

Base Schedule Aggregation Portal (BSAP) Interface Specification for BSAP Services

(Business Rules v 10.x(Fall 2019))

Version: 1.7.3

October 22, 2019

Revision History

Date	Version	By	Description
10/4 22 /2019	1.7. 23	WT	Update to correct BalancingTestResults element table for use of required or optional request behavior adjustment (no market type provided will return RTM only).
<u>10/1/2019</u>	<u>1.7.2</u>	<u>WT</u>	<u>Update to correct BalancingTestResults element table for use of required or optional.</u>
9/10/2019	1.7.1	WT	Update to show BalancingTestResults element of aggregatedBSDeviation as integer.
7/3/2019	1.7	WT	Update to show difference to submit for DAM/RTM base schedule submit – DAM support for RC.
6/17/2019	1.6	WT	Update to BalancingTestResults with additional element for marketType (DAM/RTM).
5/16/2019	1.5	WT	Update to BalancingTestResults with new web service version to add Base Deviation. Updated version date within the v1 web services. For Fall 2019.
12/5/2018	1.4	WT	Update to the Business Scenario and Service Level Agreement section 2.
12/19/2017	1.3	WT	Additional elements added for BaseSchedule and BaseScheduleResults. Distribution Factor for aggregate. Reference update value1.
10/12/2017	1.2	WT	Additional elements added for BaseSchedule and BaseScheduleResults. Distribution Factor for aggregate.
1/5/2016	1.1	WT	Broke out the Base Schedule specific data from the SIBR data. Updated some comments and information relative to Base Schedule submissions.
4/23/2015	1.0	WT	1 st released version was included in the SIBR Technical Specifications.

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1 Introduction

1.1 Purpose

This document describes the Market Participant interface to CAISO's Base Schedule Aggregation Portal (BSAP) services for the Energy Imbalance Market (EIM) . 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

For any questions regarding this document or technical questions related to integrating applications with CAISO's BSAP web services, please send email to wtamblyn@caiso.com or dcerillo@caiso.com

1.3 Release Notes for Web Services version 1.7

Note: This single document will be used for the Base Schedule services.

Only two versions of a web service will be supported at a given time. All services will either have a namespace of v1, v2 vX etc... the most recent service will be the next incremental version. The version element within the schema will define which release it is associated with.

Previous Technical Specifications may be requested if needed by contacting the individuals listed above.

Version 1.5 has included the aggregate BS Deviation in the Balance Test Results. This will be a new version of the service. Both the v1 and v2 versions of the web service will be supported. All other web services for BSAP will remain as v1.

Version 1.6 is an update to add an element for marketType (DAM/RTM) for the BalancingTestResults

Version 1.7 is an update to add the **difference** between DAM and RTM Base Schedule submission.

1.4 Namespace Matrix for BSAP Services

Supported BSAP services are v1 for 20171001 and v2 for BalancingTestResults_v2 for 20191001.

To be used in conjunction with the Base Schedule submission and retrieves as well as the BSAP Balancing Results. Since there are only 2 versions of these services there will be no deprecated services. Base Schedules do not have a Market Close for a given market, there are 3 time periods for a single market so there will be no 'Clean' services for BSAP. A retrieve will show what was used for the time period (T-75, T-55, T-40) for the valid Base Schedules in the system at the time of the request.

TargetNamespace (wsdl)	Xmlns (xsd)
/submitBaseSchedule_v1.wsdl	BaseSchedule_v1xsd
	2006-06-13/StandardAttachmentInfor.xsd
	2006-06-13/SubmitStandardOutput_v1.xsd
	2006-06-13/StandardOutput.xsd
/retrieveBaseScheduleResults_v1	
	/RequestBaseScheduleResults_v1.xsd#
	2006-06-13/StandardAttachmentInfor.xsd
	2006-06-13/StandardOutput.xsd
/retrieveBalancingTestResults_v1.wsdl	
	/RequestBalancingTestResults_v1.xsd#
	2006-06-13/StandardAttachmentInfor.xsd
	2006-06-13/StandardOutput.xsd
/retrieveBalancingTestResults_v2.wsdl	<i>Fall 2019 Release</i>
	/RequestBalancingTestResults_v2.xsd#
	2006-06-13/StandardAttachmentInfor.xsd
	2006-06-13/StandardOutput.xsd

1.5 BSAP End Points

The link below will provide URL information for all web services needed in Production as well as Non-Production for parallel operations or Market Simulations. This document is maintained by our Change Management team in coordination with the Program Management Office and Market Simulation schedules.

http://www.caiso.com/Documents/SystemAccessInformation_MarketParticipants.pdf

The link above can be found on our CAISO web site located under the PARTICIPAT/Application access page.

1.6 Related Documents

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

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

Doc. No.	Document Name	Location
1	B2B Security Specification	<u>must</u> have a valid certificate to retrieve from the Market Participant Portal (MPP). https://mpp.caiso.com/Information%20Security/ISO%20B2B%20Security%20Specification.pdf
2	ISO System Access and Security Information	https://developer.caiso.com/pages/application.aspx?app=BSAP
3	SIBR Technical Specifications located in : PARTICIPAT/Application access page under Scheduling Infrastructure Bussiness Rules - Bidding.	http://www.caiso.com/Documents/SIBRInterfaceSpecification_BiddingServices_v11_5_1.pdf
4	Scheduling Infrastructure Business Rules (SIBR) – Bidding located in: PARTICIPAT/Application access page under Business User Documentation.	http://www.caiso.com/Documents/SIBRBusinessRulesforBiddingVersion8_8_Spring2015.xls
5	CAISO Interface Specification for Market Results Services located in: PARTICIPAT/Application access page under Customer Market Results Interface (CMRI) Technical documentation (per release)	http://www.caiso.com/Documents/CMRI-InterfaceSpecification_v3_4_1Clean_Fall2015Release.pdf

2 Submit BaseSchedule

2.1 Business Scenario

EIM entity SC submits Real-time balanced supply/demand base schedules, including intertie schedules. (Day-Ahead will be utilized to support the Reliability Coordinator (RC) functions for RC WEST).

2.1.1 RTM Business Scenario

Base schedules **must** be submitted **for the active hour** (they can be 0MW) for all generating resources in an EIM Entity BAA, including non-participating generators, and must include disaggregation of day-ahead import/export schedules between the EIM Entity BAA and the ISO, and disaggregation of forward export schedules to other BAAs. Base import schedules to an EIM Entity BAA from BAAs other than the ISO must be submitted at the relevant intertie scheduling points.

Base schedules for the active hour are sent to the market system and a set of sufficiency tests are run (Balancing, Flex Ramp Requirement, Bid Range Capacity) 3 times each hour at T-75 (xx:45), T-55 (xx:05), and T-40 (xx:20). The results for each of the runs are posted to indicate a pass or fail based on the data provided. The last set of sufficiency tests that are run for the T-40 interval (xx:20 past the hour) will be used for settlement data.

In order to achieve a passed result the EIM Entity SC or BSC may need to modify an existing base schedule to adjust the value. This would be typically be expected after the base schedules were submitted prior to the T-75 run for the active hour and results were reviewed and then submitting again prior to the T-55 run, this would be repeated also for the T-40 run (only the EIM Entity BSC may submit between the T-55 and T-40).

In addition to the base schedules for the active hour there should be base schedules for the next 3 hours ahead of the active hour that best represent the capability for that hour. These base schedules are used in optimization runs in the market to better forecast upcoming conditions. There is no requirement to balance base schedules for hours ahead of the active hour.

Performance may be impacted for base schedules depending on how the services is utilized to meet the above objectives. To increase performance it is expecting that only **new** base schedules for a given interval or **base schedules that have a value change for a given interval** will be submitted into BSAP.

BSAP Real-Time markets are open 7 days in advance to allow staging of data for up to 7 days. Data beyond 3 days will have no Demand Forecast available to balance to and is considered staged data with no significant value. Base Schedules must exist for the T+1 trading day in order to allow EIM participating resources to submit a bid into SIBR once the bid market is opened for the next trading day after the Day Ahead Market results are posted.

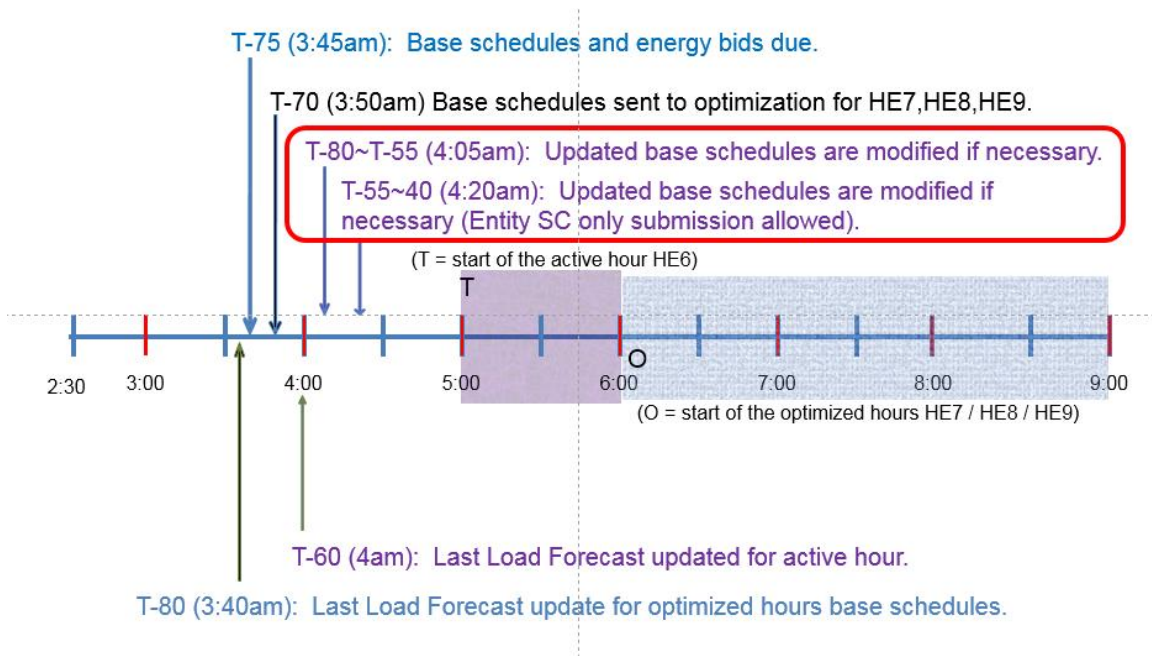
Once data is present for resource or interchange for a given interval any submissions for the respective resource or interchange should only contain the new values needed to be used for the active hour or for optimization purposes (4 hours ahead of the active hour or the remainder of the day).

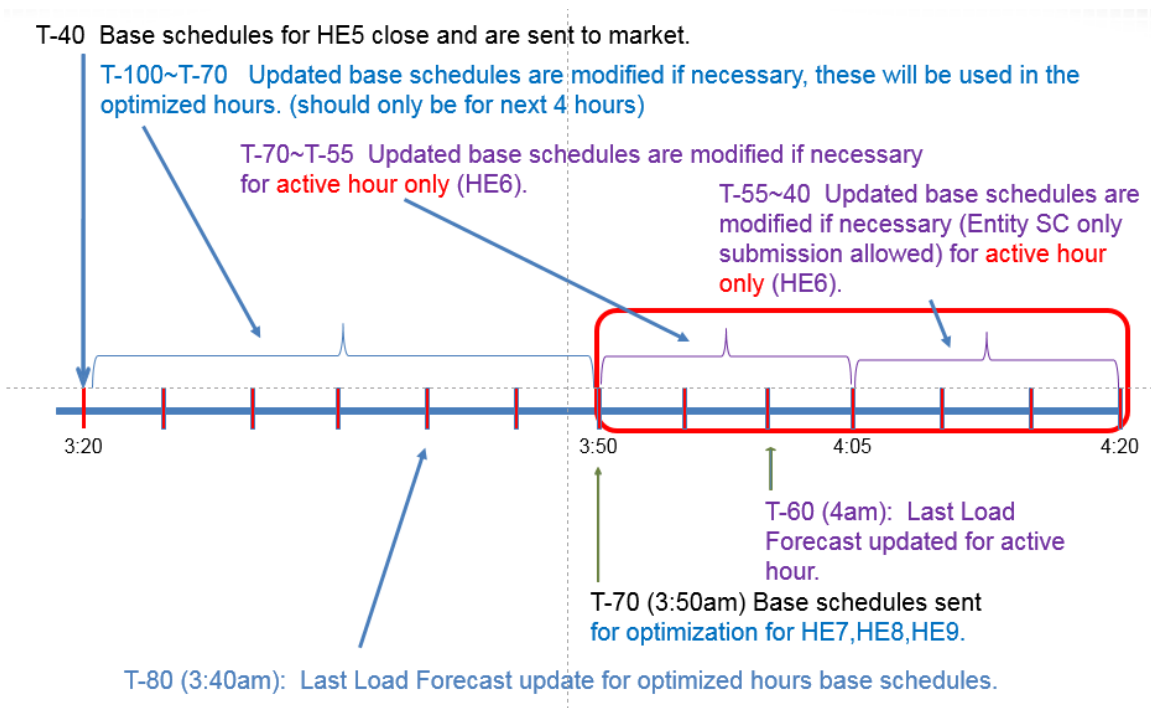
Below is a suggested business practice to achieve optimal performance for submission of base schedules relative to when markets are open and available and when forecast data is available on a daily and hourly basis.

For **daily** operations given the below calendar using Dec 4th as the current date.
 Hourly Load Forecast is rolling and available 72 hours ahead.

December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
BSAP RTM Markets opens 7 days before the operating day 00:30 on 12/4 opens RTM for 12/11. Hourly Load Forecast available to 12/6 and RTM Bid makets open for 12/5 after DAM results post.						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
04:25 12/4 submit base schedules for 12/11 only - this data likely will not represent the expected Demand and is purely a place holder.						
05:25 12/4 submit modified or new base schedules for 12/6 only - Hourly Load Forecast is available to view and balance but will continue to change.						
06:25 12/4 submit modified or new base schedules for 12/5 only - Ensuring base schedules exist for participating resource that will be in SIBR after Bid market opens for 12/5.						

For **Hourly** operations given the below timeline using HE6 as the active hour and optimized hours are HE7, HE8 and HE9.

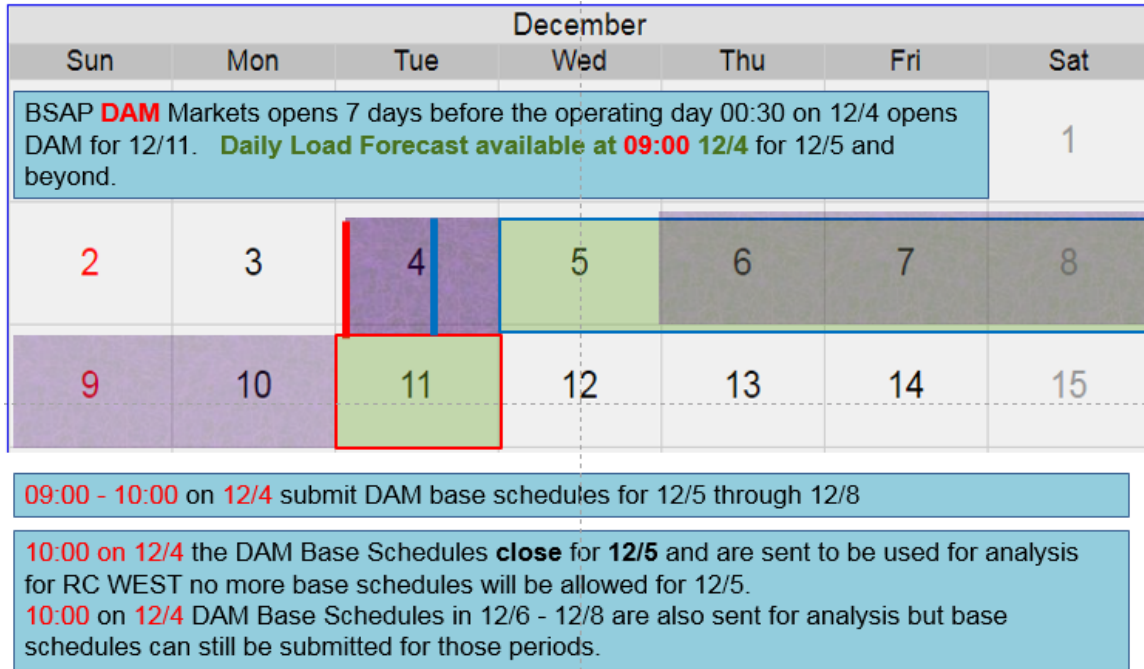




2.1.2 DAM Business Scenario

DAM Base schedules **must** be submitted **for the active day** (this is the current day +1) and an additional 3 days. In order to support RC functions, the RC WEST requires 4 days to be available at the close of the DAM time period for the active day which is 10am on the current day.

DAM Base schedules must be submitted by the EIM Entity BSC.



2.2 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 99.9%.
Expected size of payload (average and maximum)	(AVG # of Base Schedules) to be determined. 1 interval per hour * number of resources X hours in the market horizon. (*5 or 24).
Expected frequency (average and maximum)	At least 1 per hour, average is 3 times every hour per Base Schedule Coordinator utilizing the service Base Schedule submission and at least 2 per hour from the Entity Base Schedule Coordinator.
Longest time the service can be unavailable before business is impacted	[to be determined]

Business impact if is unavailable	Base Schedule Coordinators utilizing the service may not complete submitting new Base Schedule data. (latest is always used.)
Expected response time for the service	[to be determined] Based on quality of data provided and subsequent volume of data processing. Typical is less than 20 seconds.
Expected time to exchange	[to be determined] Based on quality of data and volume of data processing. Typical is less than 30 seconds.

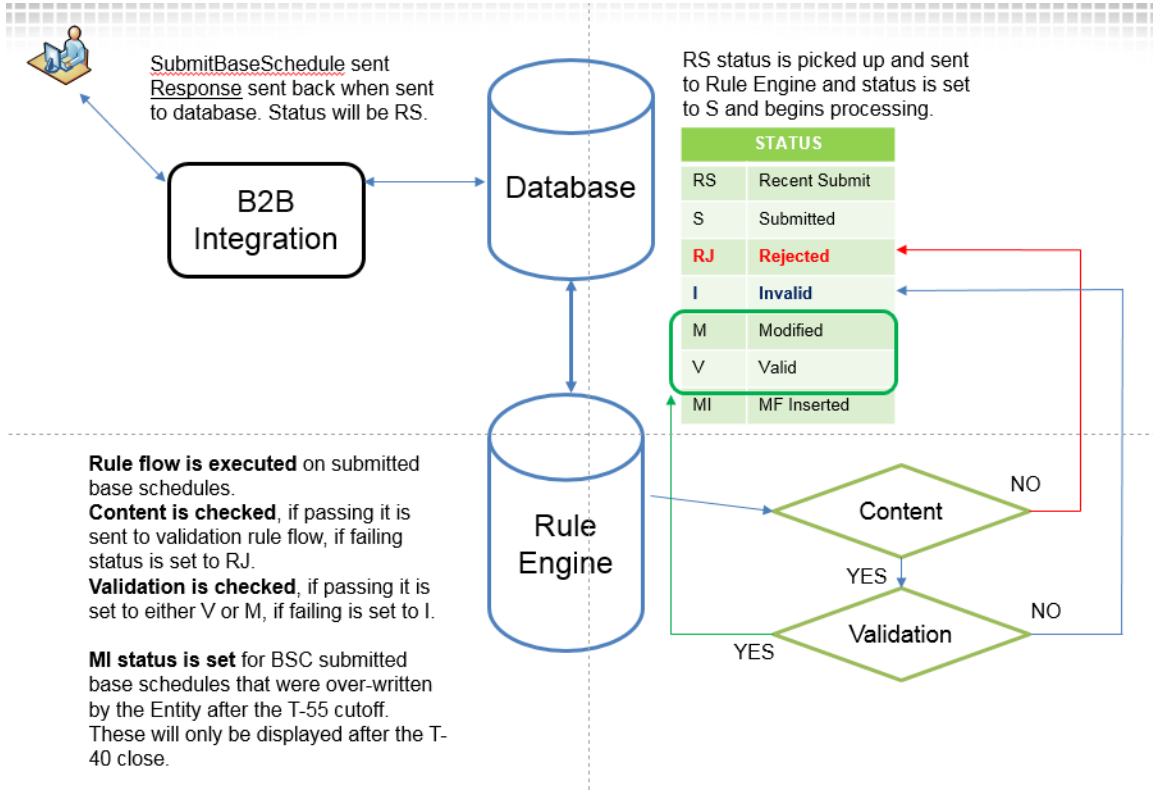
2.3 Use Model

The sequence diagram below describes the service interactions between Base Scheduling Coordinators and BSAP system in a direct link submission process. The data exchange follows CAISO SOA Submit messaging pattern. In this pattern, the data source system is the Base Scheduling Coordinator who initiates a data transaction by invoking a submitBaseSchedule service provided by BSAP. The consumer of the Web service is Base Scheduling Coordinator or a Web portal. The consumer makes request to BSAP with Base Schedule data by invoking the submit Web service. The BSAP system is the provider of the Web service.

The following steps are involved in the submission process:

- 1) Base Scheduling Coordinator has the Base Self Schedule data set ready in XML format
- 2) Base Scheduling Coordinator validates the data set based on the XML schema
- 3) Base Scheduling Coordinator invokes the submitBaseSchedule Web service directly to send a request to BSAP with the Base Schedule data set
- 4) BSAP returns an acknowledge message back to Base Scheduling Coordinator for receipt with a unique identifier. Note that acknowledgement does not indicate that the Base Schedule will be valid after it runs through the Business Rules engine.
- 5) Data is passed to the Business Rule engine to determine if the Base Schedule submitted is valid. (please review the Business Rules for Base Schedules).
- 6) To ensure a valid Base Schedule has been processed, the retrieve service must be invoked to pull back the current status of the base schedule that was submitted or re-validated based on newest Master File data (once daily re-validation).

Only those that are Valid (V), or Modified (M) will be sent to the market. Base schedules that do not pass validation will either be Rejected (R) or Invalid (I). The retrieve will also provide the rule number and messages that fire on validated base schedules.



Note: If a retrieve is initiated prior to the base schedule completing the rule engine validation, the last submitted base schedule with a status of V, M, I or R will be returned and will show the previous submitted value. This has been experienced when there is a large volume of base schedule processing prior to a closing period.

Submitted base schedules will be queued up in batches and picked up for processing based on the nearest market period that is still open. The queue is updated every 2 to 4 seconds.

2.4 Operation Details

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

Operation	Message Types	Message	WSDL	XSD
submitBaseSchedule	Input	SubmitBaseScheduleRequest	submitBaseSchedule_v1.wsdl	BaseSchedule_v1.xsd

	Output	SubmitBaseScheduleResponse		SubmitStandardOutput.xsd
	Fault	faultReturnTypes		StandardOutput.xsd

2.5 WSDL (*BaseSchedule_v1.wsdl*) (*this has version 20171001 – used with EIM*)

Please review the [Technical Interface Specifications for SIBR Bidding](#) under the appropriate header for related WSDL and XSD references.

<https://developer.caiso.com/pages/application.aspx?app=BSAP>

2.6 Submit BaseSchedule

2.6.1 Element Table

Element	Data Description	Type	Req'd
Message Header (Header is Optional)			
TimeDate	The dateTime, in GMT, when the payload is published.	dateTime	Yes
Source	The source of published data.	String	Yes
Version	Date reflecting the release this service update is related to. V1 is v20141001 (default)	String	Yes
IncPayloadFlag	<i>Flag indicating if the payload is incremental This is not expected on Base Schedule submissions.</i>	YesNo	No
<i>lastBroadcasted</i>	<i>Last broadcast time (this will also not be expected on submissions)</i>	<i>dateTime</i>	<i>No</i>
<i>BroadcastSequenceNum</i>	<i>Incremental number for each time the service is broadcast.</i>	<i>Integer</i>	<i>No</i>
Message Payload			
GeneratingBaseSchedule			
startTime	First time point for Base Schedule.	dateTime	Yes
value1Multiplier	Multiplier for value1. These are not used in Base Schedule.	Float	No
value1Units	Units of measure. These are not used in Base Schedule.	Float	No
BaseSchedulePoint			
BaseSchedulePoint.value1	The first value at the time, The meaning of the value is defined by the derived type of the associated schedule. This is the MW value for the Market Product.	Float	Yes

Element	Data Description	Type	Req'd
BaseSchedulePoint.endDateTime	The end date time for value1 and/or value2. (this is the interval) For RTM this will be same as the stopTime.	dateTime	Yes
BaseSchedulePoint.startDateTime	The start date time for value1 and/or value2. (this is the interval) For RTM this will be same as the startTime.	dateTime	Yes
BaseSchedulePoint.MarketProduct.marketProductType	Product type can be: EN, NR, SR, RU, RD There must always be EN for submitted Base Schedule (it can be 0).	String	Yes
BaseSchedulePoint.PnodeDistributionFactor	Used on aggregated resources to calculate participation of a Pnode.		No
BaseSchedulePoint.PnodeDistributionFactor.factor	Value specified for Pnode factor.	Float	Yes if supplied
BaseSchedulePoint.PnodeDistributionFactor.IndividualPnode	Aggregate can have 1 or more Pnodes.		Yes if supplied
BaseSchedulePoint.PnodeDistributionFactor.IndividualPnode.mrid	Name of Pnode for aggregate location.	String	Yes if supplied
marketType	Market Type could be either DAM or RTM. DAM is not being enforced as of this posting.	string	Yes
stopTime	Stop time point for Base Schedule.	dateTime	Yes
BaseSchedulingCoordinator.mrid	Name of Base Scheduling Coordinator associated with the resource. Note: for the T-55 to T-40 the Entity BSC must be used when submitting for the active hour.	String	Yes
SchedulingCoordinator.mrid	Name of SCID associated with the resource.	string	Yes
RegisteredGenerator.mrid	Name of resource known to the SC. Always UPPER Case.	string	Yes
InterTieBaseSchedule			
startTime	First time point for Base Schedule.	dateTime	Yes
value1Multiplier	Multiplier for value1. These are not used in Base Schedule.	Float	No
value1Units	Units of measure. These are not used in Base Schedule.	Float	No
BaseSchedulePoint			
BaseSchedulePoint.value1	The first value at the time, The meaning of the value is defined by the derived type of the associated schedule. This is the MW value for the Market Product.	Float	Yes

Element	Data Description	Type	Req'd
BaseSchedulePoint.endDateTime	The end date time for value1 and/or value2. (this is the interval) For RTM this will be same as the stopTime.	dateTime	Yes
BaseSchedulePoint.startDateTime	The start date time for value1 and/or value2. (this is the interval) For RTM this will be same as the startTime.	dateTime	Yes
BaseSchedulePoint.MarketProduct.marketProductType	Product type can be: EN, NR, SR, RU, RD There must always be EN for submitted Base Schedule (it can be 0).	String	Yes
marketType	Market Type could be either DAM or RTM. DAM is not being enforced as of this posting.	string	Yes
stopTime	Stop time point for Base Schedule	dateTime	Yes
BaseSchedulingCoordinator.mrid	Name of the Base Scheduling Coordinator. For Interties and Transactions the Entity BSC must be used.	String	Yes
SchedulingCoordinator.mrid	Name of SCID associated with the resource.	string	Yes
RegisteredInterTie.mrid For a registered Intertie with Master File, the mrid is required in the BaseSchedule. For a Transaction based (non-registered resource) the mrid is not required and will be generated by SIBR dependent upon the components selected for the BaseSchedule.	Registered name of the Intertie Resource. (1-32 characters) Only for registered Interties. Always UPPER case.	string	No
RegisteredInterTie.SecondaryFlowGate Note: For Transaction based bids not for Registered resources.	Alternate Tie Name(if registered) for Transaction based bid. Secondary flow gates are only associated to specific Ties under obligation in the db model.	String	No
RegisteredInterTie.SecondaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	For resources where an alternative path is registered . An alternative path can be specified.	String	Yes
RegisteredInterTie.AggregatedPnode RegisteredInterTie.IndividualPnode.mrid	These are not submittable, will be inserted based on Master File data in SIBR. This is the Scheduling Point.	String	no

Element	Data Description	Type	Req'd
RegisteredInterTie.IndividualPnode RegisteredInterTie.IndividualPnode.mrid	These are not submittable, will be inserted based on Master File data in SIBR. The Scheduling Point	String	no
RegisteredInterTie.PrimaryFlowGate Note: For Transaction based bids not for Registered resources. Must be submitted for external locations.	Primary path for Transaction based bid. (Scheduling Point.) The Tie Point	String	No Yes if for Transaction based schedule
RegisteredInterTie.PrimaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	Scheduling Point for Transaction based bids. This must be supplied for all Transaction based bids. The Tie Point.	String	No
RegisteredInterTie.SchedulingCoordinator Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Transaction based bid.	String	No
RegisteredInterTie.SchedulingCoordinator.mrid Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Transaction based bid. This must be supplied for all Transaction based bids.	String	No
RegisteredInterTie.SecondaryFlowgate	This would be the alternate scheduling point, this would only need to be submitted if there is an alternate for the scheduling point.	String	No
RegisteredInterTie.direction Note: For Transaction based bids not for Registered resources.	Indicator for direction of an Intertie. Can be either I or E. This must be supplied for all Transaction based bids.	InterTieDirection	No

Element	Data Description	Type	Req'd
RegisteredInterTie.energyProductType Note: For Transaction based bids not for Registered resources.	Product type of an Intertie related to Tagging. Can be: DYN, FIRM, NFRM, UCTG, WHL This must be supplied for all Transaction based bids.	EnergyProductType	No
RegisteredInterTie.registeredFlag Note: This is not a submitted value.	Resource Flag to indicate if this is a Master File registered resource. This is not a submitted element and will be generated by SIBR after the bid is processed. For Master File registered resources it will be Y.	YesNo	No
RegisteredInterTie.purchaseServiceEntity	PSE identifier for Transaction based bids.	String	No
RegisteredInterTie_wheeling.WheelingResource Note: For Transaction based bids not for Registered resources.	Used in wheeling transactions where EnergyProductType is WHL. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.mrid Note: This is not a submitted value For Transaction based bids not for Registered resources.	Wheeling Transaction name. This will be generated by SIBR once the Transaction is submitted. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.SecondaryFlowGate Note: For Transaction based bids not for Registered resources.	Alternate Scheduling Point (if registered) for a Transaction based bid. Base Schedules do not Wheel.		No
RegisteredInterTie_wheeling.WheelingResource.SecondaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	Alternate Scheduling Point Base Schedules do not Wheel.	String	No

Element	Data Description	Type	Req'd
RegisteredInterTie_wheeling.WheelingResource.AggregatedPnode RegisteredInterTie_wheeling.WheelingResource.AggregatedPnode.mrid Note: For Transaction based bids not for Registered resources.	These are not submittable, will be inserted based on Master File data in SIBR. Base Schedules do not Wheel.	String	no
RegisteredInterTie_wheeling.WheelingResource.IndividualPnode RegisteredInterTie_wheeling.WheelingResource.IndividualPnode.mrid Note: For Transaction based bids not for Registered resources.	These are not submittable, will be inserted based on Master File data in SIBR. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.PrimaryFlowGate Note: For Transaction based bids not for Registered resources.	Primary Scheduling Point for Wheeling. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.PrimaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	Primary Scheduling Point for Wheeling. Base Schedules do not Wheel.	String	Yes
RegisteredInterTie_wheeling.WheelingResource.SchedulingCoordinator Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Wheeling. Base Schedules do not Wheel.		No
RegisteredInterTie_wheeling.WheelingResource.SchedulingCoordinator.mrid Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Wheeling. Base Schedules do not Wheel.	String	No

Element	Data Description	Type	Req'd
RegisteredInterTie_wheeling.WheelingResource.direction Note: For Transaction based bids not for Registered resources.	Indicator for direction of an Intertie. Can be either I or E. This must be supplied for all Transaction based bids. Base Schedules do not Wheel.	InterTieDirection	No
RegisteredInterTie_wheeling.WheelingResource.energyProductType Note: For Transaction based bids not for Registered resources.	Product type of an Intertie related to Tagging. Can be: DYN, FIRM, NFRM, UCTG, WHL This must be supplied for all Transaction based bids. Base Schedules do not Wheel.	EnergyProductType	No
RegisteredInterTie_wheeling.WheelingResource.registeredFlag Note: For Transaction based bids not for Registered resources.	Resource Flag to indicate if this is a Master File registered resource. This is not a submitted element and will be generated by SIBR after the bid is processed. For Master File registered resources it will be Y. Base Schedules do not Wheel.	YesNo	No
RegisteredInterTie_wheeling.WheelingResource.purchaseServiceEntity	PSE identifier for Transaction based bids. Base Schedules do not Wheel.	String	No

2.7 BaseSchedule v1 Response

2.7.1 Element Table

Element	Data Description	Type	Req'd
Event.result	Event result.	string	Yes
Event.id	Event identifier.	string	Yes
Event.description	Event description.	string	No
Event.creationTime	Event creation time.	dateTime	No
Service.id	Service identifier.	string	Yes

Element	Data Description	Type	Req'd
Service.name	Name of a service.	string	Yes
BID.BID_ID	Bid identification.	string	No
BID.START_TIME	Start time and date for which forecast applies.	dateTime	Yes
BID.END_TIME	Stop time and date for which forecast applies.	dateTime	Yes
BID.RESOURCE_ID	Unique Resource	string	Yes
BID.MARKET_TYPE	DAM or RTM	string	Yes
BID.RESULTS	Bid results.	string	No

3 Retrieve BaseSchedule

3.1 Business Scenario

The following BaseSchedule results need to be exchanged between Base Schedule Coordinator / EIM Entity and the BSAP system.

1. This service will be use to retrieve BaseSchedule submitted through following:
 - a. BaseSchedule submitted through BSAP GUI
 - b. BaseSchedule submitted through BSAP API
2. The service will be used to retrieve results for BaseSchedule submitted either in the DA or RT markets,
3. The service will be use to retrieve BaseSchedule data within the allowable retention period on BSAP.
4. The BaseSchedule result will include the following major data elements:
 - a. BaseSchedule Status (V = Valid, I = Invalid, RJ = Rejected)
 - b. BaseSchedule Data
 - c. BaseSchedule Error Messages (these are the rules that check the content and validity of the submitted Base Schedules).
5. The result will include the same BaseSchedule data that can be retrieved and displayed in BSAP GUI.
6. The service will return BaseSchedule results for all resources that belong to the user, depending on the filtering criteria used.

7. The BaseSchedule result will be filtered using any of the following criteria:
- a. By Resource ID
 - i. Using By SC ID filtering criteria, the user will be able to retrieve BaseSchedule data for all the resource that belongs to the BSC or EIM Entity, and interval period specified that are authorized for the certificate being used
 - ii. The following filtering options must be included:
 - 1. Start and End Date/Time – Start and End / Time must correspond to beginning or ending of trading period; maximum of 1 Market period per request.
 - 2. Resource ID – resource name known to Market Participants, and no wildcards allowed
 - b. By Date (if both BSC and EIM Entity roles are associated with the certificate, all base schedules submitted by either BSC and EIM Entity will be returned).
 - i. The following filtering options must be included:
 - 1. Start and End Date/Time – Start and End / Time must correspond to beginning or ending of trading period; maximum of 1 Market period per request (within same Trade date).
 - d. By SC ID
 - i. Using By SC ID filtering criteria, the user will be able to retrieve BaseSchedule data for all the resource that belongs to the BSC or EIM Entity, interval period specified that are authorized for the certificate being used.
 - ii. The result will include at least a BaseSchedule for the specified market period, and for all resource that associated the user.

3.2 Request BaseScheduleResults

3.2.1 Element Table

Element	Data Description	Type	Req'd
BaseSchedule_MarketTimeInterval	Request using Market Type		No
BaseSchedule_MarketTimeInterval. marketType	Market Type to be used: DAM RTM	string	Yes
BaseSchedule _intervalPeriod. end	Time of day when Market Definition ends.	dateTime	Yes
BaseSchedule _intervalPeriod. start	Time of day when Market Definition starts.	dateTime	Yes
BaseSchedule _SchedulingCoordinatorMarketTimeInterval	Request using SC ID		No
BaseSchedule _SchedulingCoordinatorMarketTimeInterval. MarketStartTime	Time of day when Market Definition starts.	dateTime	Yes
BaseSchedule _SchedulingCoordinatorMarketTimeInterval. MarketEndTime	Time of day when Market Definition ends.	dateTime	Yes
BaseSchedule _SchedulingCoordinatorMarketTimeInterval. marketType	Market Type to be used: DAM RTM	string	Yes
BaseSchedule _SchedulingCoordinatorMarketTimeInterval. schedulingCoordinator	SC ID to be used with Market Type	string	Yes
BaseSchedule _ResourceMarketTimeInterval	Request using Resource		No
BaseSchedule _ResourceMarketTimeInterval. MarketStartTime	Time of day when Market Definition starts.	dateTime	Yes
BaseSchedule _ResourceMarketTimeInterval. MarketEndTime	Time of day when Market Definition ends.	dateTime	Yes
BaseSchedule _ResourceMarketTimeInterval. marketType	Market Type to be used: DAM RTM	string	Yes
BaseSchedule _ResourceMarketTimeInterval. Mrid	Resource to be used with Market Type	string	Yes

3.3 BaseScheduleResults

3.3.1 Element Table

Element	Data Description	Type	Req'd
Message Header (Header is Optional)			
TimeDate	The dateTime, in GMT, when the payload is published.	dateTime	Yes
Source	The source of published data.	String	Yes
Version	Date reflecting the release this service update is related to. V1 is v20141001 (default)	String	Yes
IncPayloadFlag	<i>Flag indicating if the payload is incremental This is not expected on Base Schedule submissions.</i>	YesNo	No
<i>lastBroadcasted</i>	<i>Last broadcast time (this will also not be expected on submissions)</i>	dateTime	No
<i>BroadcastSequenceNum</i>	<i>Incremental number for each time the service is broadcast.</i>	Integer	No
Message Payload			
GeneratingBaseSchedule			
startTime	First time point for Base Schedule.	dateTime	Yes
value1Multiplier	Multiplier for value1. These are not used in Base Schedule.	Float	No
value1Units	Units of measure. These are not used in Base Schedule.	Float	No
BaseSchedulePoint			
BaseSchedulePoint.endTime	The end date time for value1 and/or value2. (this is the interval) For RTM this will be same as the stopTime.	dateTime	Yes
BaseSchedulePoint.startTime	The start date time for value1 and/or value2. (this is the interval) For RTM this will be same as the startTime.	dateTime	Yes

Element	Data Description	Type	Req'd
BaseSchedulePoint.value1	The first value at the time, The meaning of the value is defined by the derived type of the associated schedule. This is the MW value for the Market Product.	Float	Yes
BaseSchedulePoint.MarketProduct.marketProductType	Product type can be: EN, NR, SR, RU, RD There must always be EN for submitted Base Schedule (it can be 0).	String	Yes
BaseSchedulePoint.PnodeDistributionFactor	Used on aggregated resources to calculate participation of a Pnode.		No
BaseSchedulePoint.PnodeDistributionFactor.factor	Value specified for Pnode factor.	Float	Yes if supplied
BaseSchedulePoint.PnodeDistributionFactor.IndividualPnode	Aggregate can have 1 or more Pnodes.		Yes if supplied
BaseSchedulePoint.PnodeDistributionFactor.IndividualPnode.mrid	Name of Pnode for aggregate location.	String	Yes if supplied
marketType	Market Type could be either DAM or RTM. DAM is not being enforced as of this posting.	string	Yes
stopTime	Stop time point for Base Schedule.	dateTime	Yes
BaseSchedulingCoordinator.mrid	Name of Base Scheduling Coordinator associated with the resource. Note: for the T-55 to T-40 the Entity BSC must be used when submitting for the active hour.	String	Yes
BidEconomicRange.lowerLimit	Participating resource only		No
BidEconomicRange.lowerLimit.units		String	Yes
BidEconomicRange.lowerLimit.value	Economic lower limit of bid.	Float	Yes if supplied
BidEconomicRange.upperLimit	Participating resource only		No
BidEconomicRange.upperLimit.units	Unit	String	Yes
BidEconomicRange.upperLimit.value	Economic upper limit of bid.	Float	Yes if supplied
BidError	Messages for rules that fire on a submitted Base Schedule.		No
BidError.endTime	HE for base schedule period.	dateTime	No
BidError.errorMessage	Message for rule that fired.	String	No
BidError.errPriority	Rule message level.	integer	No
BidError.logTimeStamp	Time when rule fired.	dateTime	Yes
BidError.ruleID	Rule number that fired.	integer	No

Element	Data Description	Type	Req'd
BidError.startTime	Beginning of hour for period.	dateTime	No
SchedulingCoordinator.mrid	Name of SCID associated with the resource.	string	Yes
RegisteredGenerator.mrid	Name of resource known to the SC. Always UPPER Case.	string	Yes
InterTieBaseSchedule			
startTime	First time point for Base Schedule.	dateTime	Yes
value1Multiplier	Multiplier for value1. These are not used in Base Schedule.	Float	No
value1Units	Units of measure. These are not used in Base Schedule.	Float	No
BaseSchedulePoint			
BaseSchedulePoint.value1	The first value at the time, The meaning of the value is defined by the derived type of the associated schedule. This is the MW value for the Market Product.	Float	Yes
BaseSchedulePoint.endTime	The end date time for value1 and/or value2. (this is the interval) For RTM this will be same as the stopTime.	dateTime	Yes
BaseSchedulePoint.startTime	The start date time for value1 and/or value2. (this is the interval) For RTM this will be same as the startTime.	dateTime	Yes
BaseSchedulePoint.MarketProduct.marketProductType	Product type can be: EN, NR, SR, RU, RD There must always be EN for submitted Base Schedule (it can be 0).	String	Yes
marketType	Market Type could be either DAM or RTM. DAM is not being enforced as of this posting.	string	Yes
stopTime	Stop time point for Base Schedule	dateTime	Yes
BaseSchedulingCoordinator.mrid	Name of the Base Scheduling Coordinator. For Interties and Transactions the Entity BSC must be used.	String	Yes
BidEconomicRange.lowerLimit	Participating resource only		No
BidEconomicRange.lowerLimit.units		String	Yes
BidEconomicRange.lowerLimit.value	Economic lower limit of bid.	Float	Yes if supplied
BidEconomicRange.upperLimit	Participating resource only		No
BidEconomicRange.upperLimit.units	Unit	String	Yes

Element	Data Description	Type	Req'd
BidEconomicRange.upperLimit.value	Economic upper limit of bid.	Float	Yes if supplied
BidError	Messages for rules that fire on a submitted Base Schedule.		No
BidError.endTime	HE for base schedule period.	dateTime	No
BidError.errorMessage	Message for rule that fired.	String	No
BidError.errPriority	Rule message level.	integer	No
BidError.logTimeStamp	Time when rule fired.	dateTime	Yes
BidError.ruleID	Rule number that fired.	integer	No
BidError.startTime	Beginning of hour for period.	dateTime	No
SchedulingCoordinator.mrid	Name of SCID associated with the resource.	string	Yes
RegisteredInterTie.mrid For a registered Intertie with Master File, the mrid is required in the BaseSchedule. For a Transaction based (non-registered resource) the mrid is not required and will be generated by SIBR dependent upon the components selected for the BaseSchedule.	Registered name of the Intertie Resource. (1-32 characters) Only for registered Interties. Always UPPER case.	string	No
RegisteredInterTie.SecondaryFlowGate Note: For Transaction based bids not for Registered resources.	Alternate Tie Name(if registered) for Transaction based bid. Secondary flow gates are only associated to specific Ties under obligation in the db model.	String	No
RegisteredInterTie.SecondaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	For resources where an alternative path is registered . An alternative path can be specified.	String	Yes
RegisteredInterTie.AggregatedPnode RegisteredInterTie.IndividualPnode.mrid	These are not submittable, will be inserted based on Master File data in SIBR. This is the Scheduling Point.	String	no
RegisteredInterTie.IndividualPnode RegisteredInterTie.IndividualPnode.mrid	These are not submittable, will be inserted based on Master File data in SIBR. The Scheduling Point	String	no

Element	Data Description	Type	Req'd
RegisteredInterTie.PrimaryFlowGate Note: For Transaction based bids not for Registered resources. Must be submitted for external locations.	Primary path for Transaction based bid. (Scheduling Point.) The Tie Point	String	No Yes if for Transaction base schedule
RegisteredInterTie.PrimaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	Scheduling Point for Transaction based bids. This must be supplied for all Transaction based bids. The Tie Point.	String	No
RegisteredInterTie.SchedulingCoordinator Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Transaction based bid.	String	No
RegisteredInterTie.SchedulingCoordinator.mrid Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Transaction based bid. This must be supplied for all Transaction based bids.	String	No
RegisteredInterTie.SecondaryFlowgate	This would be the alternate scheduling point, this would only need to be submitted if there is an alternate for the scheduling point.	String	No
RegisteredInterTie.direction Note: For Transaction based bids not for Registered resources.	Indicator for direction of an Intertie. Can be either I or E. This must be supplied for all Transaction based bids.	InterTieDirection	No
RegisteredInterTie.energyProductType Note: For Transaction based bids not for Registered resources.	Product type of an Intertie related to Tagging. Can be: DYN, FIRM, NFRM, UCTG, WHL This must be supplied for all Transaction based bids.	EnergyProductType	No

Element	Data Description	Type	Req'd
RegisteredInterTie.registeredFlag Note: This is not a submitted value.	Resource Flag to indicate if this is a Master File registered resource. This is not a submitted element and will be generated by SIBR after the bid is processed. For Master File registered resources it will be Y.	YesNo	No
RegisteredInterTie.purchaseServiceEntity	PSE identifier for Transaction based bids.	String	No
RegisteredInterTie_wheeling.WheelingResource Note: For Transaction based bids not for Registered resources.	Used in wheeling transactions where EnergyProductType is WHL. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.mrid Note: This is not a submitted value For Transaction based bids not for Registered resources.	Wheeling Transaction name. This will be generated by SIBR once the Transaction is submitted. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.SecondaryFlowGate Note: For Transaction based bids not for Registered resources.	Alternate Scheduling Point (if registered) for a Transaction based bid. Base Schedules do not Wheel.		No
RegisteredInterTie_wheeling.WheelingResource.SecondaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	Alternate Scheduling Point Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.AggregatedNode RegisteredInterTie_wheeling.WheelingResource.AggregatedNode.mrid Note: For Transaction based bids not for Registered resources.	These are not submittable, will be inserted based on Master File data in SIBR. Base Schedules do not Wheel.	String	no

Element	Data Description	Type	Req'd
RegisteredInterTie_wheeling.WheelingResource.IndividualPnode RegisteredInterTie_wheeling.WheelingResource.IndividualPnode.mird Note: For Transaction based bids not for Registered resources.	These are not submittable, will be inserted based on Master File data in SIBR. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.PrimaryFlowGate Note: For Transaction based bids not for Registered resources.	Primary Scheduling Point for Wheeling. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.PrimaryFlowGate.mrid Note: For Transaction based bids not for Registered resources.	Primary Scheduling Point for Wheeling. Base Schedules do not Wheel.	String	Yes
RegisteredInterTie_wheeling.WheelingResource.SchedulingCoordinator Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Wheeling. Base Schedules do not Wheel.		No
RegisteredInterTie_wheeling.WheelingResource.SchedulingCoordinator.mrid Note: For Transaction based bids not for Registered resources.	Scheduling Coordinator for Wheeling. Base Schedules do not Wheel.	String	No
RegisteredInterTie_wheeling.WheelingResource.direction Note: For Transaction based bids not for Registered resources.	Indicator for direction of an Intertie. Can be either I or E. This must be supplied for all Transaction based bids. Base Schedules do not Wheel.	InterTieDirection	No

Element	Data Description	Type	Req'd
RegisteredInterTie_wheeling.WheelingResource.energyProductType Note: For Transaction based bids not for Registered resources.	Product type of an Intertie related to Tagging. Can be: DYN, FIRM, NFRM, UCTG, WHL This must be supplied for all Transaction based bids. Base Schedules do not Wheel.	EnergyProductType	No
RegisteredInterTie_wheeling.WheelingResource.registeredFlag Note: For Transaction based bids not for Registered resources.	Resource Flag to indicate if this is a Master File registered resource. This is not a submitted element and will be generated by SIBR after the bid is processed. For Master File registered resources it will be Y. Base Schedules do not Wheel.	YesNo	No
RegisteredInterTie_wheeling.WheelingResource.purchaseServiceEntity	PSE identifier for Transaction based bids. Base Schedules do not Wheel.	String	No

3.4 Request BalancingTestResults v1 and v2

3.4.1 Element Table v2

Element	Data Description	Type	Req'd
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval	Request using interval period.		Yes
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.marketType	Market type (DAM or RTM) If none is specified both-only <u>RTM</u> will be returned.	MarketType	No
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.intervalPeriod.end	Time of day when Market Definition ends.	dateTime	Yes
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.intervalPeriod.start	Time of day when Market Definition starts.	dateTime	Yes

Element	Data Description	Type	Req'd
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.SchedulingCoordinator.mrid	Request using SC ID	String	Yes

3.4.2 Element Table v1

Element	Data Description	Type	Req'd
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval	Request using interval period.		Yes
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.intervalPeriod.end	Time of day when Market Definition ends.	dateTime	Yes
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.intervalPeriod.start	Time of day when Market Definition starts.	dateTime	Yes
BalancingTestResults_ScheduleCoordinatorMarketTimeInterval.SchedulingCoordinator.mrid	Request using SC ID	String	Yes

3.5 BalancingTestResults v2.

3.5.1 Element Table

Element	Data Description	Type	Req'd
Message Header			
TimeDate	The dateTime, in GMT, when the payload is published.	dateTime	Yes
Source	The source of published data.	String	Yes
Version	Date reflecting the release this service update is related to. V2 is v20191001 (default)	String	Yes
<i>IncPayloadFlag</i>	<i>Flag indicating if the payload is incremental This is not expected on Base Schedule submissions.</i>	YesNo	No

Element	Data Description	Type	Req'd
<i>lastBroadcasted</i>	<i>Last broadcast time (this will also not be expected on submissions)</i>	<i>dateTime</i>	<i>No</i>
<i>BroadcastSequenceNum</i>	<i>Incremental number for each time the service is broadcast.</i>	<i>Integer</i>	<i>No</i>
Message Payload			
BaseSchedule			
startTime	Start time (duration start)	dateTime	Yes
marketType	Market Type associated with Balance Test and Demand Forecast	Market Type	No
stopTime	Stop time (duration end)	dateTime	yes
BaseScheduleTestInterval			
intervalEndTime	Interval end time	dateTime	No
IntervalStartTime	Interval start time	dateTime	yes
BaseScheduleBalancingtest			yes
BaseScheduleBalancingTest.testResult	Balancing test result (PASS/FAIL)	string	yes
BaseScheduleBalancingTest.HostControlArea			
BaseScheduleBalancingTest.HostControlArea.mrid	Balancing Authority Area ID	string	yes
BaseScheduleBalancingTest.aggregateBSDeviation	Aggregate BS Deviation (based on outage data for submitted Base Schedules) will only return if deviation is present at the time of request.	integer	no
BaseScheduleBalancingTest.imbalanceAmount	Difference between the hourly load forecast minus the aggregate base schedule	float	No
BaseScheduleBalancingTest.imbalanceDirection	Indicates whether aggregate base schedule is over or less than hourly load forecast (UNDER/OVER)	string	No
BaseScheduleBalancingTest.imbalancePercentage	Percentage of the imbalance	string	No
BaseSchedulingCoordinator			
BaseSchedulingCoordinator.mrid	Base Scheduling Coordinator. The default value returned is the same as the SCID used in the SOA request message	string	yes
DemandForecast			
DemandForecast.IrregularDateTimePoint			
DemandForecast.IrregularDateTimePoint.value1	Hourly Load Forecast	float	yes

Element	Data Description	Type	Req'd
DemandForecast.IrregularDateTi mePoint.endDateTime	Interval end time of the load forecast	dateTime	No
DemandForecast.IrregularDateTi mePoint.startDateTime	Interval start time of the load forecast	dateTime	yes
DemandForecast.IrregularDateTi mePoint.HostControlArea			Yes
DemandForecast.IrregularDateTi mePoint.HostControlArea.mrid	BAA ID	string	yes

3.6 BalancingTestResults v1.

3.6.1 Element Table

Element	Data Description	Type	Req'd
Message Header			
TimeDate	The dateTime, in GMT, when the payload is published.	dateTime	Yes
Source	The source of published data.	String	Yes
Version	Date reflecting the release this service update is related to. V1 is v20141001 (default)	String	Yes
IncPayloadFlag	<i>Flag indicating if the payload is incremental This is not expected on Base Schedule submissions.</i>	YesNo	No
<i>lastBroadcasted</i>	<i>Last broadcast time (this will also not be expected on submissions)</i>	dateTime	No
<i>BroadcastSequenceNum</i>	<i>Incremental number for each time the service is broadcast.</i>	Integer	No
Message Payload			
BaseSchedule			
startTime	Start time (duration start)	dateTime	Yes
stopTime	Stop time (duration end)	dateTime	yes
BaseScheduleTestInterval			
intervalEndTime	Interval end time	dateTime	yes
IntervalStartTime	Interval start time	dateTime	yes
BaseScheduleBalancingtest			yes
BaseScheduleBalancingTest.testResult	Balancing test result (PASS/FAIL)	string	yes
BaseScheduleBalancingTest.HostControlArea			
BaseScheduleBalancingTest.HostControlArea.mrid	Balancing Authority Area ID	string	yes
BaseScheduleBalancingTest imbalanceAmount	Difference between the hourly load forecast minus the aggregate base schedule	float	yes

Element	Data Description	Type	Req'd
BaseScheduleBalancingTest.imbalanceDirection	Indicates whether aggregate base schedule is over or less than hourly load forecast (UNDER/OVER)	string	yes
BaseScheduleBalancingTest.imbalancePercentage	Percentage of the imbalance	string	yes
BaseSchedulingCoordinator			
BaseSchedulingCoordinator.mrid	Base Scheduling Coordinator. The default value returned is the same as the SCID used in the SOA request message	string	yes
DemandForecast			
DemandForecast.IrregularDateTimePoint			
DemandForecast.IrregularDateTimePoint.value1	Hourly Load Forecast	float	yes
DemandForecast.IrregularDateTimePoint.endDateTime	Interval end time of the load forecast	dateTime	yes
DemandForecast.IrregularDateTimePoint.startDateTime	Interval start time of the load forecast	dateTime	yes
DemandForecast.IrregularDateTimePoint.HostControlArea			Yes
DemandForecast.IrregularDateTimePoint.HostControlArea.mrid	BAA ID	string	yes

4 Samples

1 Base Schedule Submit xml Sample

Sample xml was generated using XMLSpy, bid characteristics are fabricated for use in the examples.

Please go to the link below for the sample xml and artifacts under Base Schedule Aggregation Portal/ Services for SubmitBaseSchedule_BSAPv1_AP or the DocAttach then under Downloads.

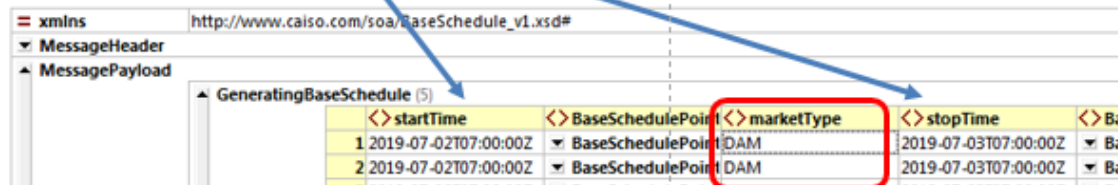
https://developerint.oa.caiso.com/Pages/application-services.aspx?app=BSAP&service=SubmitBaseSchedule_BSAPv1_AP

There are some key differences to point out when using the start/stopTime for DAM vs. RTM. When submitting for DAM there is also flexibility for how the end/startDateTime can be used in the BaseSchedulePoint for a DAM submission.

DAM must use a start/stopTime that is a 24 hour period to cover a single date for which there is an open DAM Base Schedule.

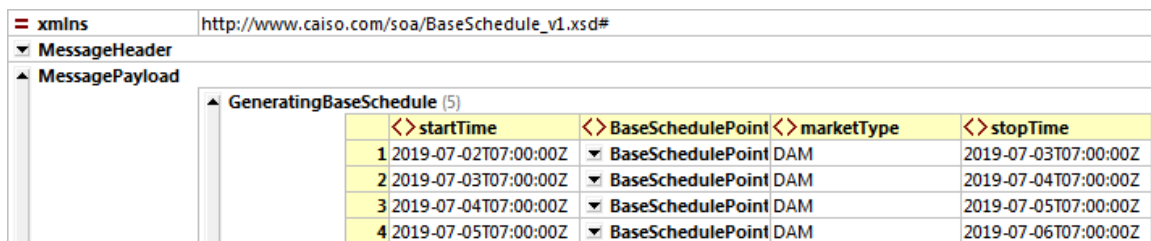
DAM Base Schedule submission xml notes

The startTime to stopTime for DAM is 24hours. Sample for PDT for 7/2/2019.



	<> startTime	<> BaseSchedulePoint	<> marketType	<> stopTime	<> Ba
1	2019-07-02T07:00:00Z	BaseSchedulePoint	DAM	2019-07-03T07:00:00Z	Ba
2	2019-07-02T07:00:00Z	BaseSchedulePoint	DAM	2019-07-03T07:00:00Z	Ba

If submitting a resource for multiple dates it would be a single record per date.



	<> startTime	<> BaseSchedulePoint	<> marketType	<> stopTime	<> Ba
1	2019-07-02T07:00:00Z	BaseSchedulePoint	DAM	2019-07-03T07:00:00Z	Ba
2	2019-07-03T07:00:00Z	BaseSchedulePoint	DAM	2019-07-04T07:00:00Z	Ba
3	2019-07-04T07:00:00Z	BaseSchedulePoint	DAM	2019-07-05T07:00:00Z	Ba
4	2019-07-05T07:00:00Z	BaseSchedulePoint	DAM	2019-07-06T07:00:00Z	Ba

For MSG resources each configuration submitted must be for 24 hour period.

startTime	BaseSchedulePoint	marketType	stopTime	BaseSchedulingCo	SchedulingCoord	RegisteredGenerator
1 2019-07-02T07:00:00Z	BaseSchedulePoint DAM		2019-07-03T07:00:00Z	BaseSchedulingCo	SchedulingCoord	RegisteredGenerator
2 2019-07-02T07:00:00Z	BaseSchedulePoint DAM		2019-07-03T07:00:00Z	BaseSchedulingCo	SchedulingCoord	RegisteredGenerator
3 2019-07-02T07:00:00Z	BaseSchedulePoint DAM		2019-07-03T07:00:00Z	BaseSchedulingCo	SchedulingCoord	RegisteredGenerator
4 2019-07-02T07:00:00Z	BaseSchedulePoint DAM		2019-07-03T07:00:00Z	BaseSchedulingCo	SchedulingCoord	RegisteredGenerator
5 2019-07-02T07:00:00Z	BaseSchedulePoint DAM		2019-07-03T07:00:00Z	BaseSchedulingCo	SchedulingCoord	RegisteredGenerator

Using DAM Base schedule depending on the resource and the hourly values for each hours BaseSchedulePoint there is some flexibility on using the endDateTime and startDateTime to cover the data contained in the 24 hour period defined in the startTime to stopTime.

If all 24 hours of a DAM Base schedule MW are different you can use 24 endDateTime/startDateTime per MarketProduct.

startTime	BaseSchedulePoint	marketType	stopTime
1 2019-07-02T07:00:00Z	BaseSchedulePoint (24)	DAM	2019-07-03T07:00:00Z
	value1	endDateTime	startDateTime
	1 45.0	2019-07-02T08:00:00Z	2019-07-02T07:00:00Z
	2 36.0	2019-07-02T09:00:00Z	2019-07-02T08:00:00Z
	3 45.0	2019-07-02T10:00:00Z	2019-07-02T09:00:00Z
	4 45.0	2019-07-02T11:00:00Z	2019-07-02T10:00:00Z
	5 45.0	2019-07-02T12:00:00Z	2019-07-02T11:00:00Z
	6 45.0	2019-07-02T13:00:00Z	2019-07-02T12:00:00Z
	7 45.0	2019-07-02T14:00:00Z	2019-07-02T13:00:00Z
	8 45.0	2019-07-02T15:00:00Z	2019-07-02T14:00:00Z
	9 45.0	2019-07-02T16:00:00Z	2019-07-02T15:00:00Z
	10 45.0	2019-07-02T17:00:00Z	2019-07-02T16:00:00Z
	11 65.0	2019-07-02T18:00:00Z	2019-07-02T17:00:00Z
	12 66.0	2019-07-02T19:00:00Z	2019-07-02T18:00:00Z
	13 66.0	2019-07-02T20:00:00Z	2019-07-02T19:00:00Z
	14 66.0	2019-07-02T21:00:00Z	2019-07-02T20:00:00Z
	15 66.0	2019-07-02T22:00:00Z	2019-07-02T21:00:00Z
	16 66.0	2019-07-02T23:00:00Z	2019-07-02T22:00:00Z
	17 66.0	2019-07-03T00:00:00Z	2019-07-02T23:00:00Z
	18 66.0	2019-07-03T01:00:00Z	2019-07-03T00:00:00Z
	19 66.0	2019-07-03T02:00:00Z	2019-07-03T01:00:00Z
	20 66.0	2019-07-03T03:00:00Z	2019-07-03T02:00:00Z
	21 66.0	2019-07-03T04:00:00Z	2019-07-03T03:00:00Z
	22 66.0	2019-07-03T05:00:00Z	2019-07-03T04:00:00Z
	23 66.0	2019-07-03T06:00:00Z	2019-07-03T05:00:00Z
	24 66.0	2019-07-03T07:00:00Z	2019-07-03T06:00:00Z

If all 24 hours of a DAM Base schedule MW are the same you can use a single endDateTime/startDateTime per MarketProduct.

startTime	BaseSchedulePoint	marketType	stopTime
1 2019-07-02T07:00:00Z	BaseSchedulePoint (24)	DAM	2019-07-03T07:00:00Z
2 2019-07-03T07:00:00Z	BaseSchedulePoint (109)	DAM	2019-07-04T07:00:00Z
3 2019-07-04T07:00:00Z	BaseSchedulePoint (59)	DAM	2019-07-05T07:00:00Z
4 2019-07-05T07:00:00Z	BaseSchedulePoint (59)	DAM	2019-07-06T07:00:00Z
5 2019-07-02T07:00:00Z	BaseSchedulePoint (1)	DAM	2019-07-03T07:00:00Z
	value1	endDateTime	startDateTime
	1 24.0	2019-07-03T07:00:00Z	2019-07-02T07:00:00Z

If there are continues blocks of hours of a DAM Base schedule MW are the same you can use a set of endDateTime/startDateTime per MarketProduct.

startTime	BaseSchedulePoint	marketType	stopTime
1 2019-07-02T07:00:00Z	BaseSchedulePoint (24)	DAM	2019-07-03T07:00:00Z
2 2019-07-03T07:00:00Z	BaseSchedulePoint (109)	DAM	2019-07-04T07:00:00Z
3 2019-07-04T07:00:00Z	BaseSchedulePoint (59)	DAM	2019-07-05T07:00:00Z
4 2019-07-05T07:00:00Z	BaseSchedulePoint (59)	DAM	2019-07-06T07:00:00Z
5 2019-07-02T07:00:00Z	BaseSchedulePoint (2)	DAM	2019-07-03T07:00:00Z
	value1	endDateTime	startDateTime
	1 24.0	2019-07-03T07:00:00Z	2019-07-02T18:00:00Z
	2 12.0	2019-07-02T18:00:00Z	2019-07-02T07:00:00Z

For MSG resources the block method will be used as there is only one configuration allowed per hour in the DAM.

BaseSchedulePoint (12)				DAM	2019-07-03T07:00:00Z	BaseSch	Sche	RegisteredGenerator
value1	endDateTime	startDateTime	MarketProduct					
1102.0	2019-07-02T20:00:00Z	2019-07-02T19:00:00Z	MarketProduct					
2102.0	2019-07-02T21:00:00Z	2019-07-02T20:00:00Z	MarketProduct					
3101.0	2019-07-02T22:00:00Z	2019-07-02T21:00:00Z	MarketProduct					
4101.0	2019-07-02T23:00:00Z	2019-07-02T22:00:00Z	MarketProduct					
5100.0	2019-07-03T00:00:00Z	2019-07-02T23:00:00Z	MarketProduct					
6100.0	2019-07-03T01:00:00Z	2019-07-03T00:00:00Z	MarketProduct					
7101.0	2019-07-03T02:00:00Z	2019-07-03T01:00:00Z	MarketProduct					
8102.0	2019-07-03T03:00:00Z	2019-07-03T02:00:00Z	MarketProduct					
9103.0	2019-07-03T04:00:00Z	2019-07-03T03:00:00Z	MarketProduct					
10103.0	2019-07-03T05:00:00Z	2019-07-03T04:00:00Z	MarketProduct					
11104.0	2019-07-03T06:00:00Z	2019-07-03T05:00:00Z	MarketProduct					
12105.0	2019-07-03T07:00:00Z	2019-07-03T06:00:00Z	MarketProduct					

BaseSchedulePoint (6)				DAM	2019-07-03T07:00:00Z	BaseSch	Sche	RegisteredGenerator
value1	endDateTime	startDateTime	MarketProduct					
151.0	2019-07-02T08:00:00Z	2019-07-02T07:00:00Z	MarketProduct					
251.0	2019-07-02T09:00:00Z	2019-07-02T08:00:00Z	MarketProduct					
351.0	2019-07-02T10:00:00Z	2019-07-02T09:00:00Z	MarketProduct					
451.0	2019-07-02T11:00:00Z	2019-07-02T10:00:00Z	MarketProduct					
544.0	2019-07-02T12:00:00Z	2019-07-02T11:00:00Z	MarketProduct					
651.0	2019-07-02T19:00:00Z	2019-07-02T12:00:00Z	MarketProduct					

2 Base Schedule Request xml Sample

Sample request #1

`<!--BaseSchedule_MarketTimeInterval method-->` This method will pull all schedules for resources under the certificate for associated entities.

```

<SOAP-ENV:Body>
  <RequestBaseScheduleResults>
    <requestData>
      <MessageHeader>
        <TimeDate>2001-12-17T09:30:47Z</TimeDate>
        <Source>String</Source>
        <Version>v20141001</Version>
      </MessageHeader>
      <MessagePayload>
        <BaseSchedule_MarketTimeInterval>
          <marketType>RTM</marketType>
          <intervalPeriod>
            <end>2014-11-01T23:00:00-07:00</end>
            <start>2014-11-01T22:00:00-07:00</start>
          </intervalPeriod>
        </BaseSchedule_MarketTimeInterval>
      </MessagePayload>
    </requestData>
  </RequestBaseScheduleResults>
</SOAP-ENV:Body>

```

Sample request #2

```

<!--BaseSchedule_ResourceMarketTimeInterval method-->
<SOAP-ENV:Body>
  <RequestBaseScheduleResults>
    <requestData>

```

```

<MessageHeader>
  <TimeDate>2001-12-17T09:30:47Z</TimeDate>
  <Source>String</Source>
  <Version>v20141001</Version>
</MessageHeader>
<MessagePayload>
  <BaseSchedule_ResourceMarketTimeInterval>
    <marketType>RTM</marketType>
    <intervalPeriod>
      <end>2014-11-01T23:00:00-07:00</end>
      <start>2014-11-01T22:00:00-07:00</start>
    </intervalPeriod>
    <RegisteredResource>
      <mrid>RESOURCE_NAME_1</mrid>
    </RegisteredResource>
  </BaseSchedule_ResourceMarketTimeInterval>
</MessagePayload>
</requestData>
</RequestBaseScheduleResults>
</SOAP-ENV:Body>

```

Sample request #3

```

<!--BaseSchedule_ScheduleCoordinatorMarketTimeInterval method-->
<SOAP-ENV:Body>
  <RequestBaseScheduleResults>
    <requestData>
      <MessageHeader>
        <TimeDate>2001-12-17T09:30:47Z</TimeDate>
        <Source>String</Source>
        <Version>v20141001</Version>
      </MessageHeader>
      <MessagePayload>
        <BaseSchedule_ScheduleCoordinatorMarketTimeInterval>
          <marketType>RTM</marketType>
          <intervalPeriod>
            <end>2014-11-01T23:00:00-07:00</end>
            <start>2014-11-01T22:00:00-07:00</start>
          </intervalPeriod>
          <SchedulingCoordinator>
            <m:mrid>SCID</m:mrid>
          </SchedulingCoordinator>
        </BaseSchedule_ScheduleCoordinatorMarketTimeInterval>
      </MessagePayload>
    </requestData>
  </RequestBaseScheduleResults>
</SOAP-ENV:Body>

```

3 Base Schedule BalancingTest Results Retrieval Request xml Sample

Please note that only the retrieveBaseScheduleTestResults by SCID is supported at this time. Please refrain from using other methods as it will return an error.

Sample request #1

```

<!-- By SCID, 24hours Interval Period is allowed-->
<s:Body u:Id="_1" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <RequestBalancingTestResults
xmlns="http://www.caiso.com/soa/RequestBalancingTestResults_v1.xsd#">
    <requestData>
      <MessageHeader>
        <TimeDate>2019-05-16T21:01:00Z</TimeDate>
        <Source>MYSOURCE</Source>
        <Version>v20141001</Version>
      </MessageHeader>
      <MessagePayload>

        <BalancingTestResults_ScheduleCoordinatorMarketTimeInterval>
          <intervalPeriod>
            <end>2019-05-18T21:00:00Z</end>
            <start>2019-05-18T20:00:00Z</start>
          </intervalPeriod>
          <SchedulingCoordinator>
            <mrid>SCID</mrid>
          </SchedulingCoordinator>

        </BalancingTestResults_ScheduleCoordinatorMarketTimeInterval>
      </MessagePayload>
    </requestData>
  </RequestBalancingTestResults>
</s:Body>

```

Sample request #2

```

<!-- By SCID, 24hours Interval Period is allowed-->
<s:Body u:Id="_1" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <RequestBalancingTestResults
xmlns="http://www.caiso.com/soa/RequestBalancingTestResults_v2.xsd#">
    <requestData>
      <MessageHeader>
        <TimeDate>2019-09-16T21:01:00Z</TimeDate>
        <Source>MYSOURCE</Source>
        <Version>v20191001</Version>
      </MessageHeader>
      <MessagePayload>

        <BalancingTestResults_ScheduleCoordinatorMarketTimeInterval>

```

```
returns both
    <marketType>RTM</marketType> -- or DAM or if removed
        <intervalPeriod>
            <end>2019-09-18T21:00:00Z</end>
            <start>2019-09-18T20:00:00Z</start>
        </intervalPeriod>
        <SchedulingCoordinator>
            <mrid>SCID</mrid>
        </SchedulingCoordinator>
    </BalancingTestResults_ScheduleCoordinatorMarketTimeInterval>
    </MessagePayload>
    </requestData>
</RequestBalancingTestResults>
</s:Body>
```