPumpingLevel>
  <units>String</units>
  <value>3.14159E0</value>
    </maxPumpingLevel>
- <minContinuousEnergyLimit>
  <units>String</units>
  <value>3.14159E0</value>
    </minContinuousEnergyLimit>
- <MinDispatchLevel>
  <units>String</units>
  <value>3.14159E0</value>
    </MinDispatchLevel>
```

- <minimumOperatingMW>
  <units>**String**</units>
  <value>**3.14159E0**</value>
  </minimumOperatingMW>
- <minLoadCost>
  <units>**String**</units>
  <value>**3.14159E0**</value>
  </minLoadCost>
- <minLoadMMA>
  <units>**String**</units>
  <value>**3.14159E0**</value>
  </minLoadMMA>
- <operatingMaintenanceCost>
  <units>**String**</units>
  <value>**3.14159E0**</value>
  </operatingMaintenanceCost>
- <pumpingCost>
  <units>**String**</units>
  <value>**3.14159E0**</value>
  </pumpingCost>
- <pumpMinDownTime>
  <units>**String**</units>

<value>**3.14159E0**</value>
</pumpMinDownTime>
- <pumpMinUpTime>
<units>**String**</units>
<value>**3.14159E0**</value>
</pumpMinUpTime>
- <raiseRampRate>
<units>**String**</units>
<value>**3.14159E0**</value>
</raiseRampRate>
- <RegulatingLimits>
<segmentNumber>**0**</segmentNumber>
- <highLimit>
<units>**String**</units>
<value>**3.14159E0**</value>
</highLimit>
- <lowLimit>
<units>**String**</units>
<value>**3.14159E0**</value>
</lowLimit>
</RegulatingLimits>
- <RegulatoryMustTakeGeneration>

<RMTGCapacityExpDate>**2001-12-17T09:30:47Z**</RMTGCapacityExpDate>
<RMTGCapacityType>**String**</RMTGCapacityType>
- <RMTGCapacity>
<units>**String**</units>
<value>**3.14159E0**</value>
</RMTGCapacity>
</RegulatoryMustTakeGeneration>
- <StartUpCostCurves>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
- <AdderCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>

<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</AdderCurve>
</StartUpCostCurves>
- <StartUpEnergyCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</StartUpEnergyCurve>
- <StartUpFuelCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>

<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</StartUpFuelCurve>
- <StartUpTimeCurve>
<description>**a**</description>
<xAxisUnits>**MW**</xAxisUnits>
<y1AxisUnits>**MVAr**</y1AxisUnits>
- <CurveScheduleDatas>
<segmentNumber>**0**</segmentNumber>
<xAxisData>**3.14159E0**</xAxisData>
<y1AxisData>**3.14159E0**</y1AxisData>
</CurveScheduleDatas>
</StartUpTimeCurve>
- <Transition>
<ImpliedStartsCount>1</ImpliedStartsCount>
<marketMaxDailyTransitions>**2**</marketMaxDailyTransitions>
<maxDailyTransitions>**2**</maxDailyTransitions>
<notificationTime>**3.14159E0**</notificationTime>
<transitionCost>**3.14159E0**</transitionCost>
<transitionRampTime>**3.14159E0**</transitionRampTime>
- <FromConfiguration>
<mrid>**a**</mrid>

```
    </FromConfiguration>
-   <ToConfiguration>
    <mrid>a</mrid>
    </ToConfiguration>
    </Transition>
    </RegisteredGenerator>
    </MasterFileRDTRecord>
    </MessagePayload>
    </GeneratorRDT>
```

5.8 Submit Generator RDT Update Response

5.8.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event Result	The result contains the number of records retrieved and batch number that was created on submission. For example, "Records received=19, batchId=7862"	n/a	yes	m:Event/m:result	string
Event Id	The batch Id that was generated	n/a	yes	m:Event/m:id	string
Event Description	Success or failure message.	n/a	no	m:Event/m:description	string
Event Creation Time	The creation time in real time format	n/a	no	m:Event/m:creationTime	string
Service Id	The service Id (created by the web services framework	n/a	yes	m:Service/m:id	DateTime
Service Name	The name of the service as used by the Web Service.	n/a	yes	m:Service/m:name	string
	Optional/Unbounded			//m:outputDataType/m:EventLog/m:GeneratorRDT	
Generator RDT - Resource ID	If GeneratorRDT exists then resource id must exist	n/a	yes	m:resource_ID	string
Generator RDT - Results	Contains error messages pertaining to the submitted Generator update. May have multiple occurrences (unbounded)	n/a	no	m:results	string

5.8.2 Schema

5.8.2.1 SubmitGeneratorRDTStandardOutput.xsd

5.8.3 Example XML File (SubmitGeneratorStandardOutput.xml)

```
<submitGeneratorRDT xmlns="http://www.caiso.com/soa/2008-08-09/submitGeneratorRDT">
```

```
<outputDataType xmlns="http://www.caiso.com/soa/2008-08-09/SubmitGeneratorRDTStandardOutput.xsd">
  <EventLog>
    <Event>
      <result>Records received=19, batchId=7862</result>
      <id>7862</id>
      <description>Generator updates were successfully received.</description>
      <creationTime>2008-10-14T11:05:01.312-07:00</creationTime>
    </Event>
    <Service>
      <id>abd9f2ae-9110-4cb1-b14d-1427ea809735</id>
      <name>submitGeneratorRDT</name>
    </Service>
  </EventLog>
</outputDataType>
</submitGeneratorRDT>
```

5.9 Fault Return

5.9.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	
Id	Event log identifier.	N/A	No	m:id	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Name	Event log name.	N/A	No	m:name	string
description	Event log description.	N/A	No	m:description	string
Type	Event log type.	N/A	No	m:type	string
Creation Time	Event log creation time.	N/A	No	m:creationTime	date
Collection Type	Event log collection type.	N/A	No	m:collectionType	string
Collection Quantity	Event log collection quantity.	N/A	No	m:collectionQuantity	string
Event Result	Event result.	N/A	Yes	m:Event/m:result	string
Event Id	Event identifier.	N/A	No	m:Event/m:id	string
Event Name	Event name.	N/A	No	m:Event/m:name	string
Event Description	Event description.	N/A	No	m:Event/m:description	string
Event CreationTime	Event creation time.	N/A	No	m:Event/m:creationTime	dateTime
Event Severity	Event severity.	N/A	No	m:Event/m:severity	string
Event Priority	Event priority.	N/A	No	m:Event/m:priority	string
Event. Sequence Number	Event sequence number.	N/A	No	m:Event/m:sequenceNumber	string
Event Type	Event type.	N/A	No	m:Event/m:eventType	string
Service Id	Service identifier.	N/A	Yes	m:Service/m:id	string
Service Name	Service name.	N/A	Yes	m:Service/m:name	string
Service Description	Service description.	N/A	Yes	m:Service/m:description	string
Service Comments	Service comments.	N/A	Yes	m:Service/m:comments	string

5.9.2 Schema

5.9.2.1 StandardOutput.xsd

5.9.3 Example XML File (StandardOutput.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<m:outputDataType xsi:schemaLocation="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd StandardOutput.xsd"
xmlns:m="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:EventLog>
        <m:id>Event-123</m:id>
        <m:name>Event Name</m:name>
        <m:description>The Event Description</m:description>
        <m:type>Error Event</m:type>
        <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
        <m:collectionType>Submit Generator RDT Update</m:collectionType>
        <m:collectionQuantity>1</m:collectionQuantity>
        <m:Event>
            <m:result>Invalid Value Found in Field XX</m:result>
            <m:id>1234</m:id>
            <m:name>Error Event 1234</m:name>
            <m:description>An invalid data value was presented</m:description>
            <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
            <m:severity>High</m:severity>
            <m:priority>High</m:priority>
            <m:sequenceNumber>1</m:sequenceNumber>
            <m:eventType>Initiated by MF API</m:eventType>
        </m:Event>
```

```
        <m:Service>
            <m:id>1234567</m:id>
            <m:name>Submit Generator RDT Update</m:name>
            <m:description>Having problems - Invalid data has been presented</m:description>
            <m:comments>Some one needs to fix the data and resubmit</m:comments>
        </m:Service>
    </m:EventLog>
</m:outputDataType>
```

6 Retrieve Generator RDT Data

6.1 *Business Scenario*

Scheduling Coordinators retrieve Generator RDT Data to view operational data parameters for their resources that reside in the Master File. While many Scheduling Coordinators Retrieve their RDT Data via the UI manually, some Scheduling Coordinators Retrieve their RDT Data in batch mode through an automated process using the API. If a generator is a MSG (Multi-Stage Generator) then Configurations and Transitions will be returned, otherwise they will not be returned. If a generator is an aggregated generator, then physical generating units that make up the aggregrated generator will be returned.

6.2 Service Level Agreement

The following service level agreement defines the business and technical requirements for service availability and performance.

Service availability	Service level goal is 99%.
Expected size of payload (average and maximum)	6KB for one RDT, 1.2MB Max, 250 KB Average
Expected frequency (average and maximum)	Average of 10 and maximum of 80 retrievals per day
Longest time the service can be unavailable before business is impacted	One Day
Business impact if is unavailable	Schedule Coordinators utilizing the service may not complete Retrieving all their Data. They would have to wait longer for Data to be available.
Expected response time for the service	60 Seconds

6.3 *Use Model*

The service interaction between Scheduling Coordinators and the Master File System is a synchronous submission process.

The data exchange follows CAISO SOA Retrieve messaging pattern. In this pattern, the data source system is the Scheduling Coordinator who initiates a data transaction by invoking a RetrieveGeneratorRDT service provided by Master File. The consumer of the Web service is Scheduling Coordinator or a Web portal. The consumer makes a request to Master File with Generator RDT resource data by invoking the Retrieve Web service. The Master File system is the provider of the Web service.

The following steps are involved in the submission process:

1) Scheduling Coordinator provides criteria to find one or more Generator RDTs, the input is provided to the Master File data in XML format.
2) Scheduling Coordinator validates the data set based on the XML schema.
3) Scheduling Coordinator invokes the RetrieveGeneratorRDT_v4 web service directly to send a request to Master File with the Generator RDT resource data set
4) Master File returns the requested payload of a Generator resource message back to Scheduling Coordinator.

There is one web service involved: ***RetrieveGeneratorRDT_v4***

6.4 *Operation Details*

The service has one operation with three message types. All input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
RetrieveGeneratorRDT_v4	Input	RetrieveGeneratorRDTRequest	RetrieveGeneratorRDT_v4.wsdl RetrieveGeneratorRDT_v4_DocAttach.wsdl	RequestGeneratorRDT.xsd
	Output	RetrieveGeneratorRDTResponse		GeneratorRDT_v4.xsd StandardAttachmentInfor.xsd
	Fault	FaultReturnType		StandardOutput.xsd

6.4.1 Operation Details – WSDL URLs

Production Environment - TBD

6.5 *WSDL (RetrieveGeneratorRDT_v4.wsdl)*

6.5.1 RetrieveGeneratorRDT_v4.wsdl - Used for normal SOAP messaging

6.5.2 RetrieveGeneratorRDT_v4_DocAttach.wsdl - Used when .Net is the source of processing

6.6 Request Generator RDT Information

The request for Generator RDTs allows the API to search for Generator RDTs by the criteria specified in the XSD.

6.6.1 Element table

Element	Data Description	Req'd	XPath	Type
			//RequestGeneratorRDT/	
Trade Date	The point in time when the system is to search for resources of the specified SC ID. The time component should be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable). Data from the wrong date may be returned if time is not set to midnight.	Yes	tradeDate	dateTime See Appendix 1
Scheduling Coordinator	The ID of the Scheduling Coordinator	Yes	schedulingCoordinator	string
Resource Type	Type of Generator (ALL, GEN, LOAD, or TG)	Yes	resourceType	string
Resource ID	Either ALL resources or one specific resource ID	Yes	resourceID	string

6.6.2 Schema

6.6.2.1 RequestGeneratorRDT.xsd

6.6.3 Example XML File (RequestGeneratorRDTExample.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
<RequestGeneratorRDT xsi:schemaLocation="http://www.caiso.com/soa/2008-08-09/RequestGeneratorRDT.xsd
RequestGeneratorRDT.xsd" xmlns="http://www.caiso.com/soa/2008-08-09/RequestGeneratorRDT.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <tradeDate>2001-12-17T00:00:00.000-07:00</tradeDate>
    <schedulingCoordinator>ABCD</schedulingCoordinator>
    <resourceType>ALL</resourceType>
    <resourceID>ALL</resourceID>
</RequestGeneratorRDT>
```

6.7 Standard Attachment Information

The attachment information schema, StandardAttachmentInfor.xsd, is used to provide general information for an SOAP attachment. The root element in the schema is *standardAttachmentInfor*, which can contain one or more attachment elements.

6.7.1 Element table

Element	Data Description	Req'd	XPath	Type
id	Globally unique identifier.	No		string
name	Attachment filename.	No		string
description	Description of attachment.	No		string

Element	Data Description	Req'd	XPath	Type
version	Version ID of attachment file	No		string
Sequence Number	Sequence number if there are multiple attachments.	No		string
Type	Attachment file type, such as zip or jpeg.	No		string
Size	Size of attachment file.	No		string
source	Source of attachment file.	No		string
tool	Tool used to generate attachment.	No		string
Creation Time	Time attachment file was created.	No		dateTime
Compress Flag	Indicates whether or not attachment has been compressed (YES or NO).	No		string
Compress Method	Compress method used (if attachment file compressed).	No		string
Attribute List Sequence	Attribute list sequence number.	No		string
Attribute List Name	Name of an attribute	No		string
Attribute List Value	Value of an attribute	No		string

6.7.2 Schema

6.7.2.1 StandardAttachmentInfor.xsd

6.7.3 Example XML File (StandardAttachmentInfor.xml)

```
<?xml version="1.0" encoding="UTF-8" ?>
```

```
<!--
Sample XML file generated by XMLSpy v2006 U (http://www.altova.com)
-->
<standardAttachmentInfor xmlns="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.caiso.com/soa/2006-06-
   13/StandardAttachmentInfor.xsd">
   <Attachment>
      <id> 15798563</id>
      <name>GWED_11</name>
      <description>GENERATOR RDT ATTACHEMENT</description>
      <version>1.1</version>
      <sequenceNumber>12</sequenceNumber>
      <type>ZIP</type>
      <size>180</size>
      <source>GWED</source>
      <tool>GZIP</tool>
      <creationTime>2006-12-17T09:30:47.0-08:00</creationTime>
      <compressFlag>yes</compressFlag>
      <compressMethod>ZIP</compressMethod>
      <AttributeList>
         <Sequence>2</Sequence>
         <Name>GWED</Name>
         <Value>1</Value>
      </AttributeList>
   </Attachment>
</standardAttachmentInfor>
```

6.8 Retrieve Generator RDT Data

Generator RDT Data output occurs when a Scheduling Coordinator submits the Retrieve XML file.

6.8.1 Element Table:

Click here to go to the Generator Payload

Registered Generator			

Resource Details					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**	
Name	Descriptive name for the Resource.	RES_NAME [**D**]	No	No	m:name	
Mrid	The ISO resource identifier used for tracking each resource for market scheduling and outage coordination purposes.	RES_ID [**C**]	Yes	No	m:mrid	string
Resource Type	Descriptive identifier denoting the type of resource: Generating Unit, Tie Generator, Load. The acceptable values are: GEN, LOAD, and TG	RES_TYPE [**E**]	Yes	No	m:resourceType	string
Minimum Off Time Value	The minimum amount of time that a Generating Unit must stay off-line after being shut down, due to physical operating constraints. Minimum Off Time includes Startup Time.	MIN_OFF [**S**]	No	Yes	m:minOffTime/m:value	float
Minimum Off Time Unit	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minOffTime/m:units	string

Minimum On Time Value	The minimum amount of time that a Generating Unit must stay on-line after starting up and reaching PMin, prior to being shut down, due to physical operating constraints.	MIN_ON [**Q**]	No	Yes	m:minOnTime/m:value	float
Minimum On Time Unit	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minOnTime/m:units	string
Maximum On Time Value	The maximum amount of time that a Generating Unit can stay on-line per day, due to environmental or physical operating constraints. If no constraint, then leave this field blank.	MAX_ON [**R**]	No	Yes	m:maxOnTime/m:value	float
Maximum On Time Unit	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maxOnTime/m:units	string
Dispatchable Flag	Designates a dispatchable resource. The acceptable values are 'YES' and 'NO'	DISP [**BK**]	No	No	m:dispatchFlag	string
Discrete Dispatch Flag	A discrete dispatch resource can only be dispatched in blocks of MWs rather than continuously. The acceptable values are 'YES' and 'NO'.	DISCRETE_DISP [BL]	No	No	m: discreteDispatchFlag	string

An Aggregate Resource?	An aggregation that consists of several individual "child" resources. The acceptable values are 'YES' and 'NO'	AGGREGATE_YN [**F**]	Yes	No	m:isAggregatedRes	string
LMPM Flag	An identifier of a resource that is subject to the market power mitigation process. Defined per tariff. The acceptable values are 'YES' and 'NO'	LMPM [**AX**]	No	No	m:LMPMFlag	string
Must Offer Obligation Qualified	Y - Resource is Must Offer N - Resource is not Must Offer R - Resource is eligible for Must Offer based on RA Capacity or RCST designation in any given trading hour	MOO_QUALIFIED [**AO**]	No	No	m:mustOfferObligationQualified	string
Market Participant Flag	An identifier of the PGA Resources that participates in the market. The acceptable values are 'YES' and 'NO'	PGA_PART [**AQ**]	No	No	m:marketParticipationFlag	string
Commercial Operation-for-Market MW	Commercial Operation-for-Market MW available to market as resource is being constructed.	COM_MW [AR]	No	No	m:commercialOperationForMarket	float
Price Set Flag for Day Ahead Market	Indicator of resource being able to set the price in DA market. The acceptable values are 'YES' and 'NO'	PRC_SET_DAM [**BO**]	No	No	m:priceSetFlagDA	string
Price Set Flag for Real Time Market	Indicator of resource being able to set the price in RT market. The acceptable values are 'YES' and 'NO'	PRC_SET_RTM [**BP**]	No	No	m:priceSetFlagRT	string

Maximum Operating MW Value	The maximum normal capability of the Generating Unit.	MAX_GEN [**M**]	No	Yes	m:maximumOperatingMW/m:value	float
Maximum Operating MW Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maximumOperatingMW/m:units	string
Minimum Operating MW Value	For a Generating Unit, the minimum sustained operating level (Pmin or plant minimum) at which it can operate at a continuous level.	MIN_GEN [**O**]	No	Yes	m:minimumOperatingMW/m:value	float
Minimum Operating MW Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minimumOperatingMW/m:units	string
Raise Ramp Rate Value	Represents the fastest Best Operating Ramp Rate in the RAMP curve	MAX_RR [**BN**]	No	No	m:raiseRampRate/m:value	float
Raise Ramp Rate Units	This field is not used. The assumed unit of measure is MW/Min. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:raiseRampRate/m:units	string

Unit Type	Description of prime mover technology associated with the Generating Unit; such as, Hydro Turbine, Gas Turbine, Combined Cycle, etc. The acceptable values are: "CCYC", "GTUR", "HYDR", "OTHR", "PHOT", "PTUR", "RECP", “STUR”, "SYNC", "WIND", “PUMP”	GEN_TECH_TYPE [**I**]	No	No	m:unitType	string
Generator Type	‘H’ - Hydro resources ‘T’ - All other resources	GEN_ TYPE [**J**]		No	m:genType	string
RMR Flag	Designates a resource that has a Reliability Must Run contract. The acceptable values are ‘YES’ and ‘NO’	RMR [**BM**]	No	No	m:RMRFlag	string
Use Limit	Identifier if a resource is energy use limited, such as limitation of energy or emission control, etc. The acceptable values are ‘YES’ and ‘NO’	USE_LIMIT [**BG**]	No	Yes	m:useLimitFlag	string
Minimum Load Cost Value	The costs a Generating Unit or a Participating Load incurs operating at minimum load. The value is needed for a resource with the Cost Basis of Registered Cost (fixed value) only.	MIN_LOAD_COST [**V**]	No	Yes	m:minLoadCost/m:value	float
Minimum Load Cost Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:minLoadCost/m:units	string

Maximum Pumping Level Value	The Maximum Operating Level of a Pump or a Pumped-Storage Hydro Unit operating as a hydro pump.	MAX_PUMP [**Y**]	No	Yes	m:maxPumpingLevel/m:value	float
Maximum Pumping Level Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maxPumplingLevel/m:units	string
Operating Maintenance Cost Value	Variable operations and maintenance costs, a component of the Variable Cost option for calculating the Default Energy Bid.	OPER_MAINT_COST [**BH**]	No	No	m:operatingMaintenanceCost/m:value	float
Operating Maintenance Cost Units	This field is not used. The assumed unit of measure is $/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:operatingMaintenanceCost/m:units	string
MLCost Basis	Cost option (proxy or registered) for a generating resource's Minimum Load cost.	ML_COST_BASIS_TYPE [**W**]	No	Yes	m:MLCostBasis	string
SUCost Basis	Cost option (proxy or registered) for a generating Resource's Startup Cost.	SU_COST_BASIS_TYPE [**X**]	No	Yes	m:SUCostBasis	string

Fuel Source	Description of primary fuel type; such as, Natural Gas, Oil, Nuclear, etc. The acceptable values are: "BGAS", "BIOM", "COAL", "DIST", "GAS", "GEOT", "HRCV", "NONE", "NUCL", "OIL", "OTHR", "SOLR", "WAST", "WATR", "WIND", "LESR", "DDR"	FUEL_TYPE [**H**]	No	No	m:fuelSource	string
Constrained Output Flag	The output of the generation resources is not variable, i.e. PMax = PMin. Y: output is constrained. The acceptable values are 'YES' and 'NO'	COG [**AS**]	No	No	m:constrainedOutputFlag	string
Maximum Startups Per Day	The maximum number of times a Generating Unit can be started up within one day, due to environmental or physical operating constraints.	MAX_STRT [T]	No	Yes	m:maxStartUpsPerDay	Integer
Market Maximum Startups Per Day	The market maximum number of times a Generating Unit can be started up within one day, due to environmental or physical operating constraints.	MKT_MAX_STRT [U]	No	Yes	m:marketMaxStartUpsPerDay	integer
Pumping Cost Value	The minimum pumping cost	MIN_PUMP_CST [Z]	No	Yes	m:pumpingCost/m:value	float
Pumping Cost Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:pumpingCost/m:units	string

Pumping Factor	Pumping factor of a pumping resource	PUMPING_FACTOR [**AA**]	No	Yes	m:pumpingFactor	float
Qualifying Facility Owner	Identifier if a resource is a qualifying cogeneration facility or small qualifying power production facility, as defined in the Code of Federal Regulations, Title 18, Part 292	QF [**BF**]	No	No	m:qualifyingFacilityOwner	string
Pump Minimum Up Time Value	Minimum pumping run time	PUMP_MIN_UP_TM [**AC**]	No	Yes	m:pumpMinUpTime/m:value	float
Pump Minimum Up Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:pumpMinUpTime/m:units	string
Pump Minimum Down Time Value	The minimum amount of time that a pumping resource must stay off-line after shutting down.	PUMP_MIN_DWN_TM [**AD**]	No	Yes	m:pumpMinDownTime/m:value	float
Pump Minimum Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:pumpMinDownTime/m:units	string

Gen-to-Pump Minimum Down Time	The Gen-to-Pump minimum down time. Applies to Pump Storage Resource: Minimum time (in minutes) that resource must be offline (or self-scheduled) after being de-committed by Market system from generation operation and before being dispatched in pumping mode	MIN_DWN_TM_GP [AE]	No	Yes	m: genToPumpMinDownTime	integer
Pump-to-Gen Minimum Down Time	The Pump-to-Gen minimum down time. Applies to Pump Storage Resources: Minimum time (in minutes) that resource must be offline (or self-scheduled) after being de-committed from pumping operation and before being dispatched in generation mode.	MIN_DWN_TM_PG [AF]	No	Yes	m: pumpToGenMinDownTime	integer
Cost Rank LMPM	A method of calculating Default energy Bids based on fuel costs and variable operations and maintenance costs. Acceptable values for Rank 1, 2, or 3	COST_RANK_LMPM [**AI**]	No	Yes	m:costRankLMPM	string
Price Rank LMPM	A method of calculating Default energy Bids based Locational Marginal Prices. Acceptable values for Rank 1, 2, or 3	PRC_RANK_LMPM [**AK**]	No	Yes	m:priceRankLMPM	string
Negotiated Rank LMPM	A method of calculating Default energy Bids based on a negotiation with the CAISO or the Independent Entity. Rank 1, 2, or 3	NEGO_RANK_LMPM [**AJ**]	No	Yes	m:negotiateRankLMPM	string

Load Following Up MSS	Identifier if a resource is load following up. The acceptable values are 'YES' or 'NO'.	MSS_LD_FLNG_UP [BE]	No	No	m:loadFollowingUpMSS	string
Load Following Down MSS	Identifier if a resource is load following down. The acceptable values are 'YES' or 'NO'.	MSS_LD_FLNG_DWN [**BD**]	No	No	m:loadFollowingDownMSS	string
Pump Shutdown Time	The pump shutdown time	PUMP_SHTDWN_TM [**AH**]	No	Yes	m:pumpShutdownTime	integer
Pump Shutdown Cost	The maximum pump shutdown cost	MAX_PUMP_SD_CST [**AG**]	No	Yes	m:pumpShutdownCost	float
TG Energy Product Type	Energy Type: 'DYN' - Dynamic Resource (only if RES_TYPE='TG') 'FIRM' – is valid too	ENERGY_TYPE [**G**]	No	No	m:TGEnergyProductType	string
Air Quality Management District	The Air Quality Management District or Air Pollution Control District in which the resource is located.	AQM_DIST_TYPE [**M**]	No	No	m:AQMDistrict	string
Participating Generator Agreement Name	The name of an agreement between the CAISO and a Participating Generator; a pro forma version of which is set forth in Appendix B.2 of the CAISO Tariff.	PGA_NAME [**A**]	No	No	m:PGAName	string

Priority Type	MT - Regulatory Must Take resources REGM - Regulatory Must-Run RMR - Reliability Must Run PIRP - Participate in PIRP program	PRIOR_TYPE [**BJ**]	No	No	m:priorityType	string
Startup Code Type	Code used to determine the startup characteristics. **FAST:** Generating Units that have a Start Up Time of ten minutes or less and can provide non-spin. Blank: All other resources.	STARTUP_CD_TYPE [**AP**]	No	No	m:StartUpCodeType	string
Minimum Dispatch Level Value	The minimum operating level at which a Generating Unit is able to readily respond to a dispatch instruction.	MIN_DISP_LEVEL [**P**]	No	Yes	m:MinDispatchLevel/m:value	float
Minimum Dispatch Level Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:MinDispatchLevel /m:units	string
Pump Maximum Start-ups Per Day	The maximum pump start ups per day	PUMP_MAX_STRT [**AB**]	No	Yes	m:pumpMaxStartUps	integer
Spin Capacity Value	The portion of unloaded synchronized generating capacity that is immediately responsive to system frequency and that is capable of being loaded in ten minutes, and that is capable of running for at least two hours.	RSRV_CAP_SPIN [**AL**]	Yes	Yes	m:ResourceCapacity[m:capacityType='**SR**']/ m:defaultCapacity/m:value	float

Spin Capacity Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:ResourceCapacity[m:capacityType='**SR**']/ m:defaultCapacity/m:units	string
Spin Capacity Type	Capacity Type must be set to '**SR**'.	n/a	No	n/a	m:ResourceCapacity/m:capacityType='**SR**'	string
Non-Spin Capacity Value	The portion of off-line generating capacity that is capable of being synchronized and Ramping to a specified load in ten minutes (or load that is capable of being interrupted in ten minutes) and that is capable of running (or being interrupted.)	RSRV_CAP_NSPIN [**AM**]	Yes	Yes	m:ResourceCapacity[m:capacityType='**NR**']/ m:defaultCapacity/m:value	float
Non-Spin Capacity Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:ResourceCapacity[m:capacityType='**NR**']/ m:defaultCapacity/m:units	string
Non-Spin Capacity Type	Capacity Type must be set to '**NR**'	n/a	No	n/a	m:ResourceCapacity/m:capacityType='**NR**'	string

Certified Nonspin DAM	An identifier of a resource that is certified to provide Non-Spinning Reserve in the DAM. The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_DAM [**BB**]	No	Yes	m:ResourceCertification/m:certifiedNonspinDAM	string
Certified Nonspin RTM	An identifier of a resource that is certified to provide Non-Spinning Reserve in the RTM. To be procured in the RTM, a unit must also have a Startup Code Type of FAST. The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_RTM [**BC**]	No	Yes	m:ResourceCertification/m:certifiedNonspinRTM	string
Certified PIRP	Resource is treated as in PIRP program and is certified (is eligible for Settlements treatment as PIRP participant). The acceptable values are 'YES' or 'NO'.	CERT_PIRP [**AN**]	No	No	m:ResourceCertification/m:certifiedPIRP	string
Certified Regulation Down	An identifier of a resource that is certified to provide Regulation Down Reserve. The acceptable values are 'YES' or 'NO'.	CERT_REG_DOWN [**AY**]	No	Yes	m:ResourceCertification/m:certifiedRegulationDown	string
Certified Regulation Up	An identifier of a resource that is certified to provide Regulation Up Reserve. The acceptable values are 'YES' or 'NO'.	CERT_REG_UP [**AZ**]	No	Yes	m:ResourceCertification/m:certifiedRegulationUp	string
Certified Spin	An identifier of a resource that is certified to provide Spinning Reserve.. The acceptable values are 'YES' or 'NO'.	CERT_SPIN [**BA**]	No	Yes	m:ResourceCertification/m:certifiedSpin	string
Certified RUC	A resource that can participate in RUC market. Currently all PGA resources can participate in the RUC market. The acceptable values are 'YES' or 'NO'.	CERT_RUC [**AW**]	No	No	m:ResourceCertification/m:certifiedRUC	string

Fuel Region Type	The area of the state where the Generator lies - used for Gas-fired and Coal Generators.	FUEL_REGN_TYPE [**K**]	No	No	m:FuelRegion/m:fuelRegionType	string
Electric Region	Electric Region	ELECTRIC_REGN [L]	No	No	M:ElectricRegion/m:mrid	String
MSG Resource Flag	Indicates whether this is an MSG (Multi-Stage Generator) Resource. The acceptable values are 'YES' or 'NO'.	MSG_YN [**BQ**]	No	No		string
Startup Ramp Time	The startup ramp time, this attribute has been added for non-MSG resources. Even though it is modeled as a float, values will be rounded by normal rounding rules.	STARTUP_RAMP_TIME [**BR**]	No	No		float
Supplied Configuration Flag	This flag is used for MSG and indicates whether a configuration has been supplied by the MP. The acceptable values are 'YES' or 'NO'. If 'NO', then the configuration values will be calculated	SUPPLIED_CONFIG_YN [**BS**]	No	No		string
Hourly Predispatch Flag	Indicates need to dispatch before the start of the operating hour. Only relevent in Real-Time Market.	HR_PRE_DISP [BT]	No	Yes	m:hourlyPredispatch	string
CertifiedBlackStart	BlackStartCertification: Y: Certified for Black Start; N: Not Certified for Black Start; Will be null for non-Generators	CERT_BLKSTRT [AT]	No	No	m:ResourceCertification/m:certifiedBlackStart	string
Certified DAM	Certified for Day-Ahead Market	CERT_DAM [AU]	No	No	m:ResourceCertification/m:certifiedDAM	string

Certified RTM	Certified for Real-Time Market	CERT_RTM [AV]	No	No	m:ResourceCertification/m:certifiedRTM	string
NGR	Indicates a non-generator resource that can operate as either Gen or Load. The acceptable values are 'YES' or 'NO'.	NGR [BU]	No	No	m:NGResourceFlag	String
REM	Indicates an NGR resource electing Regulation Energy Management (REM) and can only provide Regulation service. The acceptable values are 'YES' or 'NO'.	REM [BV]	No	Yes	m:REMFlag	string
Minimum Continuous Energy Limit	The minimum energy (MWh) that the LESR device can store.	MIN_CONT_ENERGY_LIMIT [BW]	No	Yes	m:minContinuousEnergyLimit	float
Maximum Continuous Energy Limit	The maximum energy (MWh) that the LESR device can store.	MAX_CONT_ENERGY_LIMIT [BX]	No	Yes	m:maxContinuousEnergyLimit	float
Curtailment Energy Limit	The maximum reduction of energy consumption (MWh) that the DDR device can incur.	CURT_ENERGY_LIMIT [BY]	No	Yes	m:curtailmentEnergyLimit	float
Energy Efficiency	Percent of charging energy that the device can discharge.	ENERGY_EFFIC [BZ]	No	Yes	m:energyEfficiency	float
Combined Heat and Power Resource	Identifies resource that has been approved as Combined Heat and Power resource (producing electric energy and forms of useful thermal energy).	CHP [CA]	No	No	m:CHPResourceFlag	String

RMT Max On Peak	RMTG *On Peak* capacity value	RMT_MAX_ON_PEAK [CB]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/value where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOnPeak'**	Float
RMT On Peak Expiration Date	Due date by when RMTG *On Peak* capacity value must be renewed.	RMT_MAX_ON_PEAK_EXP_DT [CC]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/RMTGCapacityExpDate where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOnPeak'**	Date
RMT Max Off Peak	RMTG *Off Peak* capacity value	RMT_MAX_OFF_PEAK [CD]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/value where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOffPeak'**	Float
RMT Off Peak Expiration Date	Due date by when RMTG *Off Peak* capacity value must be renewed.	RMT_MAX_OFF_PEAK_EXP_DT [CE]	No	No	/RegulatoryMustTakeGeneration/RMTGCapacity/RMTGCapacityExpDate where /RegulatoryMustTakeGeneration/RMTGCapacityType=**'RMTMaxOffPeak'**	Date

Emission Rate	Factor was used by CARB to determine resource's obligation for compliance with CA Greenhouse Gas Emission Cap-and-Trade program.	GHG_EMISSION_RATE [CF]	No	Yes	m:GHGEmissionFactor	Float
Green House Gas Compliance Obligation	Identifies a resource that has obligation to comply with CA Greenhouse Gas Emission Cap-and-Trade program.	GHG_COMPLIANCE_OBLIG [CG]	No	Yes	m:GHGComplianceObligFlag	string
Min Load Major Maintenance Adder	This is a fixed adder which modifies the proxy minimum load in order to account for major maintenance expenses.	ADDER_AMT [CH]	No	No	m:minLoadMMA	Float
Variable Energy Resource Flag	Variable Energy Resource (VER) identification flag: Y It is a VER ; N: It is not a VER. If no data, it is assumed to not be a VER	VER [CI]	No	Yes	m:VERFlag	string
Forecast Selection	Variable energy resource forecast selection	FORECAST_SELECTION [CJ]	No	Yes	m:ForecastSelection	string
Energy Imbalance Market Participating Flag	Energy Imbalance Market (EIM) participation flag. Identifies if the resource is participating in the EIM.	EIM_PARTICIPATING [CK]	No	No	m:EIMParticipationFlag	string
Balancing Authority Area	The Balancing Authority Area to which the resource belongs.	BAA [CL]	No	No	m:HostControlArea/m:mrid	string
O&M Adder Type	Identifies the type of Operating Maintenance Cost. Valid Types are D (Default) and N (Negotiated).	OPER_MAINT_ADDER_TYPE [BI]	No	No	m:operatingMaintenanceCostType	string

Regulation Segments (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:RegulatingLimit/**	
High Limit Value	Higher level of the Regulation Range.	Higher MW for Regulation [**E**]	No	Yes	m:highLimit/m:value	float
High Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:highLimit/m:units	string
Low Limit Value	Lower level of the Regulation Range.	Lower MW for Regulation [**D**]	No	Yes	m:lowLimit/m:value	float
Low Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:lowLimit/m:units	string
Segment Number	Number of the regulation range. Up to two segments allowed. If two are submitted, then segment number 1 must describe the lower range and segment number 2 must describe the upper range.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	Integer

Forbidden Region Segments (0 to unbounded) (Usually 2 regions max)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:ForbiddenRegion/**	
Crossing Time	The time a generator needs to move through the Forbidden Region.	Forbidden Region Crossing Time [**F**]	No	Yes	m:crossTime	integer
High MW	The upper MW output of the forbidden region of the current segment. The forbidden region should be inside of segment (i); meaning a forbidden region cannot cross two segments and the segment cannot be overlapped. Note: Forbidden regions cannot include nor overlap regulation ranges or heat segments.	Upper MW of Forbidden Region [**E**]	No	Yes	m:highMW	float
Low MW	The lower MW output of the forbidden range of the current segment. The forbidden region should be inside of segment (i); meaning a forbidden region cannot cross two segments and the segment cannot be overlapped. Note: forbidden regions cannot include nor overlap regulation ranges or heat segments.	Lower MW of Forbidden Region [**D**]	No	Yes	m:lowMW	float

Segment Number	This number represents a given forbidden region. Segment number 1 should be the forbidden region at the lowest level in the operating range. Segment numbers should correspond to sequential regions along the operating range, ending with segment (n) at the highest operating level. Up to four (4) segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Ramp Rates (0 to unbounded) (Usually max is 3, one for each ramp rate type)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:RampRateCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Ramp MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Ramp Min Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string

Ramp Max Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string
Ramp Rate Type	The legitimate values are as follows: OP – Operational Ramp Rate REG – Regulation Ramp Rate OP_RES – Operating Reserve Ramp Rate	Based on the sheet name **OP**=RAMPRATE Sheet **REG**=REGRAMP Sheet **OP_RES**=OP RES RAMP Sheet [B]	Yes	Yes	m:rampRateType	string
Individual Ramp Rate Data (0 to unbounded) Substitute Ramp Rate Type for 'XX' to retrieve values by type					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:RampRateCurve[m:rampRateType='XX'] /m:CurveScheduleDatas/**	
Ramp MW Output Value	The Generating Unit MW output of point i. The first point (1) of MW output must begin at the Generating Unit's PMin. The last point (n) of MW output must end at the Generating Unit's PMax. This field only applies to ramp rate type "OP". Other types ("REG" and "OP_RES") should not include this field.	Operating Level [D]	Yes	Yes	m:xAxisData	float

Ramp Min Rate Value	The maximum ramp rate under the worst operating condition of the Generating Unit between point (i) and the point (i+1). The minimum ramp rate of the last point should = the previous one. This requires providing the minimum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Worst Operational Ramp Rate [E]	No	Yes	m:y1AxisData	float
Ramp Max Rate Value	The maximum ramp rate under the best operating condition of the Generating Unit between point (i) and the point (i+1). The maximum ramp rate of the last point should = the previous one. This requires providing the maximum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Best Operational Ramp Rate [F]	No	Yes	m:y2AxisData	float
Market Ramp Rate Value	Market value counterpart to existing Design value	Market Ramp Rate [G]	No	Yes	m:y3AxisData	float
Segment Number	Point numbers between the PMin and PMax of the Generating Unit output. The point numbering starts at 1. Up to 5 points allowed.	Segment Number [C]	Yes	Yes	m:segmentNumber	integer
Heat Rate – Heat Rate Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:HeatRateCurve/**	

Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Heat Heat Rate Units	This field is not used. The assumed unit of measure is BTU/KW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Heat Emission Rate Units	This field is not used. The assumed unit of measure is lbs of NOx/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string
Heat Rate Curve Data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:HeatRateCurve/m:CurveScheduleDatas/**	

Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float
Heat – Heat Rate Value	For gas-fired units only, the average heat rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Heat rate must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable). If not a gas-fired unit, leave blank and instead complete the Average Heat Cost field.	Heat Rate [**E**]	No	Yes	m:y1AxisData	float
Heat Emission Rate Value	The emission rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Emission rate must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable).	Heat Emission Rate [**F**]	No	Yes	m:y2AxisData	float

Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Heat - Fuel Cost Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:FuelCostCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Average Cost Units	This field is not used. The assumed unit of measure is $/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Fuel Cost Curve Data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:FuelCostCurve/m:CurveScheduleDatas/**	
Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float

Average Cost Value	Use this value for non-gas fired units instead of Heat Rate. The average cost of the Generating Unit on point (i) in $. If value at point (i) is not available, linear interpolation can be used to approximate the value. Average cost must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable). If gas-fired, make sure to enter a value in Heat Rate and leave this field blank.	Average Cost [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
<u>Startup – Time</u> (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpTimeCurve/**	

Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Time data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpTimeCurve/m:CurveScheduleDatas/**	

Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** Downtime must be set to the same value for each element of a segment (Time, Fuel, Aux, and Energy) to ensure consistent startup data content. If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float

Startup Time Value	Startup Time is the time (in whole minutes) it takes a resource to achieve PMin from an off-line position given the corresponding Down Time (Registered Cooling Time). The startup time of the Generating Unit (in minutes) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup time (in minutes) from cooling time (n) to infinity. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.**	Start-Up Time [**E**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Startup – Energy (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpEnergyCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string

Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is MW/Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Energy data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpEnergyCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float

Startup Energy Value	The electrical power used by a Generating Unit during startup. The Generating Unit's startup auxiliary power (in MWh) from the down time (i) to down time (i + 1). The last sequence is the startup auxiliary power (in MWh) from current sequence to infinite.	Start-Up Aux [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold). Up to 9 segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Startup – Fuel (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpFuelCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Startup Fuel Value Units	This field is not used. The assumed unit of measure is Million BTU. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Fuel data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpFuelCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [D]	No	Yes	m:xAxisData	float

Startup Fuel Value	The fuel use (in mBTU per start) expected for the startup of a natural gas fired Generating Unit that has been off-line for a substantial period of time. The startup fuel of the Generating Unit (in mBTU) from the down time (i) to down time (i + 1). The last sequence is the startup fuel (in mBTU) from current sequence to infinite.	Start-Up Fuel [**H**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Startup – Cost (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpCostCurves/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Startup Time Min Rate Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Cost data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:StartUpCostCurves/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float
Startup Cost Value	The startup cost of non-natural gas fired Generating Units (in dollars) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup cost (in dollars) from cooling time (n) to infinity.	Start-Up Cost [**F**]	No	Yes	m:y1AxisData	float

Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold). Up to 9 segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Startup Major Maintenance Adder	The Major Maintenance Adder (MMA) provides for the definition of a cost adder curve used as an overlay to the initial StartUpCostCurve to account for major maintenance expenses	Start-Up MMA [I]	No	No	m:AdderCurve	float
MSG Configurations – configurations (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:Configuration/**	
Configuration Name	Descriibes the configuration from a human readable point of view	CONFIG_NAME [**C**]	No	Yes	m:name	
Configuration ID	Must be unique within the MSG Resource	On MSG_CONFIG Sheet – CONFIG_ID [**B**]	Yes	No	m:mrid	string
Startup Code Type	Startup Code Type usually 'FAST' or null	STARTUP_CD_TYPE [**N**]	No	Yes	m:LogicalGenerator/startUpCodeType	string

Maximum Generation	Maximum generation for this configuration. This value must be < = to Maximum Generation of its parent resource.	MAX_GEN [**D**]	Yes	Yes	m:LogicalGenerator/m:maximumOperatingMW/m:value	Float
Minimum Generation	Minimum generation for this configuration. This value must > = to the minimum generation of its parent resource.	MIN_GEN [**E**]	Yes	Yes	m:LogicalGenerator/m:minimumOperatingMW/m:value	Float
Minimum Load Cost	Minimum load cost for this configuration.	MIN_LOAD_COST [H]	Yes	Yes	m:LogicalGenerator/m:minLoadCost/m:value	Float
Minimum Off Time	Minimum off time for this configuration, this is when its down what's the minimum time before you can restart	MIN_OFF [**G**]	No	Yes	m:LogicalGenerator/m:minOffTime/m:value	Float
Minimum On Time	Minimum on time that a configuration once started must run for.	MIN_ON [**F**]	No	Yes	m:LogicalGenerator/m:minOnTime/m:value	Float
Startup Ramp Time	Startup Ramp Time	STARTUP_RAMP_TIME [**L**]	No	No	m:LogicalGenerator/m:StartUpRampTime	Float
Startup Flag	Whether Combined Cycle Plant can be started in this Logical Configuration. The acceptable values are 'YES' or 'NO'.	STARTUP_YN [K]	Yes	Yes	m:LogicalGenerator/m:startUpFlag	string
Shutdown Flag	Can you shutdown from this configuration? The acceptable values are 'YES' or 'NO'.	SHUTDOWN_YN [L]	Yes	Yes	m:LogicalGenerator/m:shutDownFlag	String

Reserve Capacity Non-Spinning	The amount of reserve capacity available in non-spinning mode.	RSRV_CAP_NSPIN [**J**]	No	Yes	m:LogicalGenerator/ m:ResourceCapacity[m:capacityType='**NR**']/ m:defaultCapacity/m:value	Float
Reserve Capacity Spinning	The amount of reserve capacity available in spinning mode	RSRV_CAP_SPIN [I]	No	Yes	m:LogicalGenerator/ m:ResourceCapacity[m:capacityType='**SR**']/ m:defaultCapacity/m:value	Float
Certified for Non Spin DAM (Day Ahead Market)	Configuration is certified for Non-Spinning DAM (Day Ahead Market). The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_DAM [R]	Yes	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedNonspinDAM	string
Certified for Non-Spin RTM (Real Time Market)	Configuration is certified for Non-Spinning RTM (Real Time Market). The acceptable values are 'YES' or 'NO'.	CERT_NSPIN_RTM [**S**]	Yes	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedNonspinRTM	string
Certified for Regulation Down	Configuration is certified for Regulation Down. The acceptable values are 'YES' or 'NO'.	CERT_REG_DOWN [**O**]	Yes	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedRegulationDown	string
Certified for Regulation Up	Configuration is certified for Regulation Up. The acceptable values are 'YES' or 'NO'.	CERT_REG_UP [**P**]	Yes	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedRegulationUp	string
Certified for Spin	Configuration is certified for Spinning. The acceptable values are 'YES' or 'NO'.	CERT_SPIN [**Q**]	Yes	Yes	m:LogicalGenerator/m:ResourceCertification/m:certifiedSpin	String
Min Load Major Maintenance Adder	This is a fixed adder which modifies the proxy minimum load in order to account for major maintenance expenses.	ADDER_AMT [T]	No	No	m:LogicalGenerator/m:minLoadMMA	float

RA Range Min	Together with RARangeMax, used to determine the default RA Provider (configuration) based on RA value; null means configuration will not be a default provider	MIN_RA_LIMIT [U]	No	Yes	m:LogicalGenerator/m:RARangeMin	float
RA Range Max	Together with RARangeMin, used to determine the default RA Provider (configuration) based on RA value; null means configuration will not be a default provider	MAX_RA_LIMIT [V]	No	Yes	m:LogicalGenerator/m:RARangeMax	float
Implied Starts	The number of starts of physical units within an ISO modeled resource or MSG configuration.For an MSG Configuration, the number of startable CTs (Combustion Turbines) for a given configuration	IMPLIED_STRTS [W]	No	Yes	m:LogicalGenerator/m:ImpliedStartsCount	integer
Configuration - Regulation Segments (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator/**m:RegulatingLimit/**	
High Limit Value	Higher level of the Regulation Range.	Higher MW for Regulation [**E**]	No	Yes	m:highLimit/m:value	float
High Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:highLimit/m:units	string

Low Limit Value	Lower level of the Regulation Range.	Lower MW for Regulation [**D**]	No	Yes	m:lowLimit/m:value	float
Low Limit Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:lowLimit/m:units	string
Segment Number	Number of the regulation range. Up to two segments allowed. If two are submitted, then segment number 1 must describe the lower range and segment number 2 must describe the upper range.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	Integer
Configuration - Ramp Rates (0 to unbounded) (Usually max is 3, one for each ramp rate type)					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:RampRateCurve/	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Ramp MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Ramp Min Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Ramp Max Rate Units	This field is not used. The assumed unit of measure is MW/Minute. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits	string
Ramp Rate Type	The legitimate values are as follows: OP – Operational Ramp Rate REG – Regulation Ramp Rate OP_RES – Operating Reserve Ramp Rate	Based on the sheet name **OP**=RAMPRATE Sheet **REG**=REGRAMP Sheet **OP_RES**=OP RES RAMP Sheet [C]	Yes	Yes	m:rampRateType	string
Individual Ramp Rate Data (0 to unbounded) Substitute Ramp Rate Type for 'XX' to retrieve values by type					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:RampRateCurve[m:rampRateType='XX'] /m:CurveScheduleDatas/	

Ramp MW Output Value	The Generating Unit MW output of point i. The first point (1) of MW output must begin at the Generating Unit's PMin. The last point (n) of MW output must end at the Generating Unit's PMax. This field only applies to ramp rate type “OP”. Other types (“REG” and “OP_RES”) should not include this field.	Operating Level [E]	Yes	Yes	m:xAxisData	float
Ramp Min Rate Value	The maximum ramp rate under the worst operating condition of the Generating Unit between point (i) and the point (i+1). The minimum ramp rate of the last point should = the previous one. This requires providing the minimum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Worst Operational Ramp Rate [F]	No	Yes	m:y1AxisData	float
Ramp Max Rate Value	The maximum ramp rate under the best operating condition of the Generating Unit between point (i) and the point (i+1). The maximum ramp rate of the last point should = the previous one. This requires providing the maximum ramp rate of the first point (1) at PMin and last point (n) at PMax.	Best Operational Ramp Rate [G]	No	Yes	m:y2AxisData	float
Market Ramp Rate Value	Market value counterpart to existing Design value	Market Ramp Rate [H]	No	Yes	m:y3AxisData	float

Segment Number	Point numbers between the PMin and PMax of the Generating Unit output. The point numbering starts at 1. Up to 5 points allowed.	Segment Number [D]	Yes	Yes	m:segmentNumber	integer
Configuration - Heat Rate – Heat Rate Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator/**m:HeatRateCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Heat Heat Rate Units	This field is not used. The assumed unit of measure is BTU/KW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string

Heat Emission Rate Units	This field is not used. The assumed unit of measure is lbs of NOx/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y2AxisUnits		string
Heat Rate Curve Data (0 to unbounded)					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:HeatRateCurve/m:CurveScheduleDatas/		
Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData		float

Heat – Heat Rate Value	For gas-fired units only, the average heat rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Heat rate must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable). If not a gas-fired unit, leave blank and instead complete the Average Heat Cost field.	Heat Rate [**E**]	No	Yes	m:y1AxisData	float
Heat Emission Rate Value	The emission rate of the Generating Unit on point (i). If value at point (i) is not available, linear interpolation can be used to approximate the value. Emission rate must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable).	Heat Emission Rate [**F**]	No	Yes	m:y2AxisData	float
Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer

Heat - Fuel Cost Curve (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:FuelCostCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Heat MW Output Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Average Cost Units	This field is not used. The assumed unit of measure is $/MW Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Fuel Cost Curve Data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:FuelCostCurve/m:CurveScheduleDatas/**	

Heat MW Output Value	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Heat Rate Operating Level [**D**]	No	Yes	m:xAxisData	float
Average Cost Value	Use this value for non-gas fired units instead of Heat Rate. The average cost of the Generating Unit on point (i) in $. If value at point (i) is not available, linear interpolation can be used to approximate the value. Average cost must be provided at the first point (1) (PMin), the last point (n) (PMax), and all points at the top and bottom of Forbidden Regions (if applicable). If gas-fired, make sure to enter a value in Heat Rate and leave this field blank.	Average Cost [**G**]	No	Yes	m:y1AxisData	float

Segment Number	The point numbers between the PMin and PMax of the Generating Unit output. The point starts at 1. Up to 11 points are allowed. Note: The Heat Rate, Emission Rate, and Average Cost must include the data at the bottom and top of each Forbidden Region and exclude the data within the Forbidden Region. Must provide either Heat Rate data if gas fired, or Average Cost data if non-gas fired.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Configuration - Startup – Time (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpTimeCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Startup Time Min Rate Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Time data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpTimeCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** Downtime must be set to the same value for each element of a segment (Time, Fuel, Aux, and Energy) to ensure consistent startup data content. If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float

Startup Time Value	Startup Time is the time (in whole minutes) it takes a resource to achieve PMin from an off-line position given the corresponding Down Time (Registered Cooling Time). The startup time of the Generating Unit (in minutes) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup time (in minutes) from cooling time (n) to infinity. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.**	Start-Up Time [**E**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Configuration - Startup – Energy (0 to unbounded)					//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:LogicalGenerator/m:StartUpEnergyCurve/	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string

Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string
Startup Time Min Rate Units	This field is not used. The assumed unit of measure is MW/Hour. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Energy data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpEnergyCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**D**]	No	Yes	m:xAxisData	float

Startup Energy Value	The electrical power used by a Generating Unit during startup. The Generating Unit's startup auxiliary power (in MWh) from the down time (i) to down time (i + 1). The last sequence is the startup auxiliary power (in MWh) from current sequence to infinite.	Start-Up Aux [**G**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold). Up to 9 segments are allowed.	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Configuration - Startup – Fuel (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpFuelCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Startup Fuel Value Units	This field is not used. The assumed unit of measure is Million BTU. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Fuel data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpFuelCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [D]	No	Yes	m:xAxisData	float

Startup Fuel Value	The fuel use (in mBTU per start) expected for the startup of a natural gas fired Generating Unit that has been off-line for a substantial period of time. The startup fuel of the Generating Unit (in mBTU) from the down time (i) to down time (i + 1). The last sequence is the startup fuel (in mBTU) from current sequence to infinite.	Start-Up Fuel [**H**]	No	Yes	m:y1AxisData	float
Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold).	Segment Number [**C**]	Yes	Yes	m:segmentNumber	integer
Configuration - Startup – Cost (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpCostCurve/**	
Description	This field is not used. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:description	string
Startup Down Time Units	This field is not used. The assumed unit of measure is Minutes. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:xAxisUnits	string

Startup Time Min Rate Units	This field is not used. The assumed unit of measure is $. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:y1AxisUnits	string
Startup Cost data (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/**m:LogicalGenerator**/m:StartUpCostCurve/m:CurveScheduleDatas/**	
Startup Down Time Value	The amount of time the Generating Unit must be off (in whole minutes) within sequence (i). The first down time must be zero to account for a unit that has just shut down. **Even though the data type is float, an integer value is expected. Decimal values will be rounded. If the decimal portion is <.5, it shall be truncated. If the decimal portion is >= .5, it will be rounded to the next whole minute.** If the same value is NOT entered for each element of the segment, the value provided for Energy will be used for all other elements.	Registered Cooling Time [**E**]	No	Yes	m:xAxisData	float
Startup Cost Value	The startup cost of non-natural gas fired Generating Units (in dollars) from the cooling time (i) to cooling time (i + 1). The last segment represents the startup cost (in dollars) from cooling time (n) to infinity.	Start-Up Cost [**G**]	No	Yes	m:y1AxisData	float

Segment Number	The segment numbers corresponding to cooling time of the unit. The segment starts at 1. Normally, there are 3 segments (hot, warm and cold). Up to 9 segments are allowed.	Segment Number [**D**]	Yes	Yes	m:segmentNumber	integer
Startup Major Maintenance Adder	The Major Maintenance Adder (MMA) provides for the definition of a cost adder curve used as an overlay to the initial StartUpCostCurve to account for major maintenance expenses	Start-Up MMA [J]	No	No	m:AdderCurve	float
Transitions (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:Transition/**	
From Configuration ID	A transition connects two configurations, the relationship(transition) is directional. This element represents the starting configuration of the transition. It is possible for each configuration to connect to 0 to many other configurations.	TRANSITION Sheet CONFIG_ID_FROM [**B**]	Yes	Yes	m:FromConfiguration/mrid	string
To Configuration ID	A transition connects two configurations, the relationship(transition) is directional. This element represents the ending configuration of the transition. It is possible for each configuration be connected to by 0 to many other configurations.	CONFIG_ID_TO [**C**]	Yes	Yes	m:ToConfiguration/mrid	string
Maximum Daily Transitions	Denotes the maximum number of times that this transition can be performed per day.	MAX_DAILY_TRANSITIONS [**G**]	Yes	Yes	m:MaxDailyTransitions	Integer

Market Maximum Daily Transitions	Market value counterpart to existing Design value	MKT_MAX_DAILY_TRANS [H]	No	Yes	m:marketMaxDailyTransitions	integer
Notification Time	This is the amount of notification time needed before the transition can occur.	NOTIFICATION_TIME [**F**]	Yes	Yes	m:NotificationTime	Integer
Transition Cost	This is the actual cost of transition.	TRANSITION_COST [**D**]	Yes	Yes	m:TransitionCost	Float
Transition Ramp Time	This is how much time is needed to make this transition occur.	TRANSITION_RAMP_TIME [**E**]	Yes	Yes	m:TransitionRampTime	Integer
Transition Midpoint MW	The MW level of the midpoint for a transition	TRANSITION_MIDPOINT_MW [I]	No	Yes	m:transitionMidpointMW/m:value	float
Transition Midpoint Time	The time taken to reach the MW level of the midpoint for a transition	TRANSITION_MIDPOINT_TIME [J]	No	Yes	m:transitionMidpointTime	Integer
Implied Starts	The number of starts of physical units within an ISO modeled resource or MSG configuration. For an MSG Transition, the number of startable CT (Combustion Turbine) units between the Configurations within a Transition	IMPLIED_STRTS [K]	No	Yes	m:ImpliedStartsCount	integer

Transition Comment	User Comment on the transition	TRANSITION_COMMENT [**L**]				string
Aggregate Physical Gen Units (0 to unbounded)					**//m:MessagePayload/m:MasterFileRDTRecord/m:RegisteredGenerator/m:GeneratingUnit/**	
Mrid	The ISO resource identifier used for tracking each resource for market scheduling and outage coordination purposes. This is the Resource ID of the physical generating unit.	RES_ID [**C**]	Yes	No	m:mrid	string
Name	Descriptive name for the Resource. This is the Resource Name of the physical generating unit.	RES_NAME [**D**]	Yes	No	m:name	string
Maximum Operating MW Value	This is the maximum operating MW limit the dispatcher can enter for this unit. This is the Max Gen of the physical generating unit.	MAX_GEN [**E**]	Yes	No	m:maximumOperatingMW/m:value	float
Maximum Operating MW Units	This field is not used. The assumed unit of measure is MW. This field is included in the format definition specified in the CIM (Common Information Model), an industry standard format, but is not used in this application.	n/a	No	n/a	m:maximumOperatingMW/m:units	string

6.8.2 Schema

6.8.2.1 GeneratorRDT_v4.xsd

6.8.3 Example XML File (GeneratorRDTExample.xml)

Click on this link Example XML File (GeneratorRDTExample.xml) to see a sample xml.

6.9 Fault Return

6.9.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	
Id	Event log identifier.	N/A	No	m:id	string
Name	Event log name.	N/A	No	m:name	string
description	Event log description.	N/A	No	m:description	string
Type	Event log type.	N/A	No	m:type	string
Creation Time	Event log creation time.	N/A	No	m:creationTime	date
Collection Type	Event log collection type.	N/A	No	m:collectionType	string
Collection Quantity	Event log collection quantity.	N/A	No	m:collectionQuantity	string
Event Result	Event result.	N/A	Yes	m:Event/m:result	string
Event id	Event identifier.	N/A	No	m:Event/m:id	string
Event Name	Event name.	N/A	No	m:Event/m:name	string
Event Description	Event description.	N/A	No	m:Event/m:description	string
Event. Creation Time	Event creation time.	N/A	No	m:Event/m:creationTime	dateTime
Event Severity	Event severity.	N/A	No	m:Event/m:severity	string
Event Priority	Event priority.	N/A	No	m:Event/m:priority	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event Sequence Number	Event sequence number.	N/A	No	m:Event/m:sequenceNumber	string
Event EventType	Event type.	N/A	No	m:Event/m:eventType	string
Service Id	Service identifier.	N/A	Yes	m:Service/m:id	string
Service Name	Service name.	N/A	Yes	m:Service/m:name	string
Service Description	Service description.	N/A	Yes	m:Service/m:description	string
Service Comments	Service comments.	N/A	Yes	m:Service/m:comments	string

6.9.2 Schema

6.9.2.1 StandardOutput.xsd

6.9.3 Example XML File (StandardOutput.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<m:outputDataType xsi:schemaLocation="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd StandardOutput.xsd"
xmlns:m="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:EventLog>
        <m:id>Event-123</m:id>
        <m:name>Event Name</m:name>
        <m:description>The Event Description</m:description>
        <m:type>Error Event</m:type>
        <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
        <m:collectionType>Retrieve Generator RDT</m:collectionType>
```

```
        <m:collectionQuantity>1</m:collectionQuantity>
        <m:Event>
            <m:result>Invalid Value Found in Field XX</m:result>
            <m:id>1234</m:id>
            <m:name>Error Event 1234</m:name>
            <m:description>An invalid data value was found</m:description>
            <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
            <m:severity>High</m:severity>
            <m:priority>High</m:priority>
            <m:sequenceNumber>1</m:sequenceNumber>
            <m:eventType>Initiated by MF API</m:eventType>
        </m:Event>
        <m:Service>
            <m:id>1234567</m:id>
            <m:name>Retrieve Generator RDT</m:name>
            <m:description>Having problems - Invalid data has been found</m:description>
            <m:comments>Some one needs to fix the data</m:comments>
        </m:Service>
    </m:EventLog>
</m:outputDataType>
```

7 Retrieve RDT Batch Submission Status

7.1 *Business Scenario*

Scheduling Coordinators retrieves the status of all submitted batches for the specified SC ID. This is a useful tool to acquire the status of all of an SC's submissions in one request.

7.2 Service Level Agreement

The following service level agreement defines the business and technical requirements for service availability and performance.

Service availability	Service level goal is 99%.
Expected size of payload (average and maximum)	8k bytes average to 1MB bytes (based on one batch per resource with 1500 resources total) maximum.
Expected frequency (average and maximum)	Average of 10 and maximum of 300 status retrievals per day.
Longest time the service can be unavailable before business is impacted	One Day
Business impact if is unavailable	Schedule Coordinators utilizing the service may not be able to retrieve the latest values of their Data. They would not be able to confirm that the resources that are scheduled have the correct or latest data. This is a read only transaction.
Expected response time for the service	60 Seconds

7.3 *Use Model*

The service interaction between Scheduling Coordinators and the Master File System is a synchronous submission process.

The data exchange follows CAISO SOA Retrieve messaging pattern. In this pattern, the data source system is the Scheduling Coordinator who initiates a data transaction by invoking a RetrieveRDTSubmissionStatus service provided by Master File. The consumer of the Web service is Scheduling Coordinator or a Web portal. The consumer makes a request to Master File with a valid SC ID by invoking the Retrieve Web service. The Master File system is the provider of the Web service.

The following steps are involved in the submission process:

1) Scheduling Coordinator provides criteria to find the status of all batches that have been submitted by an SC ID.
2) Scheduling Coordinator validates the data set based on the XML schema.
3) Scheduling Coordinator invokes the RetrieveRDTSubmissionStatus web service in order to retrieve the latest status for each batch.
4) The Master File system returns the requested payload that contains a list of all batch submission statuses for one SC ID.

There is one web service involved: ***RetrieveRDTSubmissionStatus***

7.4 *Operation Details*

The service has one operation with three message types. All input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
retrieveRDTSubmissionStatus	Input	RetrieveRDTSubmissionStatus	retrieveRDTSubmissionStatus.wsdl	RequestRDTSubmissionStatus.xsd
	Output	RDTSubmissionBatch		RDTSubmissionStatus.xsd
	Fault	FaultReturnType		StandardOutput.xsd

7.4.1 Operation Details – WSDL URLs

Production Environment - TBD

7.5 *WSDL (retrieveRDTSubmissionStatus.wsdl)*

7.6 Request RDT Submission Status

The attachment information schema, RequestRDTSubmissionStatus.xsd, is used to provide the criteria necessary to search for RDT Submission Status Information.

7.6.1 Element table

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
				//RequestRDTSubmissionStatus/	

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
Scheduling Coordinator ID	Scheduling Coordinator ID	n/a	Yes	schedulingCoordinator	string

7.6.2 Schema

7.6.2.1 RequestRDTSubmissionStatus.xsd

7.6.3 Example XML File (RequestRDTSubmissionStatusExample.xml)

```
 <?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
<RequestRDTSubmissionStatus xsi:schemaLocation="http://www.caiso.com/soa/2008-08-09/RequestRDTSubmissionStatus.xsd
RequestRDTSubmissionStatus.xsd" xmlns="http://www.caiso.com/soa/2008-08-09/RequestRDTSubmissionStatus.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <schedulingCoordinator>ABCD</schedulingCoordinator>
</RequestRDTSubmissionStatus>
```

7.7 Retrieve RDT Batch Submission Status Data

A list of RDT Submission Status information is returned when a Scheduling Coordinator is provided. An XML file with a batch of RDT changes is the output.

7.7.1 Element Table:

"RDT Batch Submission Status" is the name for the XML document that contains the output of the request for batch status information.

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
Message Header Type				**//m:MessageHeader/**	
Time Date	The dateTime, in GMT, when the payload is published.	n/a	Yes	m:TimeDate	dateTime See Appendix 1
Source	The source of published data. The value for this payload is CAISO.	n/a	No	m:Source	string
Version	Date reflecting the release this latest version update was related to.	N/A	Yes		m:Version
Message Payload					
RDT Submission Batch Status Record Header				**//m:MessagePayload/m:RDTSubmissionStatusHdr/**	
Scheduling Coordinator Id	The scheduling coordinator id that all the batches were submitted for	n/a	No	m:SchedulingCoordinator/m:mrid	string
RDT Submission Batch Status Record				**//m:MessagePayload/m:RDTSubmissionStatusHdr/ m:RDTSubmissionBatch/**	
Submission Date	The date the batch was submitted. The time component will be set using Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	n/a	No	m:submissionDate	dateTime See Appendix 1
File Name	The name of the file that was uploaded to the Master File System	n/a	No	m:fileName	string

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
Batch ID	The batch id that was assigned to the submission	n/a	Yes	m:batchID	string
Batch Status	The current status of the batch. Valid values are as follows: **Request to Load** – Waiting in Queue to Run **In Process** – Currently being processed **Submitted** – Batch successfully submitted **Validation Error** – Validation error found in submission. CAISO will communicate details. **Approved** – CAISO has approved batch **Declined** – Batch has been declined. CAISO will communicate details.	n/a	No	m:batchStatus	string
Status Date	The date the status changed last. The time component will be set using Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	n/a	No	m:statusDate	dateTime See Appendix 1
Effective Date	The effective date of the batch submission. The time component will be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	n/a	No	m:EffectiveDate	dateTime See Appendix 1
Submitter	The person who submitted the batch	n/a	No	m:submitter	string

7.7.2 Schema

7.7.2.1 RDTSubmissionStatus.xsd

7.7.3 Example XML File (RDTSubmissionStatusExample.xml)

```
NOTE: This is an example of the output produced by querying the RDT Submission Status for the specified SC ID
```

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
<m:RDTSubmissionStatus xsi:schemaLocation="http://www.caiso.com/soa/2008-08-09/RDTSubmissionStatus.xsd
xfrm_RDTSubmissionStatus.xsd" xmlns:m="http://www.caiso.com/soa/2008-08-09/RDTSubmissionStatus.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:MessageHeader>
        <m:TimeDate>2001-12-17T09:30:47.0Z</m:TimeDate>
        <m:Source>String</m:Source>
    </m:MessageHeader>
    <m:MessagePayload>
        <m:RDTSubmissionStatusHdr>
            <m:SchedulingCoordinator>
                <m:mrid>ABCD</m:mrid>
            </m:SchedulingCoordinator>
            <m:RDTSubmissionBatch>
                <m:submissionDate>2008-08-29T09:30:47.000-07:00</m:submissionDate>
                <m:fileName>ABCDGenWindRes.xls</m:fileName>
                <m:batchID>24456</m:batchID>
                <m:batchStatus>Submitted</m:batchStatus>
                <m:statusDate>2008-08-29T09:30:47.000-07:00</m:statusDate>
                <m:effectiveDate>2008-08-30T00:00:00.000-07:00</m:effectiveDate>
                <m:submitter>SCs Name</m:submitter>
```

```
            </m:RDTSubmissionBatch>
            <m:RDTSubmissionBatch>
                <m:submissionDate>2008-09-17T09:30:47.000-07:00</m:submissionDate>
                <m:fileName>ABCDGenHydroRes</m:fileName>
                <m:batchID>0</m:batchID>
                <m:batchStatus>Validation Error</m:batchStatus>
                <m:statusDate>2008-09-17T09:30:47.000-07:00</m:statusDate>
                <m:effectiveDate>2008-09-17T00:00:00.000-07:00</m:effectiveDate>
                <m:submitter>ABCDSubmitter 2</m:submitter>
            </m:RDTSubmissionBatch>
        </m:RDTSubmissionStatusHdr>
    </m:MessagePayload>
</m:RDTSubmissionStatus>
```

7.8 Fault Return

7.8.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	
Id	Event log identifier.	n/a	No	m:id	string
Name	Event log name.	n/a	No	m:name	string
description	Event log description.	n/a	No	m:description	string
Type	Event log type.	n/a	No	m:type	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Creation Time	Event log creation time.	n/a	No	m:creationTime	date
Collection Type	Event log collection type.	n/a	No	m:collectionType	string
Collection Quantity	Event log collection quantity.	n/a	No	m:collectionQuantity	string
Event Result	Event result.	n/a	Yes	m:Event/m:result	string
Event Id	Event identifier.	n/a	No	m:Event/m:id	string
Event Name	Event name.	n/a	No	m:Event/m:name	string
Event Description	Event description.	n/a	No	m:Event/m:description	string
Event Creation Time	Event creation time.	n/a	No	m:Event/m:creationTime	dateTime
Event Severity	Event severity.	n/a	No	m:Event/m:severity	string
Event Priority	Event priority.	n/a	No	m:Event/m:priority	string
Event Sequence Number	Event sequence number.	n/a	No	m:Event/m:sequenceNumber	string
Event Type	Event type.	n/a	No	m:Event/m:eventType	string
Service Id	Service identifier.	n/a	Yes	m:Service/m:id	string
Service Name	Service name.	n/a	Yes	m:Service/m:name	string
Service Description	Service description.	n/a	Yes	m:Service/m:description	string
Service Comments	Service comments.	n/a	Yes	m:Service/m:comments	string

7.8.2 Schema

7.8.2.1 StandardOutput.xsd

7.8.3 Example XML File (StandardOutput.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<m:outputDataType xsi:schemaLocation="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd StandardOutput.xsd"
xmlns:m="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:EventLog>
        <m:id>Event-123</m:id>
        <m:name>Event Name</m:name>
        <m:description>The Event Description</m:description>
        <m:type>Error Event</m:type>
        <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
        <m:collectionType>Retrieve RDT Batch Submission</m:collectionType>
        <m:collectionQuantity>1</m:collectionQuantity>
        <m:Event>
            <m:result>Invalid Value Found in Field XX</m:result>
            <m:id>1234</m:id>
            <m:name>Error Event 1234</m:name>
            <m:description>An invalid data value was found</m:description>
            <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
            <m:severity>High</m:severity>
            <m:priority>High</m:priority>
            <m:sequenceNumber>1</m:sequenceNumber>
            <m:eventType>Initiated by MF API</m:eventType>
        </m:Event>
        <m:Service>
```

```
            <m:id>1234567</m:id>
            <m:name>Retrieve RDT Batch Submission</m:name>
            <m:description>Having problems - Invalid data has been found</m:description>
            <m:comments>Some one needs to fix the data</m:comments>
        </m:Service>
    </m:EventLog>
</m:outputDataType>
```

8 Retrieve Approved Resource Changes

8.1 *Business Scenario*

Scheduling Coordinators retrieves a list of all resources with changes that are about to become effective within the specified date range based on SC ID. This is a useful tool to acquire all upcoming resource changes in one request.

8.2 Service Level Agreement

The following service level agreement defines the business and technical requirements for service availability and performance.

Service availability	Service level goal is 99%.
Expected size of payload (average and maximum)	8k bytes average to 1MB bytes (1500 resources total) maximum.
Expected frequency (average and maximum)	Average of 40 and maximum of 300 status retrievals per day.
Longest time the service can be unavailable before business is impacted	One Day
Business impact if is unavailable	Schedule Coordinators utilizing the service may not be able to retrieve the latest values of their Data. They would not be able to confirm that the resources that are scheduled have the correct or latest data. This is a read only transaction.
Expected response time for the service	60 Seconds

8.3 *Use Model*

The service interaction between Scheduling Coordinators and the Master File System is a synchronous submission process.

The data exchange follows CAISO SOA Retrieve messaging pattern. In this pattern, the data source system is the Scheduling Coordinator who initiates a data transaction by invoking a RetrieveApprovedResourceChanges service provided by Master File. The consumer of the Web service is Scheduling Coordinator or a Web portal. The consumer makes a request to Master File with date criteria and SC ID by invoking the RetrieveApprovedResourceChanges Web service. The Master File system is the provider of the Web service.

The following steps are involved in the submission process:

1) Scheduling Coordinator provides date criteria and SC ID to find all the resources that will become effective during the date range provided in the search criteria. There is a business constraint that the date range cannot exceed 30 days.
2) Scheduling Coordinator validates the data set based on the XML schema.
3) Scheduling Coordinator invokes the RetrieveApprovedResourceChanges web service in order to retrieve the resources that will become active within date range.
4) The Master File system returns the requested payload that contains a list of all resources for one SC ID that will become active in the supplied date range.

There is one web service involved: ***RetrieveApprovedResourceChanges***

8.4 *Operation Details*

The service has one operation with three message types. All input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
retrieveApprovedResourceChanges	Input	RetrieveApprovedResourceChangesRequest	retrieveApprovedResourceChanges.wsdl	RequestApprovedResourceChanges.xsd
	Output	RetrieveApprovedResourceChangesResponse		ApprovedResourceChanges.xsd
	Fault	FaultReturnType		StandardOutput.xsd

8.4.1 Operation Details – WSDL URLs

Production Environment - TBD

8.5 *WSDL (retrieveApprovedResourceChanges.wsdl)*

8.6 Request Approved Resource Changes

The attachment information schema, RequestApprovedResourceChanges.xsd, is used to provide the criteria necessary to search for Approved Resources that will become effective between the “From” and “Through” dates.

8.6.1 Element table

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
				//RequestApprovedResourceChanges/	
Scheduling Coordinator ID	Scheduling Coordinator ID	n/a	Yes	schedulingCoordinator	string
From Date	The begin of the date range used to search Effective Date. The time component should be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable). Data from the wrong date may be returned if time is not set to midnight.	n/a	Yes	fromStartEffectiveDate	dateTime See Appendix 1
Through Date	The end of the date range used to search Effective Date. If this field is omitted, the Through Date will default to the From Date plus 7 days. The time component should be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable). Data from the wrong date may be returned if time is not set to midnight.	n/a	No	throughStartEffectiveDate	dateTime See Appendix 1

8.6.2 Schema

8.6.2.1 RequestApprovedResourceChanges.xsd

8.6.3 Example XML File (RequestApprovedResourceChangesExample.xml)

```
 <?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
<RequestApprovedResourceChanges xsi:schemaLocation="http://www.caiso.com/soa/2008-08-10/RequestApprovedResourceChanges.xsd
RequestApprovedResourceChanges.xsd" xmlns="http://www.caiso.com/soa/2008-08-10/RequestApprovedResourceChanges.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <schedulingCoordinator>ABCD</schedulingCoordinator>
    <fromStartEffectiveDate>2008-12-12T00:00:00.000-08:00</fromStartEffectiveDate>
    <throughStartEffectiveDate>2008-12-18T00:00:00.000-08:00</throughStartEffectiveDate>
</RequestApprovedResourceChanges>
```

8.7 Retrieve Approved Resource Changes Data

A list of Approved Resource Changes information is returned when a Scheduling Coordinator and date range is provided. An XML file with the list of resources is the output.

8.7.1 Element Table:

“Approved Resource Changes” is the name for the XML document that contains the output of the request for batch status information.

Element	Data Description	RDT XLS File [Column]	Req’d	XPath	Type

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
Message Header Type				**//m:ApprovedResourceChanges/m:MessageHeader/**	
Time Date	The dateTime, in GMT, when the payload is published.	n/a	Yes	m:TimeDate	dateTime See Appendix 1
Source	The source of published data. The value for this payload is CAISO.	n/a	No	m:Source	string
Message Payload					
Approved Resource Changes Record				**//m:ApprovedResourceChanges/m:MessagePayload/m:ApprovedResourceChangesRecord/**	
Submission Date	The date the batch was submitted. The time component will be set using Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	n/a	No	m:submissionDate	dateTime See Appendix 1
File Name	The name of the file that was uploaded to the Master File System	n/a	No	m:fileName	string
Batch ID	The batch id that was assigned to the submission	n/a	No	m:batchID	string
Effective Date	The date that the change will become effective or active. The time component will be set to midnight Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	n/a	Yes	m:effectiveDate	dateTime See Appendix 1

Element	Data Description	RDT XLS File [Column]	Req'd	XPath	Type
Submitter	The person who submitted the last change	n/a	No	m:submitter	string
Resource ID	The Resource Id	n/a	No	m:resourceID	string
Resource Name	The Name of the Resource	n/a	Yes	m:resourceName	string
Resource Type	The resource type, i.e. GEN, LOAD, ITIE, ETIE, TG	n/a	Yes	m:resourceType	string
Approval Date	The date the change was approved by the CAISO business unit. The time component will be set using Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable).	n/a	Yes	m:approvalDate	dateTime See Appendix 1

8.7.2 Schema (ApprovedResourceChanges.xsd)

8.7.2.1 ApprovedResourceChanges.xsd

8.7.3 Example XML File (ApprovedResourceChangesExample.xml)

```
  NOTE: This is an example of the output produced by querying the Retrieve Approved Resource Changes for the specified SC ID
between specified dates.
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2007 rel. 3 sp1 (http://www.altova.com)-->
<m:ApprovedResourceChanges xsi:schemaLocation="http://www.caiso.com/soa/2008-08-09/ApprovedResourceChanges.xsd
ApprovedResourceChanges.xsd" xmlns:m="http://www.caiso.com/soa/2008-08-09/ApprovedResourceChanges.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:MessageHeader>
```

```
        <m:TimeDate>2001-12-17T09:30:47.000-08:00</m:TimeDate>
        <m:Source>API</m:Source>
    </m:MessageHeader>
    <m:MessagePayload>
        <m:ApprovedResourceChangesRecord>
            <m:submissionDate>2008-12-11T09:30:47.000-08:00</m:submissionDate>
            <m:fileName>ABCDBatchRes01013.xls</m:fileName>
            <m:batchID>154373</m:batchID>
            <m:effectiveDate>2008-12-18T00:00:00.000-08:00</m:effectiveDate>
            <m:submitter>ABCD_Resource_Specialist</m:submitter>
            <m:resourceID>Res01013</m:resourceID>
            <m:resourceName>Salamander Springs Generator 003</m:resourceName>
            <m:resourceType>GEN</m:resourceType>
            <m:approvalDate>2008-12-17T09:30:47.000-08:00</m:approvalDate>
        </m:ApprovedResourceChangesRecord>
        <m:ApprovedResourceChangesRecord>
            <m:submissionDate>2008-12-11T09:30:47.000-08:00</m:submissionDate>
            <m:fileName>ABCDBatchRes028545.xls</m:fileName>
            <m:batchID>158840</m:batchID>
            <m:effectiveDate>2008-12-18T00:00:00.000-08:00</m:effectiveDate>
            <m:submitter>ABCD_Resource_Specialist</m:submitter>
            <m:resourceID>Res028545</m:resourceID>
            <m:resourceName>Salamander Springs Generator 003</m:resourceName>
            <m:resourceType>GEN</m:resourceType>
            <m:approvalDate>2008-12-17T09:30:47.000-8:00</m:approvalDate>
        </m:ApprovedResourceChangesRecord>
    </m:MessagePayload>
</m:ApprovedResourceChanges>
```

8.8 Fault Return

8.8.1 Element Table

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
				//m:outputDataType/m:EventLog/	
Id	Event log identifier.	n/a	No	m:id	string
Name	Event log name.	n/a	No	m:name	string
description	Event log description.	n/a	No	m:description	string
Type	Event log type.	n/a	No	m:type	string
Creation Time	Event log creation time.	n/a	No	m:creationTime	date
Collection Type	Event log collection type.	n/a	No	m:collectionType	string
Collection Quantity	Event log collection quantity.	n/a	No	m:collectionQuantity	string
Event Result	Event result.	n/a	Yes	m:Event/m:result	string
Event Id	Event identifier.	n/a	No	m:Event/m:id	string
Event Name	Event name.	n/a	No	m:Event/m:name	string
Event Description	Event description.	n/a	No	m:Event/m:description	string
Event Creation Time	Event creation time.	n/a	No	m:Event/m:creationTime	dateTime
Event Severity	Event severity.	n/a	No	m:Event/m:severity	string
Event Priority	Event priority.	n/a	No	m:Event/m:priority	string

Element	Data Description	RDT XLS Field [Column]	Req'd	XPath	Type
Event Sequence Number	Event sequence number.	n/a	No	m:Event/m:sequenceNumber	string
Event Type	Event type.	n/a	No	m:Event/m:eventType	string
Service Id	Service identifier.	n/a	Yes	m:Service/m:id	string
Service Name	Service name.	n/a	Yes	m:Service/m:name	string
Service Description	Service description.	n/a	Yes	m:Service/m:description	string
Service Comments	Service comments.	n/a	Yes	m:Service/m:comments	string

8.8.2 Schema

8.8.2.1 StandardOutput.xsd

8.8.3 Example XML File (StandardOutput.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<m:outputDataType xsi:schemaLocation="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd StandardOutput.xsd"
xmlns:m="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <m:EventLog>
        <m:id>Event-123</m:id>
        <m:name>Event Name</m:name>
        <m:description>The Event Description</m:description>
        <m:type>Error Event</m:type>
        <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
```

```
        <m:collectionType>Retrieve Approved Resource Changes</m:collectionType>
        <m:collectionQuantity>1</m:collectionQuantity>
        <m:Event>
            <m:result>Invalid Value Found in Field XX</m:result>
            <m:id>1234</m:id>
            <m:name>Error Event 1234</m:name>
            <m:description>An invalid data value was found</m:description>
            <m:creationTime>2008-12-17T09:30:47.000-08:00</m:creationTime>
            <m:severity>High</m:severity>
            <m:priority>High</m:priority>
            <m:sequenceNumber>1</m:sequenceNumber>
            <m:eventType>Initiated by MF API</m:eventType>
        </m:Event>
        <m:Service>
            <m:id>1234567</m:id>
            <m:name>Retrieve Approved Resource Changes</m:name>
            <m:description>Having problems - Invalid data has been found</m:description>
            <m:comments>Some one needs to fix the data</m:comments>
        </m:Service>
    </m:EventLog>
</m:outputDataType>
```

Appendix 1– dateTime Data Type

The dateTime data type is used to specify a date and a time.

The dateTime is specified in the following form "YYYY-MM-DDThh:mm:ss"
where:

YYYY indicates the year
MM indicates the month
DD indicates the day
T indicates the start of the required time section
hh indicates the hour
mm indicates the minute
ss indicates the second

Note: All components are required.

To specify a time zone, the time component will be set using Pacific Prevailing Time (Pacific Standard Time or Pacific Daylight Time, as applicable), for example:

<startdate>2009-05-30T00:00:00.000-7:00</startdate>

Appendix 2 – Getting Access to Master File API

Digital Certificate

A Digital Certificate must be obtained and installed before a user can access the Master File API for the first time.

Please submit your request utilizing the current Integration Application Request Form. The Integration Application Request Form can be found at the following link:

Integration Application Access Request Form

When requesting application access, please download the latest form from the website every time. The Integration Application Request Form continues to be very dynamic as new applications and environments are rolled out. By accessing the current form every time, you will be able to select from all the available applications and environments, and all the necessary information will be collected.

- **Fill out** the form following the instructions, as shown below.
- **Save** as an Excel file to your drive.
- **Email** the completed form to CertRequest@caiso.com

Certificate Installation

Once approved, Certificate Request replies via email with the Master File API certificate and password. A password is required for the initial installation of the certificate. All ensuing accesses automatically connect the user.

- **Save** the certificate file and installation PIN in a secure location for possible future use **and follow** the installation instructions.

Application Access

Access to the Master File API follows the same standards as existing CAISO market services. Client Development should follow similar patterns.

Staging Environment URL information will be posted 2 weeks prior to the start of testing. Production Environment URL information will be added to this document or posted at a later date.