



# New ISO Market Interface Specification for Market Results Services

Version: 3.~~27~~40

~~December 7-15, 2009~~February 4~~September 20, 2010~~

## Revision History

Date	Version	By	Description
5/30/06	1.0	PM	First released version.
6/26/06	1.1	PM	Changed "get" to "retrieve" throughout. Replaced all sequence diagrams and WSDLs.
8/30/06	1.2	Niraj Mehta	<p><b>Updated the document as necessary to include the latest versions of xml schemas (XSDs), and WSDLs. Also updated the document to include the latest version of sample XML files to comply with the latest schema definitions.</b></p> <p>The XSD changes include the following:</p> <p><b>Market Awards Request</b></p> <ol style="list-style-type: none"> <li>Updated the namespace.</li> <li>Updated valid values list (enumeration) for contractType element to include CVR.</li> </ol> <p><b>Market Awards Response</b></p> <ol style="list-style-type: none"> <li>Updated the namespace.</li> <li>Updated valid values list (enumeration) for contractType element to include CVR.</li> <li>Removed element contingencyAvailFlag.</li> <li>Element ASRegion was changed from a simpleType to a class to allow multiple ASRegionIDs returned on the same XML record.</li> <li>Added another level (TradeHourData) under existing class TradeHour.</li> </ol> <p><b>Schedule Prices Response</b></p> <ol style="list-style-type: none"> <li>Updated the namespace.</li> <li>Added another level (TradeHourData) under existing class TradeHour.</li> </ol> <p><b>Default Bid Curves Request</b></p> <ol style="list-style-type: none"> <li>Updated the namespace.</li> <li>Updated valid values list (enumeration) for defaultBidType element to replace existing value of NEGOTIATED with the new value of CONSULTATIVE.</li> <li>Added a new element timePeriod.</li> </ol> <p><b>Default Bid Curves Response</b></p> <ol style="list-style-type: none"> <li>Updated the namespace.</li> <li>Updated valid values list (enumeration) for defaultBidType element to replace existing value of NEGOTIATED with the new value of CONSULTATIVE.</li> <li>Added a new element startTime.</li> </ol>

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			<ul style="list-style-type: none"> <li>4. Added a new element endTime.</li> <li>5. Added a new element adderFlag.</li> <li>6. Added another level (DefaultBidCurveSeg) under existing class BidCurveData.</li> <li>7. Added a new element segmentBidType under class DefaultBidCurveSeg.</li> </ul> <p><b>MPM Results Response</b></p> <ul style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Added another level (MPMBidCurveData) under existing class BidCurveData.</li> </ul> <p><b>Startup Shutdown Instructions Request</b></p> <ul style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for instructionSource element to include only a single value of RUC.</li> <li>3. Updated valid values list (enumeration) for instructionType element to include only a single value of STARTUP.</li> <li>4. In the documentation, removed reference to resourceSubType as a parameter. This was not intended to be on the original document.</li> </ul> <p><b>Startup Shutdown Instructions Response</b></p> <ul style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for instructionSource element to include only a single value of RUC.</li> <li>3. Updated valid values list (enumeration) for instructionType element to include only a single value of STARTUP.</li> <li>4. Removed element tradeHourStart.</li> <li>5. Removed element tradeHourEnd.</li> <li>6. Removed element bindingDOT.</li> <li>8. Added a new element startTime.</li> <li>9. Added a new element bindingFlag.</li> <li>10. Added a new element startUpCost.</li> </ul>
1/19/07	1.3	Niraj Mehta	<p><b>Updated the document as necessary to include the latest versions of xml schemas (XSDs), and WSDLs. Also updated the document to include the latest version of sample XML files to comply with the latest schema definitions.</b></p> <p>The XSD changes include the following:</p>

Date	Version	By	Description
			<p><b>Market Awards Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for product:               <ol style="list-style-type: none"> <li>a. Removed value RC.</li> <li>b. Added two new values RC_CAP and RC_AWD.</li> </ol> </li> <li>3. Updated valid values list (enumeration) for contractType:               <ol style="list-style-type: none"> <li>a. Removed two values RMR and RA.</li> <li>b. Added two new values PT and LPT.</li> </ol> </li> <li>4. Renamed class tiePointList to schedulingPointList.</li> <li>5. Renamed element tiePoint to schedulingPoint.</li> <li>6. Added a new element class energyTypeList.</li> <li>7. Added a new element class bindingFlagList.</li> </ol> <p><b>Market Awards Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for product:               <ol style="list-style-type: none"> <li>a. Removed value RC.</li> <li>a. Added two new values RC_CAP and RC_AWD.</li> </ol> </li> <li>3. Updated valid values list (enumeration) for contractType:               <ol style="list-style-type: none"> <li>b. Removed two values RMR and RA.</li> <li>a. Added two new values PT and LPT.</li> </ol> </li> <li>4. Added a new element class energyType.</li> <li>5. Renamed element advisoryFlag to bindingFlag.</li> <li>6. Renamed element tiePoint to schedulingPoint.</li> <li>7. Moved elements intervalNum and MW to be a part of the class TradeHourData. Changed the cardinality of class TradeHourData to 1..n.</li> </ol> <p><b>Schedule Prices Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for priceType to add a new value of RUC.</li> <li>3. Added a new element class bindingFlagList.</li> <li>4. Added a new element class schedulingPointList.</li> <li>5. Added a new element class directionList.</li> <li>6. Added a new element class energyTypeList.</li> <li>7. Moved elements intervalNum and price to be a part of the class TradeHourData. Changed the cardinality of class TradeHourData to 1..n.</li> </ol>

Date	Version	By	Description
			<p><b>Schedule Prices Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Renamed element advisoryFlag to bindingFlag.</li> <li>3. Updated valid values list (enumeration) for priceType to add a new value of RUC.</li> <li>4. Added a new element schedulingPoint.</li> <li>5. Added a new element direction.</li> <li>6. Added a new element energyType.</li> </ol> <p><b>Startup Shutdown Instructions Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Added a new element class operatingModeList.</li> <li>3. Updated valid values list (enumeration) for instructionSource to add a new value of ELC.</li> <li>4. Added a new element class resourceSubTypeList.</li> </ol> <p><b>Startup Shutdown Instructions Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Added a new element class operatingMode</li> <li>3. Updated valid values list (enumeration) for instructionSource to add a new value of ELC.</li> <li>4. Updated valid values list (enumeration) for resourceSubType.</li> </ol> <p><b>MPM Results Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> </ol> <p><b>MPM Results Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> </ol> <p><b>Default Bid Curves Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for defaultBidType:             <ol style="list-style-type: none"> <li>a. Added a new value of NEGOTIATED.</li> <li>b. Removed value CONSULTATIVE.</li> </ol> </li> <li>3. Moved element timePeriod to be part of a new element class timePeriodList.</li> </ol>

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			<p><b>Default Bid Curves Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for defaultBidType:               <ol style="list-style-type: none"> <li>a. Added a new value of NEGOTIATED.</li> <li>b. Removed value CONSULTATIVE.</li> </ol> </li> </ol> <p>Added the following new XSDs:</p> <ol style="list-style-type: none"> <li>1. Unit Commitments Request.</li> <li>2. Unit Commitments Response.</li> <li>3. Expected Energy Request.</li> <li>4. Expected Energy Response.</li> <li>5. Default RMR Costs Request.</li> <li>6. Default RMR Costs Response.</li> <li>7. Finally Qualified Load Following Capacity Request.</li> <li>8. Finally Qualified Load Following Capacity Response.</li> <li>9. Conformed Dispatch Notice Request.</li> <li>10. Conformed Dispatch Notice Response.</li> <li>11. RMR Dispatches Request</li> <li>12. RMR Dispatches Response.</li> </ol>
2/28/07	1.4	Eureka Cullado	<p><b>Market Awards Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> <li>3. Updated valid values list (enumeration) for element product to add the following: LFU, LFD</li> <li>4. Updated valid values list (enumeration) for element contractType to add the following: LOFF, BASE</li> </ol> <p><b>Market Awards Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> <li>3. Updated valid values list (enumeration) for element product to add the following: LFU, LFD</li> <li>4. Updated valid values list (enumeration) for element contractType to add the following: LOFF, BASE</li> </ol>

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			<p><b>Schedule Prices Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> </ol> <p><b>Schedule Prices Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> </ol> <p><b>Startup Shutdown Instructions Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to:               <ol style="list-style-type: none"> <li>a. Add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> <li>b. Remove value TIE</li> </ol> </li> </ol> <p><b>Startup Shutdown Instructions Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to:               <ol style="list-style-type: none"> <li>a. Add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> <li>b. Remove value TIE</li> </ol> </li> <li>3. Renamed element startUpCost to instructionCost</li> </ol> <p><b>Unit Commitments Request</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to:               <ol style="list-style-type: none"> <li>a. Add the following: GEN, PUMP, ITIE_I, ITIE_E, SYNC</li> <li>b. Remove value TIE</li> </ol> </li> </ol> <p><b>Unit Commitments Response</b></p> <ol style="list-style-type: none"> <li>1. Updated the namespace.</li> <li>2. Updated valid values list (enumeration) for element resourceSubType to:               <ol style="list-style-type: none"> <li>a. Add the following: GEN, PUMP, ITIE_I, ITIE_E,</li> </ol> </li> </ol>

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			<p>SYNC</p> <p>b. Remove value TIE</p> <p><b>Conformed Dispatch Notice Response</b></p> <ol style="list-style-type: none"> <li>Updated the namespace</li> <li>Moved elements intervalNum and energy out of class RealTimeInterval, and make it a part of class RealTimeResult. These elements will be at the same level as RMRDispatch and CCR.</li> <li>Changed the cardinality of class RealTimeResult to 1..6.</li> </ol>
3/27/07	1.5	Eureka Cullado	<p><b>Default Bid Curves Request</b></p> <ol style="list-style-type: none"> <li>Corrected the TimePeriod element description to indicate that the OnPeak time period is from “6 to 22” to “hour-ending 7 to hour-ending 22”</li> </ol> <p><b>Default Bid Curves Response</b></p> <ol style="list-style-type: none"> <li>Corrected the TimePeriod element description to indicate that the OnPeak time period is from “6 to 22” to “hour-ending 7 to hour-ending 22”</li> </ol> <p><b>Startup Shutdown Instructions Response</b></p> <ol style="list-style-type: none"> <li>Updated the <b>startTime</b> element description, to clarify that the unit is expected to be at the Minimum Load Level</li> <li>Updated the bindingFlag element description, to clarify that all startup instructions from RUC or the ELC process will always be binding</li> </ol>
6/20/07	1.6	Prasad Ketireddy	<p><b>Confirmed Dispatch Notice Response</b></p> <ol style="list-style-type: none"> <li><b>Made VoltageSupport class is optional</b></li> <li><b>Made RealTimeResult class is optional</b></li> <li><b>Made RMRDispatchEnergy class is optional.</b></li> </ol>
6/22/07	1.7	Prasad Ketireddy	<p><b>Updated section 7.4 MPM Results for: Made SC and Resource are optional.</b></p> <p><b>Updated LoadFollowingCapacity service for enumeration change in ResourceType.</b></p>
11/20/07	1.8	Dave Bennett	<p><b>Updated sections 8.3, 8.5.2, 9.3, and 9.5.2. Resource subtype was made optional – per defect 6645</b></p>
5/6/08	1.9	Dave Bennett	<p><b>Updates sections 10.3, 10.4.2 , 10.4.3, 10.5.1, and 10.5.2. Bid price is optional – per defect 6680</b></p>
09/26/08	2.0	Veera	<p><b>Updates to Expected Energy (modified) , Expected Energy</b></p>



Date	Version	By	Description
		Balasubramanian	Allocation Details (new) and ISO Commitment Cost Details (new) services.
10/17/08	2.1	Veera Balasubramanian	1. Updates to Expected Energy (modified wsdl with RPC/.NET style), Expected Energy Allocation Details (modified wsdl with RPC/.NET style) and ISO Commitment Cost Details (modified wsdl with RPC/.NET style) services. 2. contractType field description change.
01/06/09	2.2	Veera Balasubramanian	1. Set the 'Scheduling Coordinator' Type to "Required" for API for the following Requests: 4.4 Market Awards 5.4 Schedule Prices Request 6.4 Default Bid Curves 7.4 MPM Results 8.4 StartUp ShutDown Instructions 9.4 Unit Commitments 10.5 Expected Energy 11.4 Default RMR Costs 12.4 Finally Qualified Load Following Capacity 13.4 Conformed Dispatch Notice 14.4 RMR Dispatches 15.5 ISOCommitmentCostDetails 16.5 ExpectedEnergyAllocationDetails Note: This update does not impact the current functionality. This update brings the documentation into alignment with the functionality.
03/25/09	2.3	Veera Balasubramanian	1. Newly added TwoDayAheadMSSALoadForecast service.
12/07/14/09	3.0	EC	<u>Drafted to update entries to include the latest versions of the XSDs &amp; WSDLs to be used for the MSG (multi-stage generator) functionality. Also included sample MSG XML files to comply with the latest schema defintions.</u>  <u>Changes include the following:</u> <b><u>Market Awards</u></b> 1. <u>Updated with a new WSDL, retrieveMarketAwards_v20091101.wsdl</u> 2. <u>Updated with a new output schema, MarketAwards_v20091101.xsd</u> 3. <u>Added a new element Configuration in the output schema</u>

Date	Version	By	Description
			<p>4. Updated with a new sample XML output file</p> <p><b><u>MPM Results</u></b></p> <p>1. Updated with a new WSDL, retrieveMPMResults_v20091101.wsdl</p> <p>2. Updated with a new output schema, MPMResults_v20091101.xsd</p> <p>3. Added a new element Configuration in the output schema</p> <p>4. Updated with a new sample XML output file</p> <p><b><u>RMR Dispatches</u></b></p> <p>1. Updated with a new WSDL, retrieveRMRDispatches_v20091101.wsdl</p> <p>2. Updated with a new output schema, RMRDispatches_v20091101.xsd</p> <p>3. Added a new element Configuration in the output schema</p> <p>4. Updated with a new sample XML output file</p> <p><b><u>Default Bid Curves</u></b></p> <p>1. Updated with a new WSDL, retrieveDefaultBidCurves_v20091101.wsdl</p> <p>2. Updated with a new output schema, DefaultBidCurves_v20091101.xsd</p> <p>3. Added a new element Configuration in the output schema</p> <p>4. Updated with a new sample XML output file</p> <p><b><u>Default RMR Costs</u></b></p> <p>1. Updated with a new WSDL, retrieveDefaultRMRCosts_v20091101.wsdl</p> <p>2. Updated with a new output schema, DefaultRMRCosts_v20091101.xsd</p> <p>3. Added a new element ConfigurationID in the output schema</p> <p>4. Updated with a new sample XML output file</p> <p><b><u>Unit Commitments</u></b></p> <p>1. Updated with a new WSDL, retrieveUnitCommitments_v20091101.wsdl</p> <p>2. Updated with a new output schema, UnitCommitments_v20091101.xsd</p> <p>3. Added a new element Configuration in the output schema</p> <p>4. Updated with a new sample XML output file</p>

Date	Version	By	Description
			<p><b><u>Startup &amp; Shutdown Instructions</u></b></p> <ol style="list-style-type: none"> <li>1. Updated with a new WSDL, <a href="#">retrieveStartUpShutDownInstructions_v20091101.wsdl</a></li> <li>2. Updated with a new output schema, <a href="#">StartUpShutDownInstructions_v20091101.xsd</a></li> <li>3. Added the following new elements in the output schema:               <ol style="list-style-type: none"> <li>a. Configuration</li> <li>b. ToConfiguration</li> <li>c. EndTime</li> </ol> </li> <li>4. Added 'Transition' to the valid values list (enumeration) for the element instructionType</li> <li>5. Updated with a new sample XML input &amp; output file</li> <li>6. Updated with a new input (request) schema <a href="#">requestStartUpShutDownInstructions_v20091101.xsd</a>, to add 'Transition' to the valid values list (enumeration) for the element instructionType</li> </ol> <p><b><u>ISO Commitment Cost Details</u></b></p> <ol style="list-style-type: none"> <li>1. Updated with new WSDLs: <a href="#">retrieveISOCommitmentCostDetails_v20091101.wsdl</a>, <a href="#">retrieveISOCommitmentCostDetails_v20091101_DocAttach.wsdl</a></li> <li>2. Updated with a new output schema, <a href="#">ISOCommitmentCostDetails_v20091101.xsd</a></li> <li>3. Added the following new elements in the output schema:               <ol style="list-style-type: none"> <li>a. Configuration</li> <li>b. transitionCost</li> <li>c. transitionCostEligibilityFlag</li> </ol> </li> <li>4. Updated with a new sample XML output file <u>Drafted for MSG functionality</u></li> </ol>
<a href="#">12/15/09</a>	<a href="#">3.1</a>	<a href="#">EC</a>	<p><u>Changes per 12/14/09 review meeting:</u></p> <ul style="list-style-type: none"> <li>• Updated the contact information email address to <a href="mailto:siug@caiso.com">siug@caiso.com</a> under Section 1.2 Contact Information</li> <li>• Added section 1.5 API Transition Support information</li> <li>• Updated the <a href="#">StartUpShutDownInstructions_v20091101.xsd</a></li> <li>• Updated the sample output <a href="#">StartUpShutDownInstructions XML</a></li> <li>• On the Element definitions:               <ul style="list-style-type: none"> <li>○ Updated the configuration, endTime definition</li> <li>○ Added "transitionFromConfiguration"</li> <li>○ Updated 'toConfiguration' attribute to "transitionToConfiguration"</li> </ul> </li> </ul>
<a href="#">2/4/10</a>	<a href="#">3.2</a>	<a href="#">LRivera</a>	<a href="#">Modified location of B2B Security Specification</a>

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<a href="#">3/25/10</a>	<a href="#">3.3</a>	<a href="#">EC</a>	Modified to include the <b>new API</b> for the Convergence Bidding project – “ConvergenceBidAwards” Section 18
<a href="#">4/15/10</a>	<a href="#">3.4</a>	<a href="#">EC</a>	<ul style="list-style-type: none"> <li>Added document section 1.7 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.4</li> <li>Updated the MSG “configuration”, “transitionFromConfiguration”, “transitionToConfiguration” element description in all affected sections</li> <li>Rollbacked to prior artifact versions for the following, as these will not be modified for MSG: <ul style="list-style-type: none"> <li><b>RMR Dispatches</b> <ol style="list-style-type: none"> <li>Rollback WSDL from “retrieveRMRDispatches_v20091101.wsdl” back to “retrieveRMRDispatches.wsdl”</li> <li>Rollback XSD from “RMRDispatches_v20091101.xsd” back to “RMRDispatches.xsd”</li> <li>Removed element Configuration in the output schema</li> <li>Rollback to previous sample XML output file</li> </ol> </li> <li><b>Default RMR Costs</b> <ol style="list-style-type: none"> <li>Rollback WSDL from “retrieveDefaultRMRCosts_v20091101.wsdl” back to “retrieveDefaultRMRCosts.wsdl”</li> <li>Rollback XSD from “DefaultRMRCosts_v20091101.xsd” back to “DefaultRMRCosts.xsd”</li> <li>Removed element ConfigurationID in the output schema</li> <li>Rollback to previous sample XML output file</li> </ol> </li> </ul> </li> </ul>
<a href="#">06/21/10</a>	<a href="#">3.5</a>	<a href="#">EC</a>	<ul style="list-style-type: none"> <li>Added document section 1.8 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.5</li> <li>Clarified the Description for the data element “configuration” in all affected services: <ul style="list-style-type: none"> <li>Market Awards Response</li> <li>Default BidCurves Response</li> <li>MPM Results Response</li> <li>Unit Commitments Response</li> <li>Expected Energy Response</li> <li>ISOCommitmentCostDetail Response</li> <li>ExpectedEnergyAllocationDetails Response</li> </ul> </li> </ul>

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Date	Version	By	Description
			<ul style="list-style-type: none"> <li>Modified entries to include the latest versions of the XSDs &amp; WSDLs to be used for the MSG (multi-stage generator) functionality for ExpectedEnergy &amp; ExpectedEnergyAllocation. Also included sample MSG XML files to comply with the latest schema definitions.</li> </ul> <p><b>Expected Energy</b></p> <ol style="list-style-type: none"> <li>Updated with new WSDLs, retrieveExpectedEnergy_v20091101.wsdl &amp; retrieveExpectedEnergy_v20091101_DocAttach.wsdl</li> <li>Updated with a new output schema, ExpectedEnergy_v20091101.xsd</li> <li>Added a new element Configuration in the output schema</li> <li>Updated with a new sample XML output file</li> </ol> <p><b>Expected Energy Allocation Details</b></p> <ol style="list-style-type: none"> <li>Updated with new WSDLs, retrieveExpectedEnergyAllocationDetails_v20091101.wsdl &amp; retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach.wsdl</li> <li>Updated with a new output schema, ExpectedEnergyAllocationDetails_v20091101.xsd</li> <li>Added a new element Configuration in the output schema</li> <li>Updated with a new sample XML output file</li> </ol>
08/30/10	3.6	EC	<ul style="list-style-type: none"> <li>Added document section 1.9 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.6</li> <li>For the Convergence Bidding project, updated the "tradeDateEnd" parameter definition under "Section 18.4 Convergence Bid Awards Request"</li> </ul>
09/20/10	3.7	EC	<ul style="list-style-type: none"> <li>Added document section 1.10 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.7</li> <li>For the Convergence Bidding project, added three new services: <ul style="list-style-type: none"> <li>retrieveCRRAdjustmentPrices</li> <li>retrieveCRRAdjustmentConstraints</li> <li>retrieveCRRAdjustmentFlowImpact</li> </ul> </li> </ul>

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# 1 Introduction

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## 1.1 Purpose

This document describes the Market Participant interface to CAISO's NEW ISO MARKET Market Results 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

For any questions regarding this document or technical questions related to integrating applications with CAISO's NEW ISO MARKET web services, please send email to [siug@caiso.com](mailto:siug@caiso.com) or [ISOHelpDesk@caiso.com](mailto:ISOHelpDesk@caiso.com)

## 1.3 Related Documents

CAISO's NEW ISO MARKET program has produced a set of documents describing its web services architecture and associated interfaces to the Bidding, Market Results, and Sandbox services. CAISO's *NEW ISO MARKET Web Services Architecture & Integration Specification* 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.

## **1.4 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.0**

This document release 3.0 will be the first release of the interface specification that applies the MSG (Multi-Stage Generators).

The services affected by the MSG functionality are the following:

- [retrieveMarketAwards](#)
- [retrieveMPMResults](#)
- [retrieveRMRDispatches](#)
- [retrieveDefaultBidCurves](#)
- [retrieveDefaultRMRCosts](#)
- [retrieveUnitCommitments](#)
- [retrieveStartUpShutDownInstructions](#)
- [retrieveISOCommitmentCostDetails](#)

The counterpart "request" (xsd's) on the above remain the same, except for the requestStartUpShutDownInstructions.

On the other hand, the following services remain the same (ie no changes brought about MSG):

- [retrieveSchedulePrices](#)
- [retrieveExpectedEnergy](#)
- [retrieveConformedDispatchNotice](#)
- [retrieveFinallyQualifiedLoadFollowingCapacity](#)



- [retrieveExpectedEnergyAllocationDetails](#)
- [retriveTwoDayMSSALoadForecast](#)

## **1.5 CMRI API Transition Support**

CAISO will be maintaining two versions of the CMRI API services to allow for an easy transition from the existing APIs to the latest release.

The technical specifications document that contains information on the current production CMRI services (per 04/01/2009 MRTU GoLive) is at: <http://caiso.com/2359/2359b9866b2c0.html>

With the release of the MSG functionality, the CMRI services will be maintained under a newer version "v20091101". Where affected service changes under this release, are detailed in this document.

## **1.6 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.3**

This document release 3.3 includes the first release of the interface specification that applies to the Convergence Bidding project. The only service affected by the Convergence Bidding is: [retrieveConvergenceBidAwards](#)

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Asian text and numbers

## **1.7 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.4**

This document release 3.4 rollbacks the artifacts for these two RMR-related services, as the "configuration" element is **excluded** on the following with the MSG/CMRI release:

### **• RMR Dispatches**

1. WSDL: From "retrieveRMRDispatches\_v20091101.wsdl" back to the prior "retrieveRMRDispatches.wsdl" version
2. XSD: From "RMRDispatches\_v20091101.xsd" back to the prior "RMRDispatches.xsd" version

### **• Default RMR Costs**

1. WSDL: From "retrieveDefaultRMRCosts\_v20091101.wsdl" back to the prior "retrieveDefaultRMRCosts.wsdl" version
2. XSD: From "DefaultRMRCosts\_v20091101.xsd" back to the prior "DefaultRMRCosts.xsd" version

In summary, both of these do not account the MSG "configuration" element.

In addition to the above item document release, the element description for the "configuration", "transitionFromConfiguration", "transitionToConfiguration" have been clarified to state that this element will not be included in the output payload, if it is null. The element will only appear in the output payload if it is supplied.

## **1.8 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.5**

This document release 3.5 includes updates to two services impacted by the MSG (Multi-Stage Generator) Project, as follows:

- retrieveExpectedEnergy
- retrieveExpectedEnergyAllocationDetails

This document release also clarifies the description of the "configuration" data element in all affected services.

- Market Awards Response
- Default BidCurves Response
- MPM Results Response
- Unit Commitments Response
- Expected Energy Response
- ISOCommitmentCostDetail Response
- ExpectedEnergyAllocationDetails Response

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### **1.9 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.6**

Relating to the Convergence Bidding project, this document release 3.6 includes an update to the “tradeDateEnd” parameter definition under “Section 18.4 Convergence Bid Awards Request”, wherein the “tradeDateStart” will be used as query basis on the returning resultset.

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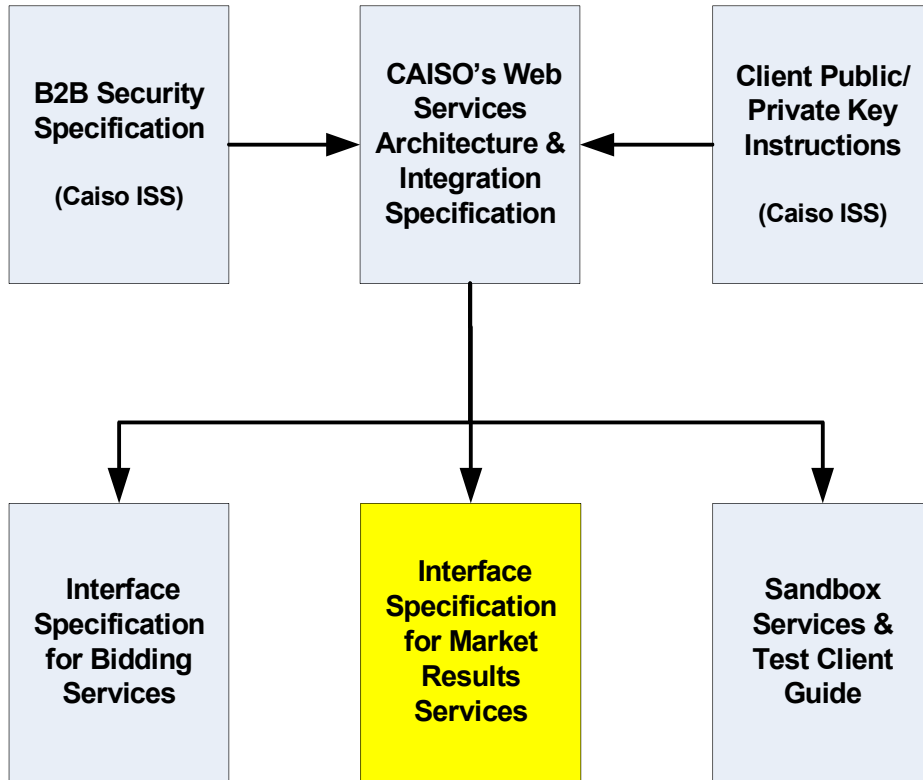
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### **1.10 Release Notes for New ISO Market Interface Specification for Market Results Services Version 3.7**

This document release 3.7 includes the three new interface specifications that applies to the Convergence Bidding project, as follows:

<b><u>Service</u></b>	<b><u>WSDL</u></b>	<b><u>Request XSD</u></b>	<b><u>Response XSD</u></b>
<b><u>retrieveCRRAdjustmentPrices</u></b> <i>Outputs the hourly prices that CAISO uses to calculate Congestion Revenue Rights (CRR) adjustments due to convergence bidding</i>	<u>retrieveCRRAdjustmentPrices_v20100301.wsdl</u> ;  <u>retrieveCRRAdjustmentPrices_v20100301 DocAttach.wsdl</u>	<u>RequestCRRAdjustmentDataNoHour_v20100301.xsd</u>	<u>CRRAdjustmentData_v20100301.xsd</u>
<b><u>retrieveCRRAdjustmentConstraints</u></b> <i>Outputs the supporting data for settlement charges imposed on scheduling coordinators, as a result of the application of the CRR settlement rule - specifically CRR flow impact on award locations for each scheduling coordinator</i>	<u>retrieveCRRAdjustmentConstraints_v20100301.wsdl</u> ;  <u>retrieveCRRAdjustmentConstraints_v20100301 DocAttach.wsdl</u>	<u>RequestCRRAdjustmentData_v20100301.xsd</u>	<u>CRRAdjustmentData_v20100301.xsd</u>
<b><u>retrieveCRRAdjustmentFlowImpact</u></b> <i>Outputs supporting data for settlement charges imposed on scheduling coordinators, as a result of the application of the CRR settlement rule – specifically CRR flow impact aggregated by the Company, who is a CB Entity group name that coincides with a CRR Holder.</i>	<u>retrieveCRRAdjustmentFlowImpact_v20100301.wsdl</u> ;  <u>retrieveCRRAdjustmentFlowImpact_v20100301 DocAttach.wsdl</u>	<u>RequestCRRAdjustmentData_v20100301.xsd</u>	<u>CRRAdjustmentData_v20100301.xsd</u>

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**Figure 1 – NEW ISO MARKET Web Services Interface Specification Document Set**

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

Doc. No.	Document Name	Location
1	NEW ISO MARKET B2B Security Specification	<a href="https://portal.caiso.com">https://portal.caiso.com</a> (you must have access to SIBR, CMRI, or BAPI) <a href="http://www.aiso.com/docs/2005/09/16/200509161107599757.pdf">http://www.aiso.com/docs/2005/09/16/200509161107599757.pdf</a>
2	Client Public/Private Key Instructions	<a href="http://www.aiso.com/14cf/14cf687f315c0.pdf">http://www.aiso.com/14cf/14cf687f315c0.pdf</a>
3	NEW ISO MARKET Interface Specification for Bidding Services	<a href="http://www.aiso.com/17bf/17bf9c6538950.html">http://www.aiso.com/17bf/17bf9c6538950.html</a>
4	NEW ISO MARKET Interface Specification for Market Results Services	<a href="http://www.aiso.com/17bf/17bf9ce939390.html">http://www.aiso.com/17bf/17bf9ce939390.html</a>





Doc. No.	Document Name	Location
6	NEW ISO MARKET Sandbox Services and Test Client Guide	<a href="http://www.caiso.com/17bf/17bf9e393f990.html">http://www.caiso.com/17bf/17bf9e393f990.html</a>

## 2 Business Scenario

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Market Participants can retrieve the following data from the NEW ISO MARKET UI (portal) or through the Market Results web services:

- Market Awards
- Schedule Prices
- Default Bid Curves
- MPM Results
- Start Up and Shut Down Instructions

## 3 Service Level Agreement

---

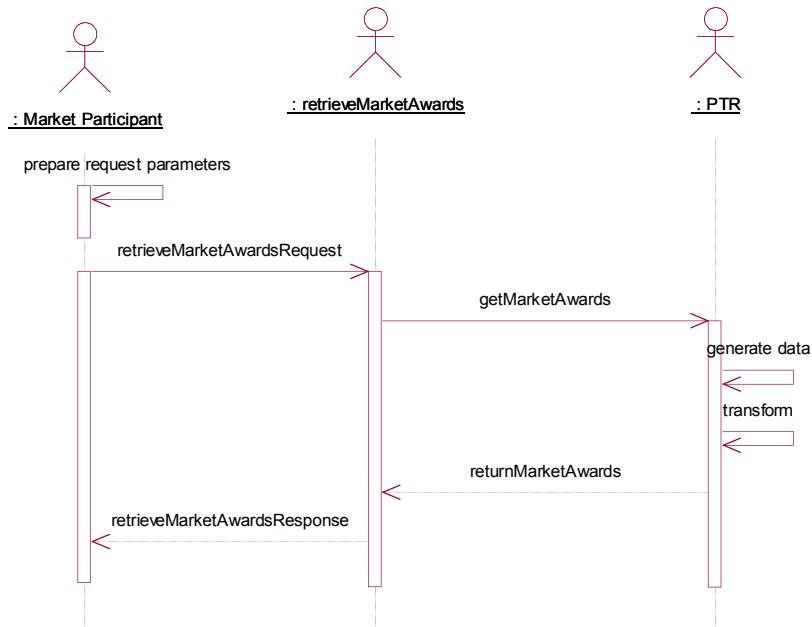
The following service level agreement defines the business and technical requirements for service availability and performance.

<b>Service availability</b>	Service Level goal is 99.9%.
<b>Expected size of payload (average and maximum)</b>	2 KB per resource per mitigated bid (hourly mitigated bid).
<b>Expected frequency (average and maximum)</b>	Day Ahead Market – once a day. Real Time Market – once an hour.
<b>Longest time the service can be unavailable before business is impacted</b>	[to be determined]
<b>Business impact if is unavailable</b>	Schedule coordinator can manually retrieve last-available reports via the portal.
<b>Expected response time for the service</b>	[to be determined]
<b>Expected time to exchange</b>	[to be determined]

## 4 Retrieve Market Awards

### 4.1 Use Model

The diagram below shows the sequence for retrieving Market Award data.



## 4.2 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
retrieveMarketAwards	Input	RetrieveMarketAwards	<a href="#">retrieveMarketAwards_v20091101.wsdl</a> <a href="#">retrieveMarketAwards.wsdl</a>	RequestMarketAwards.xsd
	Output	RetrieveMarketAwards		<a href="#">MarketAwards_v20091101.xsd</a> <a href="#">MarketAwards.xsd</a>
	Fault	faultReturntype		StandardOutput.xsd

## 4.3 WSDL

### ([retrieveMarketAwards\\_v20091101.wsdl](#)[retrieveMarketAwards.wsdl](#))

```

<?xml version="1.0" encoding="utf-8"?>
<wSDL:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2007-02-28/retrieveMarketAwards.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2007-02-28/retrieveMarketAwards.wsdl"

  xmlns:typeIn="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2007-02-28/MarketAwards.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wSDL:documentation>
  A web service to retrieve Market Awards
  </wSDL:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wSDL:types>
  <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd"
  schemaLocation="RequestMarketAwards.xsd" />
  </xs:schema>
  <xs:schema>

```

```

<xs:import namespace="http://www.caiso.com/soa/2007-02-28/MarketAwards.xsd"
schemaLocation="MarketAwards.xsd" />
</xs:schema>
</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response ease to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveMarketAwardsRequest">
  <wsdl:part name="requestData" element="typeIn:RequestMarketAwards">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveMarketAwardsResponse">
  <wsdl:part name="MarketAwards" element="typeOut:MarketAwards">
    <wsdl:documentation>return market awards</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveMarketAwards">
  <wsdl:operation name="retrieveMarketAwards">
    <wsdl:documentation>retrieve market awards</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveMarketAwardsRequest" />
    <wsdl:output name="MarketAwards" message="tns:retrieveMarketAwardsResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn type" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveMarketAwards_Binding" type="tns:retrieveMarketAwards">
  <soap:binding style="document"
  transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveMarketAwards">
    <soap:operation style="document"
    soapAction="http://www.caiso.com/soa/2007-02-28/retrieveMarketAwards"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="MarketAwards">
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">

```

```

</soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveMarketAwardsService">
<wsdl:port name="retrieveMarketAwardsServicePort" binding="tns:retrieveMarketAwards_Binding">
<soap:address location="http://www.caiso.com/soa/2007-02-28/retrieveMarketAwards"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsd="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
targetNamespace="http://www.caiso.com/soa/2009-11-01/retrieveMarketAwards_v20091101.wsdl"
xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveMarketAwards_v20091101.wsdl"
xmlns:typeIn="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd"
xmlns:typeOut="http://www.caiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd"
xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">
<wsdl:documentation>
A web service to retrieve Market Awards
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<wsdl:types>
<xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd"
schemaLocation="RequestMarketAwards.xsd"/>
</xs:schema>
<xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd"
schemaLocation="MarketAwards_v20091101.xsd"/>
</xs:schema>
<xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
</xs:schema>
</wsdl:types>
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveMarketAwardsRequest">
<wsdl:part name="requestData" element="typeIn:RequestMarketAwards">
<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveMarketAwardsResponse">

```

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```

<wsdl:part name="MarketAwards" element="typeOut:MarketAwards">
  <wsdl:documentation>return market awards</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveMarketAwards_v20091101">
  <wsdl:operation name="retrieveMarketAwards_v20091101">
    <wsdl:documentation>retrieve market awards</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveMarketAwardsRequest"/>
    <wsdl:output name="MarketAwards" message="tns:retrieveMarketAwardsResponse"/>
    <wsdl:fault name="faultReturn" message="tns:faultReturn"/>
  </wsdl:operation>
</wsdl:portType>
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveMarketAwards_Binding" type="tns:retrieveMarketAwards_v20091101">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveMarketAwards_v20091101">
    <soap:operation style="document" soapAction="http://www.caiso.com/soa/2009-11-01/retrieveMarketAwards_v20091101"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="MarketAwards">
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveMarketAwards_v20091101Service">
  <wsdl:port name="retrieveMarketAwardsServicePort"
binding="tns:retrieveMarketAwards_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-01/retrieveMarketAwards_v20091101"/>
  </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

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## 4.4 Market Awards Request

### 4.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP market).	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	No
resourceSubType	A further classification of a resource. Valid values are PL (for participating load) , NPL (for non-participating load), GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
product	The product associated with the current record. Valid values are EN (for energy), RU (for Reg Up), RD (for Reg Down), SR (for Spinning Reserve), NR (for Non-spinning Reserve), RC_CAP (for RUC Capacity), RC_AWD (for RUC Award), LFU (for Load Following Up Capacity), and LFD (for Load Following Down Capacity).	string	No
ScheduleType	Indicates whether the award was from the CAISO market or self-provided. Valid values are MARKET (for CAISO award) and SELF (for self-provided).	string	No
ContractType	This field will not be populated.	string	No
Location	Unique identifier for either the LAP (for Load Aggregation Point) or pnode (for Price Node).	string	No
SchedulingPoint	Unique identifier of the scheduling point.	string	No
Direction	This element indicates the flow of energy/capacity in or out of the CAISO Control Area. Valid values are I (for Import) and E (for Export).	string	No
Resource	The unique identifier for a resource.	string	No
energyType	The energy type for the schedule. Valid values are FIRM (for Firm energy), NFIRM (for Non-Firm energy), DYN (for Dynamic Interchange), WHL (for Wheeling), and UNT_CNTG (for Unit Contingent).	string	No



Element	Data Description	Type	Req'd
bindingFlag	Indicates if the schedule is binding. Valid values are Y (for Yes) and N (for No).	string	No

#### 4.4.2 Schema (RequestMarketAwards.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Harry Garton (Xtensible Solutions) -->
<xs:schema xmlns="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestMarketAwards" type="RequestMarketAwards"/>
  <xs:complexType name="RequestMarketAwards">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRList" type="HRList" minOccurs="0"/>
      <xs:element name="marketTypeList" type="marketTypeList"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceTypeList" type="resourceTypeList" minOccurs="0"/>
      <xs:element name="resourceSubTypeList" type="resourceSubTypeList" minOccurs="0"/>
      <xs:element name="productList" type="productList" minOccurs="0"/>
      <xs:element name="scheduleTypeList" type="scheduleTypeList" minOccurs="0"/>
      <xs:element name="contractTypeList" type="PTRContractTypeList" minOccurs="0"/>
      <xs:element name="locationList" type="locationList" minOccurs="0"/>
      <xs:element name="schedulingPointList" type="schedulingPointList" minOccurs="0"/>
      <xs:element name="directionList" type="directionList" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
      <xs:element name="energyTypeList" type="energyTypeList" minOccurs="0"/>
      <xs:element name="bindingFlagList" type="bindingFlagList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="marketTypeList">
    <xs:sequence>

```

```

        <xs:element name="marketType" type="MarketType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="energyTypeList">
    <xs:sequence>
        <xs:element name="energyType" type="EnergyType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="bindingFlagList">
    <xs:sequence>
        <xs:element name="bindingFlag" type="BindingFlagType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceTypeList">
    <xs:sequence>
        <xs:element name="resourceType" type="PTRResourceType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceSubTypeList">
    <xs:sequence>
        <xs:element name="resourceSubType" type="PTRResSubType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="productList">
    <xs:sequence>
        <xs:element name="product" type="MarketProductType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="scheduleTypeList">
    <xs:sequence>
        <xs:element name="scheduleType" type="PTRScheduleType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="PTRContractTypeList">
    <xs:sequence>
        <xs:element name="contractType" type="PTRContractType" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="locationList">
    <xs:sequence>
        <xs:element name="location" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="schedulingPointList">
    <xs:sequence>
        <xs:element name="schedulingPoint" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="directionList">
    <xs:sequence>
        <xs:element name="direction" type="InterTieDirection" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>

```

```

<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="EnergyType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="FIRM"/>
    <xs:enumeration value="NFIRM"/>
    <xs:enumeration value="DYN"/>
    <xs:enumeration value="WHL"/>
    <xs:enumeration value="UNT_CNTG"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="BindingFlagType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketProductType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RU"/>
    <xs:enumeration value="RD"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="RC_CAP"/>
    <xs:enumeration value="RC_AWD"/>
    <xs:enumeration value="LFU"/>
    <xs:enumeration value="LFD"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRScheduleType">

```

```

<xs:restriction base="xs:string">
  <xs:enumeration value="SELF"/>
  <xs:enumeration value="MARKET"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRContractType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ETC"/>
    <xs:enumeration value="TOR"/>
    <xs:enumeration value="RMT"/>
    <xs:enumeration value="CVR"/>
    <xs:enumeration value="PT"/>
    <xs:enumeration value="LPT"/>
    <xs:enumeration value="LOFF"/>
    <xs:enumeration value="BASE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="InterTieDirection">
  <xs:restriction base="xs:string">
    <xs:enumeration value="E"/>
    <xs:enumeration value="I"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

#### 4.4.3 Example XML File (RequestMarketAwards.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<RequestMarketAwards xmlns="http://www.caiso.com/soa/2007-02-28/RequestMarketAwards.xsd">
  <tradeDateStart>2007-02-27</tradeDateStart>
  <tradeDateEnd>2007-02-27</tradeDateEnd>
  <marketTypeList>
    <marketType>DAM</marketType>
  </marketTypeList>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
  <resourceTypeList>
    <resourceType>GEN</resourceType>
  </resourceTypeList>
</RequestMarketAwards>

```

### 4.5 Market Awards Response

#### 4.5.1 Element Table

Element	Data Description	Type	Req'd
---------	------------------	------	-------

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	Yes
resourceSubType	A further classification of a resource. Valid values are PL (for participating load), NPL (for non-participating load), GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	<u>string</u>	<u>No</u>
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
intervalDuration	The duration of an interval in minutes (in California Prevailing Time).	integer	Yes
product	The product associated with the current record. Valid values are EN (for energy), RU (for Reg Up), RD (for Reg Down), SR (for Spinning Reserve), NR (for Non-spinning Reserve), RC_CAP (for RUC Capacity), RC_AWD (for RUC Award), LFU (for Load Following Up Capacity), and LFD (for Load Following Down Capacity).	string	Yes
scheduleType	Indicates whether the award was from the CAISO market or self-provided. Valid values are MARKET (for CAISO award) and SELF (for self-provided).	string	No
contractType	This field will not be populated.	string	No
location	Unique identifier for either the LAP (Load Aggregation Point) or phode (Price Node).	string	No
SchedulingPoint	Unique identifier of the scheduling point.	string	No

**Formatted:** Normal, Don't adjust space between Latin and Asian text, Don't adjust space between Asian text and numbers

Element	Data Description	Type	Req'd
energyType	The energy type for the schedule. Valid values are FIRM (for Firm energy), NFIRM (for Non-Firm energy), DYN (for Dynamic Interchange), WHL (for Wheeling), and UNT_CNTG (for Unit Contingent).	string	No
ASRegion	The unique identifier for the Ancillary Services Region (AS Region) the resource belongs to.	string	No
direction	This element indicates the flow of energy/capacity in or out of the CAISO Control Area. Valid values are I (for Import) and E (for Export).	string	No
bindingFlag	Indicates if the schedule is binding. Valid values are Y (for Yes) and N (for No).	string	No
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 60 minutes, the trade hour will comprise of only one interval of 60 minutes. If, on the other hand, the interval duration is 15 minutes, the trade hour will comprise of four intervals of 15 minutes each. The intervals are numbered sequentially starting with the earliest one numbered 1.	integer	Yes
MW	Scheduled MW for the current record.	float	Yes

#### 4.5.2 Schema ([MarketAwards\\_v20091101.xsd](#)MarketAwards.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="MarketAwards" type="m:MarketAwards"/>
  <xs:complexType name="MarketAwards">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
  </xs:complexType>
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime">
      <xs:annotation>
        <xs:documentation>Application level relevant time and date for when this instance of the message was produced.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>

```

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```

</xs:annotation>
</xs:element>
<xs:element name="Source" type="xs:string">
  <xs:annotation>
    <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="MarketResultRecord" type="m:MarketResultRecord" minOccurs="0"
maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Market Awards record</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MarketResultRecord">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="resourceType" type="m:PTRResourceType">
      <xs:annotation>
        <xs:documentation>Type of product or service applied in the
transaction</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="resourceSubType" type="m:PTRResSubType" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Resource sub type</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="configuration" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Configuration ID for MSG resources</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="marketType" type="m:MarketType">
      <xs:annotation>
        <xs:documentation>Type of market or process in which the curve applies to: Day-Ahead or
Real-Time Market</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>

```

```

</xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
  <xs:annotation>
    <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="intervalDuration" type="xs:integer"/>
<xs:element name="product" type="m:PTRMarketProductType"/>
<xs:element name="scheduleType" type="m:PTRScheduleType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Indicates whether schedule was self-scheduled or from the CAISO
market</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="contractType" type="m:PTRContractType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Corresponds to the specific contract</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="location" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Identifier code of the location of the resource</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="schedulingPoint" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Unique identifier of the scheduling point</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="direction" type="m:InterTieDirection" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Flow of energy/capacity in or out the CAISO Control Area: Import or
Export</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="bindingFlag" type="m:PTRFlag" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Indicates whether schedule information is advisory or
not</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="energyType" type="m:PTREnergyType" minOccurs="0"/>
<xs:element name="ASRegionList" type="m:ASRegionList" minOccurs="0">
  <xs:annotation>
    <xs:documentation>A container of AS regions</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">

```



```

<xs:restriction base="xs:string">
  <xs:enumeration value="GEN"/>
  <xs:enumeration value="LOAD"/>
  <xs:enumeration value="ITIE"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:annotation>
    <xs:documentation>maket type</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRMarketProductType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RU"/>
    <xs:enumeration value="RD"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="RC_CAP"/>
    <xs:enumeration value="RC_AWD"/>
    <xs:enumeration value="LFU"/>
    <xs:enumeration value="LFD"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRScheduleType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="SELF"/>
    <xs:enumeration value="MARKET"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRContractType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ETC"/>
    <xs:enumeration value="TOR"/>
    <xs:enumeration value="RMT"/>
    <xs:enumeration value="CVR"/>
    <xs:enumeration value="PT"/>
    <xs:enumeration value="LPT"/>
  </xs:restriction>

```

```

</xs:enumeration value="LOFF"/>
</xs:enumeration value="BASE"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="InterTieDirection">
  <xs:annotation>
    <xs:documentation>direction of an intertie</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="E"/>
    <xs:enumeration value="I"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTREnergyType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="FIRM"/>
    <xs:enumeration value="NFIRM"/>
    <xs:enumeration value="DYN"/>
    <xs:enumeration value="WHL"/>
    <xs:enumeration value="UNT_CNTG"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="ASRegionList">
  <xs:sequence>
    <xs:element name="ASRegion" type="m:MktAwdASRegion" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>AS Region</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MktAwdASRegion">
  <xs:sequence>
    <xs:element name="ASRegionID" type="xs:string">
      <xs:annotation>
        <xs:documentation>Sub-report, listing the regions (unique identifier) of where the resource
belongs to</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:MktAwdTradeHourData"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>

```

```

<xs:complexType name="MktAwdTradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="intervalNum" type="xs:integer"/>
    <xs:element name="MW" type="xs:float"/>
  </xs:sequence>
</xs:complexType>
</xs:schema>

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2007-02-28/MarketAwards.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-02-28/MarketAwards.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="MarketAwards" type="m:MarketAwards"/>
  <xs:complexType name="MarketAwards">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="MarketResultRecord" type="m:MarketResultRecord" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MarketResultRecord">
    <xs:sequence>
      <xs:element name="resource" type="xs:string"/>
      <xs:element name="resourceType" type="m:PTRResourceType"/>
      <xs:element name="resourceSubType" type="m:PTRResSubType" minOccurs="0"/>
      <xs:element name="schedulingCoordinator" type="xs:string"/>
      <xs:element name="marketType" type="m:MarketType"/>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="intervalDuration" type="xs:integer"/>
      <xs:element name="product" type="m:PTRMarketProductType"/>
      <xs:element name="scheduleType" type="m:PTRScheduleType" minOccurs="0"/>
      <xs:element name="contractType" type="m:PTRContractType" minOccurs="0"/>
      <xs:element name="location" type="xs:string" minOccurs="0"/>
      <xs:element name="schedulingPoint" type="xs:string" minOccurs="0"/>
      <xs:element name="direction" type="m:InterTieDirection" minOccurs="0"/>
      <xs:element name="bindingFlag" type="m:PTRFlag" minOccurs="0"/>
      <xs:element name="energyType" type="m:PTREnergyType" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:element name="ASRegionList" type="m:ASRegionList" minOccurs="0"/>
</xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRMarketProductType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RU"/>
    <xs:enumeration value="RD"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="RC_CAP"/>
    <xs:enumeration value="RC_AWD"/>
    <xs:enumeration value="LFU"/>
    <xs:enumeration value="LFD"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRScheduleType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="SELF"/>
    <xs:enumeration value="MARKET"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRContractType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ETC"/>
    <xs:enumeration value="TOR"/>
    <xs:enumeration value="RMT"/>
    <xs:enumeration value="CVR"/>
  </xs:restriction>

```

```

</xs:enumeration value="PT"/>
</xs:enumeration value="LPT"/>
</xs:enumeration value="LOFF"/>
</xs:enumeration value="BASE"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="InterTieDirection">
  <xs:restriction base="xs:string">
    </xs:enumeration value="E"/>
    </xs:enumeration value="I"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    </xs:enumeration value="Y"/>
    </xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTREnergyType">
  <xs:restriction base="xs:string">
    </xs:enumeration value="FIRM"/>
    </xs:enumeration value="NFIRM"/>
    </xs:enumeration value="DYN"/>
    </xs:enumeration value="WHL"/>
    </xs:enumeration value="UNT_CNTG"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="ASRegionList">
  <xs:sequence>
    <xs:element name="ASRegion" type="m:MktAwdASRegion" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MktAwdASRegion">
  <xs:sequence>
    <xs:element name="ASRegionID" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:MktAwdTradeHourData"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MktAwdTradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer"/>
    <xs:element name="intervalNum" type="xs:integer"/>
    <xs:element name="MW" type="xs:float"/>
  </xs:sequence>
</xs:complexType>
</xs:schema>

```

### 4.5.3 Example XML File for DAM ([sampleDAMMarketAwards.xml](#))

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<MarketAwards xmlns="http://www.caiso.com/soa/2007-02-28/MarketAwards.xsd">
  <MessageHeader>
    <TimeDate>2007-02-27T18:00:00</TimeDate>
    <Source>Source</Source>
  </MessageHeader>
  <MessagePayload>
    <MarketResultRecord>
      <resource>Resource1</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-02-27</tradeDate>
      <intervalDuration>60</intervalDuration>
      <product>EN</product>
      <scheduleType>MARKET</scheduleType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </MarketResultRecord>
    <MarketResultRecord>
      <resource>Resource2</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-02-27</tradeDate>
      <intervalDuration>60</intervalDuration>
      <product>EN</product>
      <scheduleType>SELF</scheduleType>
      <contractType>ETC</contractType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </MarketResultRecord>
    <MarketResultRecord>
      <resource>Resource3</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-02-27</tradeDate>
      <intervalDuration>60</intervalDuration>
      <product>SR</product>
    </MarketResultRecord>
  </MessagePayload>
</MarketAwards>

```

```

</scheduleType>MARKET</scheduleType>
<ASRegionList>
  <ASRegion>
    <ASRegionID>Region1</ASRegionID>
  </ASRegion>
</ASRegionList>
<TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <intervalNum>1</intervalNum>
    <MW>50</MW>
  </TradeHourData>
</TradeHour>
</MarketResultRecord>
<MarketResultRecord>
  <resource>Resource4</resource>
  <resourceType>LOAD</resourceType>
  <resourceSubType>PL</resourceSubType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>EN</product>
  <scheduleType>SELF</scheduleType>
  <contractType>TOR</contractType>
  <location>LAP1</location>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</MarketResultRecord>
<MarketResultRecord>
  <resource>Resource5</resource>
  <resourceType>LOAD</resourceType>
  <resourceSubType>NPL</resourceSubType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>LFU</product>
  <scheduleType>SELF</scheduleType>
  <location>LAP2</location>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</MarketResultRecord>

```

```

<MarketResultRecord>
  <resource>Resource6</resource>
  <resourceType>ITIE</resourceType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>EN</product>
  <scheduleType>MARKET</scheduleType>
  <schedulingPoint>Point1</schedulingPoint>
  <direction>I</direction>
  <energyType>FIRM</energyType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</MarketResultRecord>
</MessagePayload>
</MarketAwards> <?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com) -->
<m:MarketAwards xsi:schemaLocation="http://www.aiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd MarketAwards_v20091101.xsd"
xmlns:m="http://www.aiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:MarketResultRecord>
      <m:resource>Resource1</m:resource>
      <m:resourceType>GEN</m:resourceType>
      <m:configuration>Resource1_1x1</m:configuration>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:marketType>DAM</m:marketType>
      <m:tradeDate>2009-12-10</m:tradeDate>
      <m:intervalDuration>60</m:intervalDuration>
      <m:product>EN</m:product>
      <m:scheduleType>MARKET</m:scheduleType>
      <m:TradeHour>
        <m:TradeHourData>
          <m:HR>1</m:HR>
          <m:intervalNum>1</m:intervalNum>
          <m:MW>50.54</m:MW>
        </m:TradeHourData>
      </m:TradeHour>
    </m:MarketResultRecord>
  </m:MessagePayload>
</m:MarketAwards>

```

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```

<m:resourceType>GEN</m:resourceType>
<m:configuration>Resource2_1x1</m:configuration>
<m:schedulingCoordinator>SC02</m:schedulingCoordinator>
<m:marketType>DAM</m:marketType>
<m:tradeDate>2009-12-10</m:tradeDate>
<m:intervalDuration>60</m:intervalDuration>
<m:product>EN</m:product>
<m:scheduleType>MARKET</m:scheduleType>
<m:TradeHour>
  <m:TradeHourData>
    <m:HR>1</m:HR>
    <m:intervalNum>1</m:intervalNum>
    <m:MW>98.24</m:MW>
  </m:TradeHourData>
</m:TradeHour>
</m:MarketResultRecord>
</m:MessagePayload>
</m:MarketAwards>

```

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#### 4.5.4 Example XML File for RTM (sampleRTMMarketAwards.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<MarketAwards xmlns="http://www.caiso.com/soa/2007-02-28/MarketAwards.xsd">
  <MessageHeader>
    <TimeDate>2007-02-27T18:00:00</TimeDate>
    <Source>Source</Source>
  </MessageHeader>
  <MessagePayload>
    <MarketResultRecord>
      <resource>Resource1</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>RTM</marketType>
      <tradeDate>2007-02-27</tradeDate>
      <intervalDuration>15</intervalDuration>
      <product>EN</product>
      <scheduleType>MARKET</scheduleType>
      <bindingFlag>N</bindingFlag>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </MarketResultRecord>
    <MarketResultRecord>
      <resource>Resource2</resource>

```

```

<resourceType>GEN</resourceType>
<schedulingCoordinator>SC01</schedulingCoordinator>
<marketType>RTM</marketType>
<tradeDate>2007-02-27</tradeDate>
<intervalDuration>15</intervalDuration>
<product>EN</product>
<scheduleType>SELF</scheduleType>
<contractType>ETC</contractType>
<bindingFlag>Y</bindingFlag>
<TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <intervalNum>1</intervalNum>
    <MW>50</MW>
  </TradeHourData>
</TradeHour>
</MarketResultRecord>
<MarketResultRecord>
  <resource>Resource3</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>SR</product>
  <scheduleType>MARKET</scheduleType>
  <bindingFlag>Y</bindingFlag>
  <ASRegionList>
    <ASRegion>
      <ASRegionID>Region1</ASRegionID>
    </ASRegion>
  </ASRegionList>
</TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <intervalNum>1</intervalNum>
    <MW>50</MW>
  </TradeHourData>
</TradeHour>
</MarketResultRecord>
<MarketResultRecord>
  <resource>Resource4</resource>
  <resourceType>LOAD</resourceType>
  <resourceSubType>PL</resourceSubType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>EN</product>
  <scheduleType>SELF</scheduleType>
  <contractType>TOR</contractType>
  <location>LAP1</location>
</TradeHour>

```

```

<TradeHourData>
  <HR>1</HR>
  <intervalNum>1</intervalNum>
  <MW>50</MW>
</TradeHourData>
</TradeHour>
</MarketResultRecord>
<MarketResultRecord>
  <resource>Resource5</resource>
  <resourceType>LOAD</resourceType>
  <resourceSubType>NPL</resourceSubType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>LFU</product>
  <scheduleType>SELF</scheduleType>
  <location>LAP2</location>
</TradeHour>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>1</intervalNum>
  <MW>50</MW>
</TradeHourData>
</TradeHour>
</MarketResultRecord>
<MarketResultRecord>
  <resource>Resource6</resource>
  <resourceType>ITIE</resourceType>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>EN</product>
  <scheduleType>MARKET</scheduleType>
  <schedulingPoint>Point1</schedulingPoint>
  <direction>1</direction>
  <energyType>FIRM</energyType>
</TradeHour>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>1</intervalNum>
  <MW>50</MW>
</TradeHourData>
</TradeHour>
</MarketResultRecord>
</MessagePayload>
</MarketAwards><?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com) -->
<m:MarketAwards xsi:schemaLocation="http://www.caiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd MarketAwards_v20091101.xsd"

```

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```
<?xml version="1.0" encoding="UTF-8" ?>
<u>xmlns:m="http://www.caiso.com/soa/2009-11-01/MarketAwards_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" </u>
<u><m:MessageHeader>
<m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
<m:Source>CAISO</m:Source>
</m:MessageHeader>
<m:MessagePayload>
<m:MarketResultRecord>
<m:resource>Resource1</m:resource>
<m:resourceType>GEN</m:resourceType>
<m:resourceSubType>GEN</m:resourceSubType>
<m:configuration>Resource1_1x1</m:configuration>
<m:schedulingCoordinator>SC01</m:schedulingCoordinator>
<m:marketType>RTM</m:marketType>
<m:tradeDate>2009-12-10</m:tradeDate>
<m:intervalDuration>15</m:intervalDuration>
<m:product>EN</m:product>
<m:scheduleType>MARKET</m:scheduleType>
<m:bindingFlag>Y</m:bindingFlag>
<m:TradeHour>
<m:TradeHourData>
<m:HR>1</m:HR>
<m:intervalNum>1</m:intervalNum>
<m:MW>12</m:MW>
</m:TradeHourData>
</m:TradeHour>
</m:MarketResultRecord>
<m:MarketResultRecord>
<m:resource>Resource2</m:resource>
<m:resourceType>GEN</m:resourceType>
<m:resourceSubType>GEN</m:resourceSubType>
<m:configuration>Resource2_1x1</m:configuration>
<m:schedulingCoordinator>SC02</m:schedulingCoordinator>
<m:marketType>RTM</m:marketType>
<m:tradeDate>2009-12-10</m:tradeDate>
<m:intervalDuration>15</m:intervalDuration>
<m:product>EN</m:product>
<m:scheduleType>MARKET</m:scheduleType>
<m:bindingFlag>Y</m:bindingFlag>
<m:TradeHour>
<m:TradeHourData>
<m:HR>1</m:HR>
<m:intervalNum>1</m:intervalNum>
<m:MW>10</m:MW>
</m:TradeHourData>
</m:TradeHour>
</m:MarketResultRecord>
</m:MessagePayload>
</m:MarketAwards>
```

## 4.6 Fault Return

### 4.6.1 Element Table

Element	Data Description	Type	Req'd
id	Event log identifier.	string	No
name	Event log name.	string	No
description	Event log description.	string	No
type	Event log type.	string	No
creationTime	Event log creation time.	date	No
collectionType	Event log collection type.	string	No
collectionQuantity	Event log collection quantity.	string	No
Event.result	Event result.	string	No
Event.id	Event identifier.	string	No
Event.name	Event name.	string	No
Event.description	Event description.	string	No
Event.creationTime	Event creation time.	dateTime	No
Event.severity	Event severity.	string	No
Event.priority	Event priority.	string	No
Event.sequence Number	Event sequence number.	string	No
Event.eventType	Event type.	string	No
Service.id	Service identifier.	string	No
Service.name	Service name.	string	No
Service.description	Service description.	string	No
Service.comments	Service comments.	string	No

## 4.6.2 Schema (StandardOutput.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caoiso.com/soa/2006-06-13/StandardOutput.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caoiso.com/soa/2006-06-13/StandardOutput.xsd" elementFormDefault="qualified">
  <xs:element name="outputDataType" type="m:outputDataType"/>
  <xs:complexType name="outputDataType">
    <xs:sequence>
      <xs:element name="EventLog" type="m:EventLog" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="EventLog">
    <xs:sequence>
      <xs:element name="id" type="xs:string" minOccurs="0"/>
      <xs:element name="name" type="xs:string" minOccurs="0"/>
      <xs:element name="description" type="xs:string" minOccurs="0"/>
      <xs:element name="type" type="xs:string" minOccurs="0"/>
      <xs:element name="creationTime" type="xs:dateTime" minOccurs="0"/>
      <xs:element name="collectionType" type="xs:string" minOccurs="0"/>
      <xs:element name="collectionQuantity" type="xs:string" minOccurs="0"/>
      <xs:element name="Event" type="m:Event" maxOccurs="unbounded"/>
      <xs:element name="Service" type="m:Service" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="Event">
    <xs:sequence>
      <xs:element name="result" type="xs:string"/>
      <xs:element name="id" type="xs:string" minOccurs="0"/>
      <xs:element name="name" type="xs:string" minOccurs="0"/>
      <xs:element name="description" type="xs:string" minOccurs="0"/>
      <xs:element name="creationTime" type="xs:dateTime" minOccurs="0"/>
      <xs:element name="severity" type="xs:string" minOccurs="0"/>
      <xs:element name="priority" type="xs:string" minOccurs="0"/>
      <xs:element name="sequenceNumber" type="xs:string" minOccurs="0"/>
      <xs:element name="eventType" type="xs:string" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="Service">
    <xs:sequence>
      <xs:element name="id" type="xs:string"/>
      <xs:element name="name" type="xs:string"/>
      <xs:element name="description" type="xs:string"/>
      <xs:element name="comments" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

## 4.6.3 Example XML File (StandardOutput.xml)

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

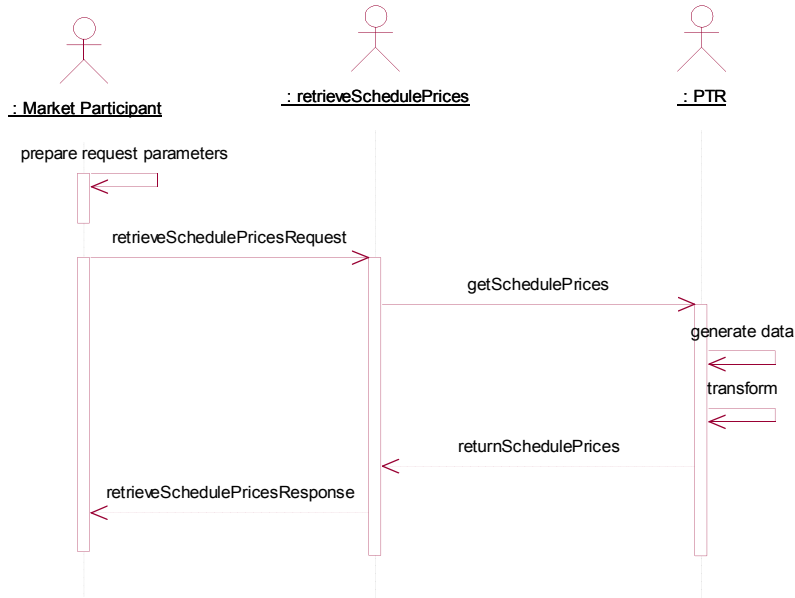


```
<outputDataType xmlns="http://www.caiso.com/soa/2005-06-21/StandardOutput.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.caiso.com/soa/2005-06-21/StandardOutput.xsd">
  <EventLog>
    <id>String</id>
    <name>String</name>
    <description>String</description>
    <type>String</type>
    <creationTime>1967-08-13</creationTime>
    <collectionType>String</collectionType>
    <collectionQuantity>String</collectionQuantity>
    <Event>
      <result>String</result>
      <id>String</id>
      <name>String</name>
      <description>String</description>
      <creationTime>2001-12-17T09:30:47.0Z</creationTime>
      <severity>String</severity>
      <priority>String</priority>
      <sequenceNumber>String</sequenceNumber>
      <eventType>String</eventType>
    </Event>
    <Service>
      <id>String</id>
      <name>String</name>
      <description>String</description>
      <comments>String</comments>
    </Service>
  </EventLog>
</outputDataType>
```

## 5 Retrieve Schedule Prices

### 5.1 Use Model

The diagram below shows the sequence for retrieving Schedule Prices data.



### 5.2 Operation Details

One operation is defined with three message types that are listed in the table below. Both input and output messages are in XML format.

Operation	Message Types	Message	WSDL	XSD
Retrieve Schedule Prices	Input	RetrieveSchedulePrices	RetrieveSchedulePrices.wsdl	RequestSchedulePrices.xsd
	Output	RetrieveSchedulePrices		SchedulePrices.xsd
	Fault	faultReturnTypes		StandardOutput.xsd

### 5.3 WSDL (*retrieveSchedulePrices.wsdl*)



```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2007-02-28/retrieveSchedulePrices.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2007-02-28/retrieveSchedulePrices.wsdl"

  xmlns:typeIn="http://www.caiso.com/soa/2007-02-28/RequestSchedulePrices.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2007-02-28/SchedulePrices.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve Schedule Prices
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-02-28/RequestSchedulePrices.xsd"
        schemaLocation="RequestSchedulePrices.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-02-28/SchedulePrices.xsd"
        schemaLocation="SchedulePrices.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
  <!-- a request and response case to use the data type defined in TYPE for payload -->
  <wsdl:message name="retrieveSchedulePricesRequest">
    <wsdl:part name="requestData" element="typeIn:RequestSchedulePrices">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveSchedulePricesResponse">
    <wsdl:part name="SchedulePrices" element="typeOut:SchedulePrices">
      <wsdl:documentation>return schedule prices</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>

```

```

<wsdl:message name="faultReturntype">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveSchedulePrices">
  <wsdl:operation name="retrieveSchedulePrices">
    <wsdl:documentation>retrieve schedule prices</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveSchedulePricesRequest" />
    <wsdl:output name="SchedulePrices" message="tns:retrieveSchedulePricesResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturntype" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveSchedulePrices_Binding" type="tns:retrieveSchedulePrices">
  <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveSchedulePrices">
    <soap:operation style="document"
      soapAction="http://www.caiso.com/soa/2007-02-28/retrieveSchedulePrices"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="SchedulePrices">
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveSchedulePricesService">
  <wsdl:port name="retrieveSchedulePricesServicePort" binding="tns:retrieveSchedulePrices_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-02-28/retrieveSchedulePrices"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 5.4 Schedule Prices Request

### 5.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	No
resourceSubType	A further classification of a resource. Valid values are PL (for participating load) , NPL (for non-participating load), , GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
product	The product associated with the current record. Valid values are EN (for energy), RU (for Reg Up), RD (for Reg Down), SR (for Spinning Reserve), NR (for Non-spinning Reserve), and RC (for RUC).	string	No
priceType	This element represents the type of price on the current record. Valid values are LMP (for Locational Marginal Price; $LMP = EN + LOSS + CONGESTION$ ), ASMP (for Ancillary Service Marginal Price), EN (for Energy component of LMP price), LOSS (for Loss component of LMP price), CONGESTION (for Congestion component of LMP price), and RUC (for RUC price).	string	No
resource	The unique identifier for a resource.	string	No
ScheduleType	Indicates whether the award was from the CAISO market or self-provided. Valid values are MARKET (for CAISO award) and SELF (for self-provided).	string	No
Direction	This element indicates the flow of energy/capacity in or out of the CAISO Control Area. Valid values are I (for Import) and E (for Export).	string	No
energyType	The energy type for the schedule. Valid values are FIRM (for Firm energy), NFIRM (for Non-Firm energy), DYN (for Dynamic Interchange), WHL (for Wheeling), and UNT_CNTG (for Unit Contingent).	string	No
bindingFlag	Indicates if the schedule is binding. Valid values are Y (for Yes) and N (for No).	string	No

## 5.4.2 Schema (RequestSchedulePrices.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 rel. 3 sp1 (http://www.altova.com) by Harry Garton (Xtensible Solutions)
-->
<xs:schema xmlns="http://www.caiso.com/soa/2007-02-28/RequestSchedulePrices.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-02-
  28/RequestSchedulePrices.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestSchedulePrices" type="RequestSchedulePrices"/>
  <xs:complexType name="RequestSchedulePrices">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRLList" type="HRLList" minOccurs="0"/>
      <xs:element name="marketTypeList" type="marketTypeList"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceTypeList" type="resourceTypeList" minOccurs="0"/>
      <xs:element name="resourceSubTypeList" type="resourceSubTypeList" minOccurs="0"/>
      <xs:element name="productList" type="productList" minOccurs="0"/>
      <xs:element name="priceTypeList" type="priceTypeList" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
      <xs:element name="schedulingPointList" type="schedulingPointList" minOccurs="0"/>
      <xs:element name="directionList" type="directionList" minOccurs="0"/>
      <xs:element name="energyTypeList" type="energyTypeList" minOccurs="0"/>
      <xs:element name="bindingFlagList" type="bindingFlagList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRLList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingPointList">
    <xs:sequence>
      <xs:element name="schedulingPoint" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="directionList">
    <xs:sequence>
      <xs:element name="direction" type="InterTieDirection" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:complexType>
<xs:complexType name="marketTypeList">
  <xs:sequence>
    <xs:element name="marketType" type="MarketType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="energyTypeList">
  <xs:sequence>
    <xs:element name="energyType" type="EnergyType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="bindingFlagList">
  <xs:sequence>
    <xs:element name="bindingFlag" type="BindingFlagType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceTypeList">
  <xs:sequence>
    <xs:element name="resourceType" type="PTRResourceType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceSubTypeList">
  <xs:sequence>
    <xs:element name="resourceSubType" type="PTRResSubType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="productList">
  <xs:sequence>
    <xs:element name="product" type="MarketProductType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="priceTypeList">
  <xs:sequence>
    <xs:element name="priceType" type="PTRPriceType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>

```

```

</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRPriceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="LMP"/>
    <xs:enumeration value="ASMP"/>
    <xs:enumeration value="LOSS"/>
    <xs:enumeration value="CONGESTION"/>
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RUC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="EnergyType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="FIRM"/>
    <xs:enumeration value="NFIRM"/>
    <xs:enumeration value="DYN"/>
    <xs:enumeration value="WHL"/>
    <xs:enumeration value="UNT_CNTG"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketProductType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RU"/>
    <xs:enumeration value="RD"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="RC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="BindingFlagType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="InterTieDirection">
  <xs:restriction base="xs:string">
    <xs:enumeration value="E"/>
    <xs:enumeration value="I"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```



### 5.4.3 Example XML File (RequestSchedulePrices.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<RequestSchedulePrices xmlns="http://www.caiso.com/soa/2007-02-28/RequestSchedulePrices.xsd">
  <tradeDateStart>2007-02-27</tradeDateStart>
  <tradeDateEnd>2007-02-27</tradeDateEnd>
  <marketTypeList>
    <marketType>DAM</marketType>
  </marketTypeList>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
</RequestSchedulePrices>

```

## 5.5 Schedule Prices Response

### 5.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	Yes
resourceSubType	A further classification of a resource. Valid values are PL (for participating load), NPL (for non-participating load), GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes

Element	Data Description	Type	Req'd
intervalDuration	The duration of an interval in minutes.	integer	Yes
product	The product associated with the current record. Valid values are EN (for energy), RU (for Reg Up), RD (for Reg Down), SR (for Spinning Reserve), NR (for Non-spinning Reserve), and RC (for RUC).	string	Yes
bindingFlag	Indicates if the schedule is binding. Valid values are Y (for Yes) and N (for No).	string	No
priceType	This element represents the type of price on the current record. Valid values are LMP (for Locational Marginal Price; LMP = EN + LOSS + CONGESTION), ASMP (for Ancillary Service Marginal Price), EN (for Energy component of LMP price), LOSS (for Loss component of LMP price), CONGESTION (for Congestion component of LMP price), and RUC (for RUC price).	string	Yes
ScheduleType	Indicates whether the award was from the CAISO market or self-provided. Valid values are MARKET (for CAISO award) and SELF (for self-provided).	string	No
Direction	This element indicates the flow of energy/capacity in or out of the CAISO Control Area. Valid values are I (for Import) and E (for Export).	string	No
energyType	The energy type for the schedule. Valid values are FIRM (for Firm energy), NFIRM (for Non-Firm energy), DYN (for Dynamic Interchange), WHL (for Wheeling), and UNT_CNTG (for Unit Contingent).	string	No
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 60 minutes, the trade hour will comprise of only one interval of 60 minutes. If, on the other hand, the interval duration is 15 minutes, the trade hour will comprise of four intervals of 15 minutes each. The intervals are numbered sequentially starting with the earliest one numbered 1.	integer	Yes
price	This element represents the price associated with the current record.	float	Yes

### 5.5.2 Schema (SchedulePrices.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2007-02-28/SchedulePrices.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-02-28/SchedulePrices.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="SchedulePrices" type="m:SchedulePrices"/>
  <xs:complexType name="SchedulePrices">
```



```

<xs:sequence>
  <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
  <xs:element name="MessagePayload" type="m:MessagePayload"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessageHeader">
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime"/>
    <xs:element name="Source" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="SchedulePriceRecord" type="m:SchedulePriceRecord" minOccurs="0"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="SchedulePriceRecord">
  <xs:sequence>
    <xs:element name="resource" type="xs:string"/>
    <xs:element name="resourceType" type="m:PTRResourceType"/>
    <xs:element name="resourceSubType" type="m:PTRResSubType" minOccurs="0"/>
    <xs:element name="schedulingCoordinator" type="xs:string"/>
    <xs:element name="marketType" type="m:MarketType"/>
    <xs:element name="tradeDate" type="xs:date"/>
    <xs:element name="intervalDuration" type="xs:integer"/>
    <xs:element name="product" type="m:PTRSchPriceMarketProduct"/>
    <xs:element name="bindingFlag" type="m:PTRFlag" minOccurs="0"/>
    <xs:element name="priceType" type="m:PTRPriceType"/>
    <xs:element name="schedulingPoint" type="xs:string" minOccurs="0"/>
    <xs:element name="direction" type="m:InterTieDirection" minOccurs="0"/>
    <xs:element name="energyType" type="m:PTREnergyType" minOccurs="0"/>
    <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>

```

```

<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRSchPriceMarketProduct">
  <xs:restriction base="xs:string">
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RU"/>
    <xs:enumeration value="RD"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="RC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRPriceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="LMP"/>
    <xs:enumeration value="ASMP"/>
    <xs:enumeration value="LOSS"/>
    <xs:enumeration value="CONGESTION"/>
    <xs:enumeration value="EN"/>
    <xs:enumeration value="RUC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="InterTieDirection">
  <xs:restriction base="xs:string">
    <xs:enumeration value="E"/>
    <xs:enumeration value="I"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTREnergyType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="FIRM"/>
    <xs:enumeration value="NFIRM"/>
    <xs:enumeration value="DYN"/>
    <xs:enumeration value="WHL"/>
    <xs:enumeration value="UNT_CNTG"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:SchPrTradeHourData" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="SchPrTradeHourData">

```

```

<xs:sequence>
  <xs:element name="HR" type="xs:integer"/>
  <xs:element name="intervalNum" type="xs:integer"/>
  <xs:element name="price" type="xs:float"/>
</xs:sequence>
</xs:complexType>
</xs:schema>

```

### 5.5.3 Example XML File for DAM (DAMSchedulePrices.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<SchedulePrices xmlns="http://www.caiso.com/soa/2007-02-28/SchedulePrices.xsd">
  <MessageHeader>
    <TimeDate>2007-02-27T18:00:00</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <SchedulePriceRecord>
      <resource>RES-01</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-02-27</tradeDate>
      <intervalDuration>60</intervalDuration>
      <product>EN</product>
      <priceType>LMP</priceType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <price>65</price>
        </TradeHourData>
      </TradeHour>
    </SchedulePriceRecord>
    <SchedulePriceRecord>
      <resource>RES-01</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-02-27</tradeDate>
      <intervalDuration>60</intervalDuration>
      <product>EN</product>
      <priceType>EN</priceType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>

```

```

    </price>50</price>
  </TradeHourData>
</TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-01</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>EN</product>
  <priceType>LOSS</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>10</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-01</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>EN</product>
  <priceType>CONGESTION</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>5</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-02</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>SR</product>
  <priceType>ASMP</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>50</price>
    </TradeHourData>
  </TradeHour>

```

```

</TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-03</resource>
  <resourceType>LOAD</resourceType>
  <resourceSubType>PL</resourceSubType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>EN</product>
  <priceType>EN</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>50</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-04</resource>
  <resourceType>ITIE</resourceType>
  <resourceSubType>ITIE_I</resourceSubType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>60</intervalDuration>
  <product>EN</product>
  <priceType>LMP</priceType>
  <schedulingPoint>Point1</schedulingPoint>
  <direction>I</direction>
  <energyType>DYN</energyType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>50</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
</MessagePayload>
</SchedulePrices>

```

### 5.5.4 Example XML File for RTM (RTMSchedulePrices.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<SchedulePrices xmlns="http://www.aiso.com/soa/2007-02-28/SchedulePrices.xsd">
  <MessageHeader>
    <TimeDate>2007-02-27T18:00:00</TimeDate>

```



```
<Source>CAISO</Source>
</MessageHeader>
<MessagePayload>
  <SchedulePriceRecord>
    <resource>RES-01</resource>
    <resourceType>GEN</resourceType>
    <schedulingCoordinator>SC001</schedulingCoordinator>
    <marketType>RTM</marketType>
    <tradeDate>2007-02-27</tradeDate>
    <intervalDuration>15</intervalDuration>
    <product>EN</product>
    <bindingFlag>Y</bindingFlag>
    <priceType>LMP</priceType>
    <TradeHour>
      <TradeHourData>
        <HR>1</HR>
        <intervalNum>1</intervalNum>
        <price>65</price>
      </TradeHourData>
    </TradeHour>
  </SchedulePriceRecord>
  <SchedulePriceRecord>
    <resource>RES-01</resource>
    <resourceType>GEN</resourceType>
    <schedulingCoordinator>SC001</schedulingCoordinator>
    <marketType>RTM</marketType>
    <tradeDate>2007-02-27</tradeDate>
    <intervalDuration>15</intervalDuration>
    <product>EN</product>
    <bindingFlag>Y</bindingFlag>
    <priceType>EN</priceType>
    <TradeHour>
      <TradeHourData>
        <HR>1</HR>
        <intervalNum>1</intervalNum>
        <price>50</price>
      </TradeHourData>
    </TradeHour>
  </SchedulePriceRecord>
  <SchedulePriceRecord>
    <resource>RES-01</resource>
    <resourceType>GEN</resourceType>
    <schedulingCoordinator>SC001</schedulingCoordinator>
    <marketType>RTM</marketType>
    <tradeDate>2007-02-27</tradeDate>
    <intervalDuration>15</intervalDuration>
    <product>EN</product>
    <bindingFlag>Y</bindingFlag>
    <priceType>LOSS</priceType>
    <TradeHour>
      <TradeHourData>
        <HR>1</HR>
        <intervalNum>1</intervalNum>
      </TradeHourData>
    </TradeHour>
  </SchedulePriceRecord>

```

```

    <price>10</price>
  </TradeHourData>
</TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-01</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>EN</product>
  <bindingFlag>Y</bindingFlag>
  <priceType>CONGESTION</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>5</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-02</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>SR</product>
  <bindingFlag>N</bindingFlag>
  <priceType>ASMP</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>50</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-03</resource>
  <resourceType>LOAD</resourceType>
  <resourceSubType>PL</resourceSubType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>EN</product>
  <bindingFlag>N</bindingFlag>
  <priceType>EN</priceType>
  <TradeHour>
    <TradeHourData>

```

```

    <HR>1</HR>
    <intervalNum>1</intervalNum>
    <price>50</price>
  </TradeHourData>
</TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-04</resource>
  <resourceType>ITIE</resourceType>
  <resourceSubType>ITIE_I</resourceSubType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>EN</product>
  <bindingFlag>Y</bindingFlag>
  <priceType>LMP</priceType>
  <schedulingPoint>Point1</schedulingPoint>
  <direction>I</direction>
  <energyType>DYN</energyType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>50</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
<SchedulePriceRecord>
  <resource>RES-05</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-02-27</tradeDate>
  <intervalDuration>15</intervalDuration>
  <product>RC</product>
  <bindingFlag>N</bindingFlag>
  <priceType>RUC</priceType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <price>50</price>
    </TradeHourData>
  </TradeHour>
</SchedulePriceRecord>
</MessagePayload>
</SchedulePrices>

```

## 5.6 Fault Return

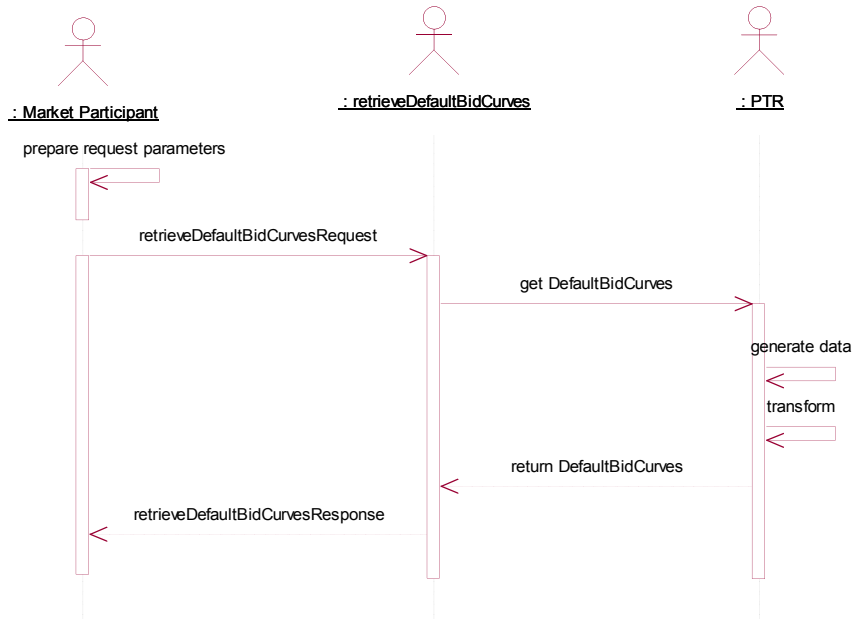
The fault return message is the same for all PTR services—see Section 4.6.



## 6 Retrieve Default Bid Curves

### 6.1 Use Model

The diagram below shows the sequence for retrieving Default Bid Curves data.



## 6.2 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
Retrieve Default Bid Curves	Input	retrieveDefaultBidCurves	<a href="#">retrieveDefaultBidCurves_v20091101.wsdl</a>	RequestDefaultBidCurves.xsd
	Output	retrieveDefaultBidCurves		<a href="#">DefaultBidCurves_v20091101.xsd</a>
	Fault	faultReturnTypes		StandardOutput.xsd

## 6.3 WSDL

**([retrieveDefaultBidCurves\\_v20091101.wsdl](#))**

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-01/retrieveDefaultBidCurves_v20091101.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveDefaultBidCurves_v20091101.wsdl"

  xmlns:typeIn="http://www.caiso.com/soa/2007-01-19/RequestDefaultBidCurves.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2009-11-01/DefaultBidCurves_v20091101.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve Default Bid Curves
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestDefaultBidCurves.xsd"
        schemaLocation="RequestDefaultBidCurves.xsd" />
    </xs:schema>
  </wsdl:types>

```

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```
<xs:import namespace="http://www.aiso.com/soa/2009-11-01/DefaultBidCurves_v20091101.xsd"
schemaLocation="DefaultBidCurves_v20091101.xsd" />
</xs:schema>
<xs:schema>
<xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveDefaultBidCurvesRequest">
<wsdl:part name="requestData" element="typeIn:RequestDefaultBidCurves">
<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveDefaultBidCurvesResponse">
<wsdl:part name="DefaultBidCurves" element="typeOut:DefaultBidCurves">
<wsdl:documentation>return Default Bid Curves</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveDefaultBidCurves_v20091101">
<wsdl:operation name="retrieveDefaultBidCurves_v20091101">
<wsdl:documentation>retrieve default bid curves</wsdl:documentation>
<wsdl:input name="requestData" message="tns:retrieveDefaultBidCurvesRequest" />
<wsdl:output name="DefaultBidCurves" message="tns:retrieveDefaultBidCurvesResponse" />
<wsdl:fault name="faultReturn" message="tns:faultReturn Type" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveDefaultBidCurves_Binding"
type="tns:retrieveDefaultBidCurves_v20091101">
<soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveDefaultBidCurves_v20091101">
<soap:operation style="document"
soapAction="http://www.aiso.com/soa/2009-11-01/retrieveDefaultBidCurves_v20091101"/>
<wsdl:input name="requestData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="DefaultBidCurves">
<soap:body use="literal"/>
</wsdl:output>
```

```

<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveDefaultBidCurves_v20091101Service">
  <wsdl:port name="retrieveDefaultBidCurvesServicePort"
binding="tns:retrieveDefaultBidCurves_Binding">
  <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveDefaultBidCurves_v20091101"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-
19/retrieveDefaultBidCurves.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-01-
19/RequestDefaultBidCurves.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-01-
19/DefaultBidCurves.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveDefaultBidCurves.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestDefaultBidCurves.xsd"
schemaLocation="RequestDefaultBidCurves.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/DefaultBidCurves.xsd"
schemaLocation="DefaultBidCurves.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="retrieveDefaultBidCurvesRequest">
    <wsdl:part name="requestData" element="typeIn:RequestDefaultBidCurves">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveDefaultBidCurvesResponse">
    <wsdl:part name="DefaultBidCurves" element="typeOut:DefaultBidCurves">
      <wsdl:documentation>return Default Bid Curves</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturn">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">

```

```

</wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:portType name="retrieveDefaultBidCurves">
  <wsdl:operation name="retrieveDefaultBidCurves">
    <wsdl:documentation>retrieve default bid curves</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveDefaultBidCurvesRequest"/>
    <wsdl:output name="DefaultBidCurves" message="tns:retrieveDefaultBidCurvesResponse"/>
    <wsdl:fault name="faultReturn" message="tns:faultReturn"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="retrieveDefaultBidCurves_Binding" type="tns:retrieveDefaultBidCurves">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveDefaultBidCurves">
    <soap:operation soapAction="http://www.caiso.com/soa/2007-01-19/retrieveDefaultBidCurves"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveDefaultBidCurvesService">
  <wsdl:port name="retrieveDefaultBidCurvesServicePort"
binding="tns:retrieveDefaultBidCurves_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-01-19/retrieveDefaultBidCurves"/>
  </wsdl:port>
</wsdl:service>
<wsdl:documentation>
  A web service to retrieve Default Bid Curves
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>

```

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## 6.4 Default Bid Curves Request

### 6.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	No
defaultBidType	This element represents the basis on which the default bid price curve is created. Valid values are COST (for cost basis), LMP (for LMP basis), and NEGOTIATED (for negotiated price as the basis).	string	No
resource	The unique identifier for a resource.	string	No
TimePeriod	<p>The time period to which the default bid price curve applies. Valid values are ON_PEAK (for on-peak hours), and OFF_PEAK (for off-peak hours).</p> <ul style="list-style-type: none"> <li>All 24 hours are set to off-peak on holidays as defined by WSCC</li> <li>On regular days- Monday thru Saturday, hour-ending 7 to hour-ending 22 are on-peak; and the rest of the hours including Sunday is off-peak</li> </ul>	string	No

## 6.4.2 Schema (RequestDefaultBidCurves.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 U (http://www.altova.com) by Xiaofeng Wang (Xtensible Solutions) -->
<xs:schema xmlns="http://www.cao.com/soa/2007-01-19/RequestDefaultBidCurves.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.cao.com/soa/2007-01-19/RequestDefaultBidCurves.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestDefaultBidCurves" type="RequestDefaultBidCurves"/>
  <xs:complexType name="RequestDefaultBidCurves">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="marketTypeList" type="marketTypeList"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="defaultBidTypeList" type="defaultBidTypeList" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
      <xs:element name="timePeriodList" type="timePeriodList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="timePeriodList">
    <xs:sequence>
      <xs:element name="timePeriod" type="PTRTimePeriodType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="marketTypeList">
    <xs:sequence>
      <xs:element name="marketType" type="MarketType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="defaultBidTypeList">
    <xs:sequence>
      <xs:element name="defaultBidType" type="PTRDefaultBidType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="PTRResourceType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="GEN"/>
      <xs:enumeration value="LOAD"/>
      <xs:enumeration value="ITIE"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="MarketType">

```

```
<xs:restriction base="xs:string">
  <xs:enumeration value="DAM"/>
  <xs:enumeration value="RTM"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRDefaultBidType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="COST"/>
    <xs:enumeration value="LMP"/>
    <xs:enumeration value="NEGOTIATED"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRTimePeriodType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ON_PEAK"/>
    <xs:enumeration value="OFF_PEAK"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>
```



### 6.4.3 Example XML File (RequestDefaultBidCurves.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<RequestDefaultBidCurves xmlns="http://www.aiso.com/soa/2007-01-19/RequestDefaultBidCurves.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.aiso.com/soa/2007-01-19/RequestDefaultBidCurves.xsd:\PTRREL~1\XSDs\PTR\DefaultBidCurves\RequestDefaultBidCurves.xsd">
  <tradeDateStart>2007-01-17</tradeDateStart>
  <tradeDateEnd>2007-01-17</tradeDateEnd>
  <marketTypeList>
    <marketType>DAM</marketType>
  </marketTypeList>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
</RequestDefaultBidCurves>
```

## 6.5 Default BidCurves Response

### 6.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	Yes
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	string	No
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes

Element	Data Description	Type	Req'd
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
timePeriod	The time period to which the default bid price curve applies. Valid values are ON_PEAK (for on-peak hours), and OFF_PEAK (for off-peak hours). <ul style="list-style-type: none"> <li>All 24 hours are set to off-peak on holidays as defined by WSCC</li> <li>On regular days- Monday thru Saturday, hour-ending 7 to hour-ending 22 are on-peak; and the rest of the hours including Sunday is off-peak</li> </ul>	string	Yes
defaultBidType	This element represents the basis on which the default bid price curve is created. Valid values are COST (for cost basis), LMP (for LMP basis), and NEGOTIATED (for negotiated price as the basis).	string	Yes
startTime	The effective start datetime for the default bid curve (in California Prevailing Time).	dateTime	Yes
endTime	The effective end datetime for the default bid curve (in California Prevailing Time).	dateTime	Yes
adderFlag	A flag to indicate if bid adder value has been applied to the bid.	string	Yes
segmentNum	The segment number for the bid price curve.	integer	Yes
MW	The MW value for the specified segment of the bid price curve.	float	Yes
price	The price (\$ per MW) value for the specified segment of the bid price curve.	float	Yes
segmentBidType	For a LMP bid, this element represents the bid type of the segment. Valid values are COST (for cost basis), LMP (for LMP basis), and NEGOTIATED (for negotiated price as the basis).	string	No

### 6.5.2 Schema ([DefaultBidCurves\\_v20091101.xsd](#)/[DefaultBidCurves.xsd](#))

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2007-01-19/DefaultBidCurves.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-01-19/DefaultBidCurves.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="DefaultBidCurves" type="m:DefaultBidCurves"/>
  <xs:complexType name="DefaultBidCurves">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="DefaultBidCurve" type="m:DefaultBidCurve" minOccurs="0"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DefaultBidCurve">
  <xs:sequence>
    <xs:element name="resource" type="xs:string"/>
    <xs:element name="resourceType" type="m:PTRResourceType"/>
    <xs:element name="schedulingCoordinator" type="xs:string"/>
    <xs:element name="marketType" type="m:MarketType"/>
    <xs:element name="tradeDate" type="xs:date"/>
    <xs:element name="timePeriod" type="m:PTRTimePeriodType"/>
    <xs:element name="defaultBidType" type="m:PTRDefaultBidType"/>
    <xs:element name="startTime" type="xs:dateTime"/>
    <xs:element name="endTime" type="xs:dateTime"/>
    <xs:element name="adderFlag" type="m:PTRFlag"/>
    <xs:element name="BidCurveData" type="m:BidCurveData"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRTimePeriodType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ON_PEAK"/>
    <xs:enumeration value="OFF_PEAK"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRDefaultBidType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="COST"/>
    <xs:enumeration value="LMP"/>
    <xs:enumeration value="NEGOTIATED"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>

```

```

</xs:restriction>
</xs:simpleType>
<xs:complexType name="BidCurveData">
  <xs:sequence>
    <xs:element name="DefaultBidCurveSeg" type="m:DefaultBidCurveSegMsg"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DefaultBidCurveSegMsg">
  <xs:sequence>
    <xs:element name="segmentNum" type="xs:integer"/>
    <xs:element name="MW" type="xs:float"/>
    <xs:element name="price" type="xs:float"/>
    <xs:element name="segmentBidType" type="m:PTRDefaultBidType" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2009-11-01/DefaultBidCurves_v20091101.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2009-11-
01/DefaultBidCurves_v20091101.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="DefaultBidCurves" type="m:DefaultBidCurves"/>
  <xs:complexType name="DefaultBidCurves">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the
message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">
        <xs:annotation>
          <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="DefaultBidCurve" type="m:DefaultBidCurve" minOccurs="0"
maxOccurs="unbounded">

```

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```

</xs:annotation>
  <xs:documentation>This report will contain information on the Potomac-supplied reference
or default-based curves used in the Market Power Mitigation process by the market
system.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="DefaultBidCurve">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="resourceType" type="m:PTRResourceType">
      <xs:annotation>
        <xs:documentation>Type of product or service applied in the
transaction</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="configuration" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Configuration ID for MSG resources</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="marketType" type="m:MarketType">
      <xs:annotation>
        <xs:documentation>Type of market or process in which the curve applies to: Day-Ahead or
Real-Time Market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="timePeriod" type="m:PTRTimePeriodType">
      <xs:annotation>
        <xs:documentation>Denotes on-peak or off-peak time. " All 24 hours are set to off-peak on
holidays as defined by WSCC " On regular days- Monday thru Saturday, hours 6 to 22 are on-peak; and
the rest of the hours including Sunday is off-peak</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="defaultBidType" type="m:PTRDefaultBidType">
      <xs:annotation>
        <xs:documentation>Classifies the type of default bid curve</xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="startTime" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>start time</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="endTime" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>end time</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="adderFlag" type="m:PTRFlag">
  <xs:annotation>
    <xs:documentation>adder flag</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="BidCurveData" type="m:BidCurveData"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:annotation>
    <xs:documentation>market type</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRTimePeriodType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ON_PEAK"/>
    <xs:enumeration value="OFF_PEAK"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRDefaultBidType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="COST"/>
    <xs:enumeration value="LMP"/>
    <xs:enumeration value="NEGOTIATED"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>

```

```

</xs:restriction>
</xs:simpleType>
<xs:complexType name="BidCurveData">
  <xs:sequence>
    <xs:element name="DefaultBidCurveSeg" type="m:DefaultBidCurveSegMsg"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DefaultBidCurveSegMsg">
  <xs:sequence>
    <xs:element name="segmentNum" type="xs:integer"/>
    <xs:element name="MW" type="xs:float"/>
    <xs:element name="price" type="xs:float"/>
    <xs:element name="segmentBidType" type="m:PTRDefaultBidType" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Classifies the type of segment</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
</xs:schema>

```

### 6.5.3 Example XML File (DAMDefaultBidCurvesampleDefaultBidCurves.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com) -->
<DefaultBidCurves xmlns="http://www.caiso.com/soa/2007-01-19/DefaultBidCurves.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2007-01-
19/DefaultBidCurves.xsd PTRREL-1\XSDs\PTR\DefaultBidCurves\DefaultBidCurves.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T17:32:18.000-00:00</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <DefaultBidCurve>
      <resource>RES-01</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <timePeriod>ON_PEAK</timePeriod>
      <defaultBidType>COST</defaultBidType>
      <startTime>2007-01-17T07:32:18.000-00:00</startTime>
      <endTime>2007-01-17T08:32:18.000-00:00</endTime>
      <adderFlag>N</adderFlag>
      <BidCurveData>
        <DefaultBidCurveSeg>
          <segmentNum>1</segmentNum>
          <MW>5</MW>

```

```

</price>10</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
<DefaultBidCurveSeg>
<segmentNum>2</segmentNum>
<MW>10</MW>
<price>20</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
<DefaultBidCurveSeg>
<segmentNum>3</segmentNum>
<MW>15</MW>
<price>30</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
</BidCurveData>
</DefaultBidCurve>
<DefaultBidCurve>
<resource>RES-02</resource>
<resourceType>GEN</resourceType>
<schedulingCoordinator>SC002</schedulingCoordinator>
<marketType>DAM</marketType>
<tradeDate>2007-01-17</tradeDate>
<timePeriod>ON_PEAK</timePeriod>
<defaultBidType>COST</defaultBidType>
<startTime>2007-01-17T07:32:18.000-00:00</startTime>
<endTime>2007-01-17T08:32:18.000-00:00</endTime>
<adderFlag>Y</adderFlag>
<BidCurveData>
<DefaultBidCurveSeg>
<segmentNum>1</segmentNum>
<MW>5</MW>
<price>10</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
<DefaultBidCurveSeg>
<segmentNum>2</segmentNum>
<MW>10</MW>
<price>20</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
<DefaultBidCurveSeg>
<segmentNum>3</segmentNum>
<MW>15</MW>
<price>30</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
</BidCurveData>
</DefaultBidCurve>
<DefaultBidCurve>
<resource>RES-03</resource>
<resourceType>LOAD</resourceType>
<schedulingCoordinator>SC003</schedulingCoordinator>

```



```

<marketType>DAM</marketType>
<tradeDate>2007-01-17</tradeDate>
<timePeriod>ON_PEAK</timePeriod>
<defaultBidType>LMP</defaultBidType>
<startTime>2007-01-17T07:32:18.000-00:00</startTime>
<endTime>2007-01-17T08:32:18.000-00:00</endTime>
<adderFlag>N</adderFlag>
<BidCurveData>
  <DefaultBidCurveSeg>
    <segmentNum>1</segmentNum>
    <MW>15</MW>
    <price>10</price>
    <segmentBidType>COST</segmentBidType>
  </DefaultBidCurveSeg>
  <DefaultBidCurveSeg>
    <segmentNum>2</segmentNum>
    <MW>10</MW>
    <price>20</price>
    <segmentBidType>COST</segmentBidType>
  </DefaultBidCurveSeg>
  <DefaultBidCurveSeg>
    <segmentNum>3</segmentNum>
    <MW>5</MW>
    <price>30</price>
    <segmentBidType>COST</segmentBidType>
  </DefaultBidCurveSeg>
</BidCurveData>
</DefaultBidCurve>
<DefaultBidCurve>
  <resource>RES-04</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC003</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <timePeriod>ON_PEAK</timePeriod>
  <defaultBidType>LMP</defaultBidType>
  <startTime>2007-01-17T07:32:18.000-00:00</startTime>
  <endTime>2007-01-17T08:32:18.000-00:00</endTime>
  <adderFlag>N</adderFlag>
  <BidCurveData>
    <DefaultBidCurveSeg>
      <segmentNum>1</segmentNum>
      <MW>5</MW>
      <price>10</price>
      <segmentBidType>COST</segmentBidType>
    </DefaultBidCurveSeg>
    <DefaultBidCurveSeg>
      <segmentNum>2</segmentNum>
      <MW>10</MW>
      <price>20</price>
      <segmentBidType>COST</segmentBidType>
    </DefaultBidCurveSeg>
  </BidCurveData>
</DefaultBidCurve>

```



```
<segmentNum>3</segmentNum>
<MW>15</MW>
<price>30</price>
<segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
</BidCurveData>
</DefaultBidCurve>
<DefaultBidCurve>
  <resource>RES-05</resource>
  <resourceType>ITIE</resourceType>
  <schedulingCoordinator>SC002</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <timePeriod>ON_PEAK</timePeriod>
  <defaultBidType>COST</defaultBidType>
  <startTime>2007-01-17T07:32:18.000-00:00</startTime>
  <endTime>2007-01-17T08:32:18.000-00:00</endTime>
  <adderFlag>N</adderFlag>
</BidCurveData>
</DefaultBidCurveSeg>
  <segmentNum>1</segmentNum>
  <MW>5</MW>
  <price>10</price>
  <segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
<DefaultBidCurveSeg>
  <segmentNum>2</segmentNum>
  <MW>10</MW>
  <price>20</price>
  <segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
<DefaultBidCurveSeg>
  <segmentNum>3</segmentNum>
  <MW>15</MW>
  <price>30</price>
  <segmentBidType>COST</segmentBidType>
</DefaultBidCurveSeg>
</BidCurveData>
</DefaultBidCurve>
</MessagePayload>
</DefaultBidCurves><?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:DefaultBidCurves xsi:schemaLocation="http://www.caiso.com/soa/2009-11-01/DefaultBidCurves_v20091101.xsd DefaultBidCurves_v20091101.xsd"
xmlns:m="http://www.caiso.com/soa/2009-11-01/DefaultBidCurves_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:DefaultBidCurve>
```

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```

<m:resource>Resource1</m:resource>
<m:resourceType>GEN</m:resourceType>
<m:configuration>Resource1_1x1</m:configuration>
<m:schedulingCoordinator>SC01</m:schedulingCoordinator>
<m:marketType>DAM</m:marketType>
<m:tradeDate>2009-12-10</m:tradeDate>
<m:timePeriod>ON PEAK</m:timePeriod>
<m:defaultBidType>COST</m:defaultBidType>
<m:startTime>2009-12-10T08:00:00</m:startTime>
<m:endTime>2009-12-17T08:00:00</m:endTime>
<m:adderFlag>N</m:adderFlag>
<m:BidCurveData>
  <m:DefaultBidCurveSeg>
    <m:segmentNum>1</m:segmentNum>
    <m:MW>5</m:MW>
    <m:price>10</m:price>
    <m:segmentBidType>COST</m:segmentBidType>
  </m:DefaultBidCurveSeg>
</m:BidCurveData>
</m:DefaultBidCurve>
<m:DefaultBidCurve>
  <m:resource>Resource2</m:resource>
  <m:resourceType>GEN</m:resourceType>
  <m:configuration>Resource2_1x1</m:configuration>
  <m:schedulingCoordinator>SC02</m:schedulingCoordinator>
  <m:marketType>DAM</m:marketType>
  <m:tradeDate>2009-12-10</m:tradeDate>
  <m:timePeriod>OFF PEAK</m:timePeriod>
  <m:defaultBidType>LMP</m:defaultBidType>
  <m:startTime>2009-12-10T08:00:00</m:startTime>
  <m:endTime>2009-12-17T08:00:00</m:endTime>
  <m:adderFlag>N</m:adderFlag>
  <m:BidCurveData>
    <m:DefaultBidCurveSeg>
      <m:segmentNum>1</m:segmentNum>
      <m:MW>2</m:MW>
      <m:price>14.20</m:price>
      <m:segmentBidType>LMP</m:segmentBidType>
    </m:DefaultBidCurveSeg>
  </m:BidCurveData>
</m:DefaultBidCurve>
</m:MessagePayload>
</m:DefaultBidCurves>

```

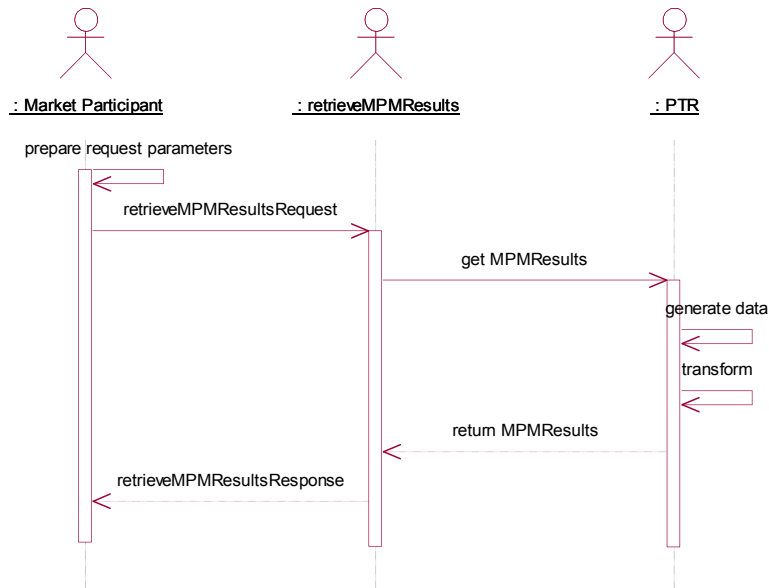
## 6.6 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 7 Retrieve MPM Results

### 7.1 Use Model

The diagram below shows the sequence for retrieving MPM Results data.



### 7.2 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
RetrieveMPM Results	Input	retrieveMPMResults	<a href="#">retrieveMPMResults_v20091101.wsdl</a>	RequestMPMResults.xsd
	Output	retrieveMPMResults	<a href="#">RetrieveMPMResults.wsdl</a>	<a href="#">MPMResults_v20091101.xsd</a>
	Fault	faultReturnTypes		StandardOutput.xsd

### 7.3 WSDL ([retrieveMPMResults\\_v20091101.wsdl](#)[retrieveMPMResults.wsdl](#))

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```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-01/retrieveMPMResults_v20091101.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveMPMResults_v20091101.wsdl"

  xmlns:typeIn="http://www.caiso.com/soa/2007-01-19/RequestMPMResults.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2009-11-01/MPMResults_v20091101.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve MPM results
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestMPMResults.xsd"
        schemaLocation="RequestMPMResults.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2009-11-01/MPMResults_v20091101.xsd"
        schemaLocation="MPMResults_v20091101.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
  <!-- a request and response case to use the data type defined in TYPE for payload -->
  <wsdl:message name="retrieveMPMResultsRequest">
    <wsdl:part name="requestData" element="typeIn:RequestMPMResults">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveMPMResultsResponse">
    <wsdl:part name="MPMResults" element="typeOut:MPMResults">
      <wsdl:documentation>return MPM results</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
```

```

</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveMPMResults_v20091101">
  <wsdl:operation name="retrieveMPMResults_v20091101">
    <wsdl:documentation>retrieve MPM results</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveMPMResultsRequest" />
    <wsdl:output name="MPMResults" message="tns:retrieveMPMResultsResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn Type" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveMPMResults_Binding" type="tns:retrieveMPMResults_v20091101">
  <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveMPMResults_v20091101">
    <soap:operation style="document"
      soapAction="http://www.caiso.com/soa/2009-11-01/retrieveMPMResults_v20091101"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="MPMResults">
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveMPMResults_v20091101Service">
  <wsdl:port name="retrieveMPMResultsServicePort" binding="tns:retrieveMPMResults_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-01/retrieveMPMResults_v20091101"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf 8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"

```

```

xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-19/retrieveMPMResults.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-01-19/RequestMPMResults.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-01-19/MPMResults.xsd"
xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveMPMResults.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestMPMResults.xsd"
schemaLocation="RequestMPMResults.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/MPMResults.xsd"
schemaLocation="MPMResults.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="retrieveMPMResultsRequest">
    <wsdl:part name="requestData" element="typeIn:RequestMPMResults">
      <wsdl:documentation>send request data</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveMPMResultsResponse">
    <wsdl:part name="MPMResults" element="typeOut:MPMResults">
      <wsdl:documentation>return MPM results</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturntype">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">
      <wsdl:documentation>fault information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:portType name="retrieveMPMResults">
    <wsdl:operation name="retrieveMPMResults">
      <wsdl:documentation>retrieve MPM results</wsdl:documentation>
      <wsdl:input name="requestData" message="tns:retrieveMPMResultsRequest"/>
      <wsdl:output name="MPMResults" message="tns:retrieveMPMResultsResponse"/>
      <wsdl:fault name="faultReturn" message="tns:faultReturntype"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="retrieveMPMResults_Binding" type="tns:retrieveMPMResults">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="retrieveMPMResults">
      <soap:operation soapAction="http://www.caiso.com/soa/2007-01-19/retrieveMPMResults"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
  </wsdl:binding>

```

```

<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveMPMResultsService">
  <wsdl:port name="retrieveMPMResultsServicePort" binding="tns:retrieveMPMResults_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-01-19/retrieveMPMResults"/>
  </wsdl:port>
</wsdl:service>
<wsdl:documentation>
  A web service to retrieve MPM results
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>

```

**Formatted:** Body Text, Adjust space between Latin and Asian text, Adjust space between Asian text and numbers

## 7.4 MPM Results Request

### 7.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resource	The unique identifier for a resource.	string	No

### 7.4.2 Schema (RequestMPMResults.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 U (http://www.altova.com) by Xiaofeng Wang (Xtensible Solutions) -->

```



```

<xs:schema xmlns="http://www.caiso.com/soa/2007-01-19/RequestMPMResults.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-01-
19/RequestMPMResults.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestMPMResults" type="RequestMPMResults"/>
  <xs:complexType name="RequestMPMResults">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRLList" type="HRLList" minOccurs="0"/>
      <xs:element name="marketTypeList" type="marketTypeList"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRLList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="marketTypeList">
    <xs:sequence>
      <xs:element name="marketType" type="MarketType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="PTRResourceType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="GEN"/>
      <xs:enumeration value="LOAD"/>
      <xs:enumeration value="ITIE"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="MarketType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="DAM"/>
      <xs:enumeration value="RTM"/>
    </xs:restriction>
  </xs:simpleType>
</xs:schema>

```

### 7.4.3 Example XML File (RequestMPMResults.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<RequestMPMResults xmlns="http://www.caiso.com/soa/2007-01-19/RequestMPMResults.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2007-01-
19/RequestMPMResults.xsd:\PTRREL~1\XSDs\PTR\MPMResults\RequestMPMResults.xsd">
  <tradeDateStart>2007-01-17</tradeDateStart>
  <tradeDateEnd>2007-01-17</tradeDateEnd>
  <marketTypeList>
    <marketType>DAM</marketType>
  </marketTypeList>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
</RequestMPMResults>
```

## 7.5 MPM Results Response

### 7.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	Yes
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	<u>string</u>	<u>No</u>
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes

Element	Data Description	Type	Req'd
HR	The trade hour for which the bid has been mitigated (in California Prevailing Time).	integer	Yes
segmentNum	The segment number for the bid price curve.	integer	Yes
MW	The MW value for the specified segment of the bid price curve.	float	Yes
price	The price (\$ per MW) value for the specified segment of the bid price curve.	float	Yes

### 7.5.2 Schema (~~MPMResults\_v20091101.xsd~~MPMResults.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2007-01-19/MPMResults.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-01-19/MPMResults.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="MPMResults" type="m:MPMResults"/>
  <xs:complexType name="MPMResults">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="MarketPowerMitigation" type="m:MarketPowerMitigation" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MarketPowerMitigation">
    <xs:sequence>
      <xs:element name="resource" type="xs:string"/>
      <xs:element name="resourceType" type="m:PTRResourceType"/>
      <xs:element name="schedulingCoordinator" type="xs:string"/>
      <xs:element name="marketType" type="m:MarketType"/>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="HR" type="xs:integer"/>
      <xs:element name="BidCurveData" type="m:BidCurveData"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="PTRResourceType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="GEN"/>
      <xs:enumeration value="LOAD"/>
      <xs:enumeration value="ITIE"/>
    </xs:restriction>
  </xs:simpleType>

```

```

</xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="BidCurveData">
  <xs:sequence>
    <xs:element name="MPMBidCurveData" type="m:MPMBidCurveDataMsg"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MPMBidCurveDataMsg">
  <xs:sequence>
    <xs:element name="segmentNum" type="xs:integer"/>
    <xs:element name="MW" type="xs:float"/>
    <xs:element name="price" type="xs:float"/>
  </xs:sequence>
</xs:complexType>
</xs:schema><?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2009-11-01/MPMResults_v20091101.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2009-11-
01/MPMResults_v20091101.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="MPMResults" type="m:MPMResults"/>
  <xs:complexType name="MPMResults">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the
message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">
        <xs:annotation>
          <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>

```

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```

<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="MarketPowerMitigation" type="m:MarketPowerMitigation" minOccurs="0"
maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Displays segments of the entire "new" or mitigated bid as a result of the
Market Power Mitigation Process</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MarketPowerMitigation">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="resourceType" type="m:PTRResourceType">
      <xs:annotation>
        <xs:documentation>Type of product or service applied in the
transaction</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="configuration" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Configuration ID for MSG resources</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="marketType" type="m:MarketType">
      <xs:annotation>
        <xs:documentation>Type of market or process in which the curve applies to: Day-Ahead or
Real-Time Market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>Hour (in hour-ending format) that the bid was mitigated
for</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="BidCurveData" type="m:BidCurveData"/>
  
```

```
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:annotation>
    <xs:documentation>market type</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="BidCurveData">
  <xs:sequence>
    <xs:element name="MPMBidCurveData" type="m:MPMBidCurveDataMsg"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MPMBidCurveDataMsg">
  <xs:sequence>
    <xs:element name="segmentNum" type="xs:integer"/>
    <xs:element name="MW" type="xs:float"/>
    <xs:element name="price" type="xs:float"/>
  </xs:sequence>
</xs:complexType>
</xs:schema>
```

### 7.5.3 Example XML File (DAMMPMResultssampleMPMResults.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<MPMResults xmlns="http://www.caiso.com/soa/2007-01-19/MPMResults.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2007-01-
19/MPMResults.xsd:PTRREL\1\XSDs\PTR\MPMResults\MPMResults.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T17:32:18.000-00:00</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <MarketPowerMitigation>
      <resource>RES-01</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <HR>1</HR>
      <BidCurveData>
        <MPMBidCurveData>
          <segmentNum>1</segmentNum>
          <MW>5</MW>
          <price>10</price>
        </MPMBidCurveData>
        <MPMBidCurveData>
          <segmentNum>2</segmentNum>
          <MW>10</MW>
          <price>20</price>
        </MPMBidCurveData>
        <MPMBidCurveData>
          <segmentNum>3</segmentNum>
          <MW>15</MW>
          <price>30</price>
        </MPMBidCurveData>
      </BidCurveData>
    </MarketPowerMitigation>
    <MarketPowerMitigation>
      <resource>RES-02</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <HR>2</HR>
      <BidCurveData>
        <MPMBidCurveData>
          <segmentNum>1</segmentNum>
          <MW>5</MW>
          <price>10</price>
        </MPMBidCurveData>
        <MPMBidCurveData>
          <segmentNum>2</segmentNum>
          <MW>10</MW>

```

```

</price>20</price>
</MPMBidCurveData>
<MPMBidCurveData>
  <segmentNum>3</segmentNum>
  <MW>15</MW>
  <price>30</price>
</MPMBidCurveData>
</BidCurveData>
</MarketPowerMitigation>
<MarketPowerMitigation>
  <resource>RES-03</resource>
  <resourceType>LOAD</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <HR>3</HR>
</BidCurveData>
</MPMBidCurveData>
  <segmentNum>1</segmentNum>
  <MW>15</MW>
  <price>10</price>
</MPMBidCurveData>
</MPMBidCurveData>
  <segmentNum>2</segmentNum>
  <MW>10</MW>
  <price>20</price>
</MPMBidCurveData>
</MPMBidCurveData>
  <segmentNum>3</segmentNum>
  <MW>5</MW>
  <price>30</price>
</MPMBidCurveData>
</BidCurveData>
</MarketPowerMitigation>
<MarketPowerMitigation>
  <resource>RES-04</resource>
  <resourceType>GEN</resourceType>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <HR>4</HR>
</BidCurveData>
</MPMBidCurveData>
  <segmentNum>1</segmentNum>
  <MW>5</MW>
  <price>10</price>
</MPMBidCurveData>
</MPMBidCurveData>
  <segmentNum>2</segmentNum>
  <MW>10</MW>
  <price>20</price>
</MPMBidCurveData>
</MPMBidCurveData>

```



```

<segmentNum>3</segmentNum>
<MW>15</MW>
<price>30</price>
</MPMBidCurveData>
</BidCurveData>
</MarketPowerMitigation>
<MarketPowerMitigation>
<resource>RES-05</resource>
<resourceType>ITIE</resourceType>
<schedulingCoordinator>SC001</schedulingCoordinator>
<marketType>DAM</marketType>
<tradeDate>2007-01-17</tradeDate>
<HR>5</HR>
</BidCurveData>
</MPMBidCurveData>
<segmentNum>1</segmentNum>
<MW>5</MW>
<price>10</price>
</MPMBidCurveData>
</MPMBidCurveData>
<segmentNum>2</segmentNum>
<MW>10</MW>
<price>20</price>
</MPMBidCurveData>
</MPMBidCurveData>
<segmentNum>3</segmentNum>
<MW>15</MW>
<price>30</price>
</MPMBidCurveData>
</BidCurveData>
</MarketPowerMitigation>
</MessagePayload>
</MPMResults>
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com) -->
<m:MPMResults xsi:schemaLocation="http://www.aiso.com/soa/2009-11-01/MPMResults_v20091101.xsd MPMResults_v20091101.xsd"
xmlns:m="http://www.aiso.com/soa/2009-11-01/MPMResults_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:MarketPowerMitigation>
      <m:resource>Resource1</m:resource>
      <m:resourceType>GEN</m:resourceType>
      <m:configuration>Resource1_1x1</m:configuration>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:marketType>DAM</m:marketType>
      <m:tradeDate>2009-12-10</m:tradeDate>
      <m:HR>1</m:HR>
      <m:BidCurveData>

```

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```
<m:MPMBidCurveData>  
  <m:segmentNum>1</m:segmentNum>  
  <m:MW>3</m:MW>  
  <m:price>50.47</m:price>  
</m:MPMBidCurveData>  
</m:BidCurveData>  
</m:MarketPowerMitigation>  
<m:MarketPowerMitigation>  
  <m:resource>Resource2</m:resource>  
  <m:resourceType>GEN</m:resourceType>  
  <m:configuration>Resource2 1x1</m:configuration>  
  <m:schedulingCoordinator>SC02</m:schedulingCoordinator>  
  <m:marketType>DAM</m:marketType>  
  <m:tradeDate>2009-12-10</m:tradeDate>  
<m:HR>1</m:HR>  
<m:BidCurveData>  
  <m:MPMBidCurveData>  
    <m:segmentNum>1</m:segmentNum>  
    <m:MW>4</m:MW>  
    <m:price>45.63</m:price>  
  </m:MPMBidCurveData>  
</m:BidCurveData>  
</m:MarketPowerMitigation>  
</m:MessagePayload>  
</m:MPMResults>
```

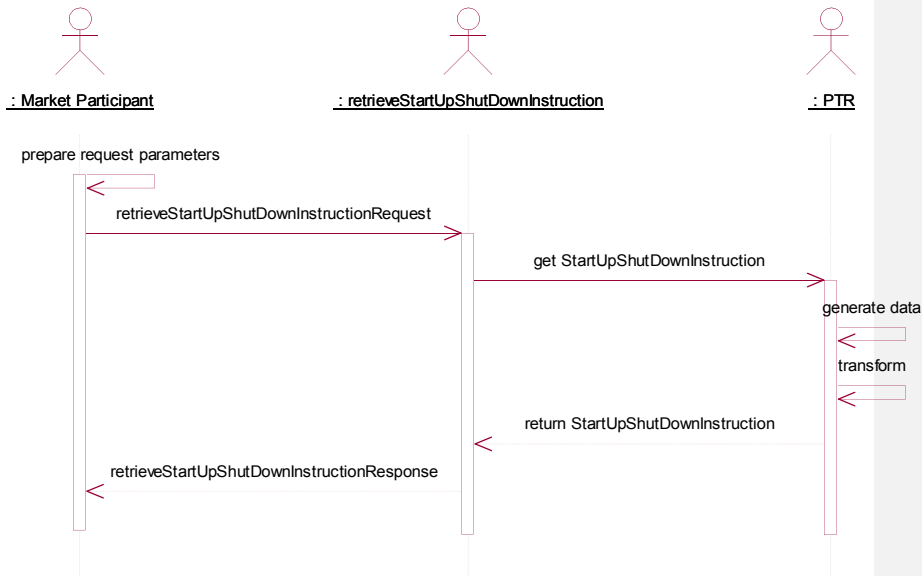
## 7.6 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 8 Retrieve Start Up Shut Down Instructions

### 8.1 Use Model

The diagram below shows the sequence for retrieving Start Up And Shut Down Instructions data.



### 8.2 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
RetrieveStartUp ShutDown Instruction	Input	RetrieveStartUpShut DownInstruction	RetrieveStartUpShut DownInstructions_v2 0091101.wsd	RequestStartUp ShutDownInstructions_v2 0091101.xsd
	Output	RetrieveStartUpShut DownInstruction		StartUpShutDown Instructions_v20091101.xsd
	Fault	faultReturntype		StandardOutput.xsd

### 8.3 WSDL (*retrieveStartUpShutDownInstructions\_v20091101.wsdl*)

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsa="http://www.w3.org/2003/05/soap-envelope"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-08-15/retrieveStartUpShutDownInstructions.wsdl"
xmlns:tns1="http://www.caiso.com/soa/2007-02-28/RequestStartUpShutDownInstructions.xsd"
xmlns:tns2="http://www.caiso.com/soa/2007-08-15/StartUpShutDownInstructions.xsd"
xmlns:tns3="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" targetNamespace="http://www.caiso.com/soa/2007-08-15/retrieveStartUpShutDownInstructions.wsdl">
  <wsdl:documentation>
    <!-- A web service to retrieve start up and shut down instructions -->
  </wsdl:documentation>
  <wsdl:types>
    <!-- schema -->
    <xs:import namespace="http://www.caiso.com/soa/2007-02-28/RequestStartUpShutDownInstructions.xsd"
schemaLocation="RequestStartUpShutDownInstructions.xsd"/>
    </xs:import>
    <xs:import namespace="http://www.caiso.com/soa/2007-08-15/StartUpShutDownInstructions.xsd"
schemaLocation="StartUpShutDownInstructions.xsd"/>
    </xs:import>
    <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
    </xs:import>
  </wsdl:types>
  <wsdl:message name="retrieveStartUpShutDownInstructionsRequest">
    <wsdl:part name="requestData" element="typeIn:RequestStartUpShutDownInstructions">
      <wsdl:documentation>send request data</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveStartUpShutDownInstructionsResponse">
    <wsdl:part name="StartUpShutDownInstructions"
element="typeOut:StartUpShutDownInstructions">
      <wsdl:documentation>return start up and shut down instructions</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturn" type="tns3:StandardOutputType">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">
      <wsdl:documentation>fault information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:portType name="retrieveStartUpShutDownInstructions">
    <wsdl:operation name="retrieveStartUpShutDownInstructions">
      <wsdl:documentation>retrieve start up and shut down instructions</wsdl:documentation>
      <wsdl:input name="requestData" message="tns:retrieveStartUpShutDownInstructionsRequest"/>

```

```

<wsdl:output name="StartUpShutDownInstructions"
message="tns:retrieveStartUpShutDownInstructionsResponse"/>
<wsdl:fault name="faultReturn" message="tns:faultReturn" type="tns:faultReturn" />
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="retrieveStartUpShutDownInstructions_Binding"
type="tns:retrieveStartUpShutDownInstructions">
<soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveStartUpShutDownInstructions">
<soap:operation soapAction="http://www.caiso.com/soa/2007-08-
15/retrieveStartUpShutDownInstructions" style="document"/>
<wsdl:input name="requestData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="StartUpShutDownInstructions">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveStartUpShutDownInstructionsService">
<wsdl:port name="retrieveStartUpShutDownInstructionsServicePort"
binding="tns:retrieveStartUpShutDownInstructions_Binding">
<soap:address location="http://www.caiso.com/soa/2007-08-
15/retrieveStartUpShutDownInstructions"/>
</wsdl:port>
</wsdl:service>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

targetNamespace="http://www.caiso.com/soa/2009-11-
01/retrieveStartUpShutDownInstructions_v20091101.wsdl"

```

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```
<xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveStartUpShutDownInstructions_v20091101.wsdl">  
<xmlns:typeIn="http://www.caiso.com/soa/2009-11-01/RequestStartUpShutDownInstructions_v20091101.xsd"  
<xmlns:typeOut="http://www.caiso.com/soa/2009-11-01/StartUpShutDownInstructions_v20091101.xsd"  
<xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">  
  
<wsdl:documentation>  
  A web service to retrieve start up and shut down instructions  
</wsdl:documentation>  
  
<!-- type elements define data types used in this wsdl document using xml schema -->  
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->  
<wsdl:types>  
<xs:schema>  
  <xs:import namespace="http://www.caiso.com/soa/2009-11-01/RequestStartUpShutDownInstructions_v20091101.xsd"  
  schemaLocation="RequestStartUpShutDownInstructions_v20091101.xsd" />  
</xs:schema>  
<xs:schema>  
  <xs:import namespace="http://www.caiso.com/soa/2009-11-01/StartUpShutDownInstructions_v20091101.xsd"  
  schemaLocation="StartUpShutDownInstructions_v20091101.xsd" />  
</xs:schema>  
<xs:schema>  
  <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"  
  schemaLocation="StandardOutput.xsd" />  
</xs:schema>  
</wsdl:types>  
  
<!-- message elements define input and output parameters -->  
<!-- a request and response case to use the data type defined in TYPE for payload -->  
<wsdl:message name="retrieveStartUpShutDownInstructionsRequest">  
<wsdl:part name="requestData" element="typeIn:RequestStartUpShutDownInstructions">  
<wsdl:documentation>send request date</wsdl:documentation>  
</wsdl:part>  
</wsdl:message>  
<wsdl:message name="retrieveStartUpShutDownInstructionsResponse">  
<wsdl:part name="StartUpShutDownInstructions" element="typeOut:StartUpShutDownInstructions">  
<wsdl:documentation>return start up and shut down instructions</wsdl:documentation>  
</wsdl:part>  
</wsdl:message>  
<wsdl:message name="faultReturn Type">  
<wsdl:part name="faultReturn" element="typeFault:outputDataType">  
<wsdl:documentation>fault information</wsdl:documentation>  
</wsdl:part>  
</wsdl:message>  
  
<!-- portType elements define the abstract interface of a web service -->  
<!-- to use the message type defined in message above -->  
<wsdl:portType name="retrieveStartUpShutDownInstructions_v20091101">  
<wsdl:operation name="retrieveStartUpShutDownInstructions_v20091101">
```



```

<wsdl:documentation>retrieve start up and shut down instructions</wsdl:documentation>
<wsdl:input name="requestData" message="tns:retrieveStartUpShutDownInstructionsRequest" />
<wsdl:output name="StartUpShutDownInstructions"
message="tns:retrieveStartUpShutDownInstructionsResponse" />
<wsdl:fault name="faultReturn" message="tns:faultReturn" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveStartUpShutDownInstructions_Binding"
type="tns:retrieveStartUpShutDownInstructions_v20091101">
<soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveStartUpShutDownInstructions_v20091101">
<soap:operation style="document"
soapAction="http://www.caiso.com/soa/2009-11-
01/retrieveStartUpShutDownInstructions_v20091101"/>
<wsdl:input name="requestData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="StartUpShutDownInstructions">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveStartUpShutDownInstructions_v20091101Service">
<wsdl:port name="retrieveStartUpShutDownInstructionsServicePort"
binding="tns:retrieveStartUpShutDownInstructions_Binding">
<soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveStartUpShutDownInstructions_v20091101"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 8.4 StartUp ShutDown Instructions Request

### 8.4.1 Element Table

Element	Data Description	Type	Req'd
---------	------------------	------	-------

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	No
instructionSource	This element represents the source where the instruction originated. The valid values are RUC (for Residual Unit Commitment process), and ELC (For Extremely Long Start Commitment process).	string	No
instructionType	<del>The type of instruction. Presently, the only valid value is STARTUP (for a start up instruction).</del> <del>The type of instruction. Valid values are: STARTUP (for a start up instruction), TRANSITION (for a multi-stage generator or MSG transition instruction)</del>	string	No
resource	The unique identifier for a resource.	string	No
operatingMode	This element represents whether the unit is operating in generating or pumping mode. Valid values are GEN (for generating mode), and PUMP (for pumping mode).	string	No
resourceSubType	A further classification of a resource. Valid values are PL (for participating load) , NPL (for non-participating load), , GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No



## 8.4.2 Schema (RequestStartUpShutDownInstructions\_v20091101.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 rel. 3 sp1 (http://www.altova.com) by Harry Garton (Xtensible Solutions) -->
<xs:schema xmlns="http://www.caiso.com/soa/2007-02-28/RequestStartUpShutDownInstructions.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-02-28/RequestStartUpShutDownInstructions.xsd" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="RequestStartUpShutDownInstructions"
    type="RequestStartUpShutDownInstructions"/>
  <xs:complexType name="RequestStartUpShutDownInstructions">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
        minOccurs="0"/>
      <xs:element name="resourceTypeList" type="resourceTypeList" minOccurs="0"/>
      <xs:element name="resourceSubTypeList" type="resourceSubTypeList" minOccurs="0"/>
      <xs:element name="instructionSourceList" type="instructionSourceList" minOccurs="0"/>
      <xs:element name="instructionTypeList" type="instructionTypeList" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
      <xs:element name="operatingModeList" type="operatingModeList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceTypeList">
    <xs:sequence>
      <xs:element name="resourceType" type="PTRResourceType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceSubTypeList">
    <xs:sequence>
      <xs:element name="resourceSubType" type="PTRUCResSubType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="instructionSourceList">
    <xs:sequence>
      <xs:element name="instructionSource" type="PTRInstructionSource" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="instructionTypeList">
    <xs:sequence>
      <xs:element name="instructionType" type="PTRInstructionType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:sequence>
</xs:complexType>
<xs:complexType name="operatingModeList">
  <xs:sequence>
    <xs:element name="operatingMode" type="PTROperatingMode" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionSource">
  <xs:restriction base="xs:string">
    <xs:enumeration value="RUC"/>
    <xs:enumeration value="ELC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="STARTUP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingMode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 rel. 3 sp1 (http://www.altova.com) by Harry Garton (Xtensible Solutions) -->

```

```

<xs:schema xmlns="http://www.caiso.co19/RequestStartUpShutDownInstructions.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-01-
19/RequestStartUpShutDownInstructions.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="RequestStartUpShutDownInstructions"
type="RequestStartUpShutDownInstructions"/>
  <xs:complexType name="RequestStartUpShutDownInstructions">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceTypeList" type="resourceTypeList" minOccurs="0"/>
      <xs:element name="resourceSubTypeList" type="resourceSubTypeList" minOccurs="0"/>
      <xs:element name="instructionSourceList" type="instructionSourceList" minOccurs="0"/>
      <xs:element name="instructionTypeList" type="instructionTypeList" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
      <xs:element name="operatingModeList" type="operatingModeList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceTypeList">
    <xs:sequence>
      <xs:element name="resourceType" type="PTRResourceType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceSubTypeList">
    <xs:sequence>
      <xs:element name="resourceSubType" type="PTRUCResSubType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="instructionSourceList">
    <xs:sequence>
      <xs:element name="instructionSource" type="PTRInstructionSource" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="instructionTypeList">
    <xs:sequence>
      <xs:element name="instructionType" type="PTRInstructionType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="operatingModeList">
    <xs:sequence>
      <xs:element name="operatingMode" type="PTROperatingMode" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="TIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionSource">
  <xs:restriction base="xs:string">
    <xs:enumeration value="RUC"/>
    <xs:enumeration value="ELC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="STARTUP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingMode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="TIE"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema> <?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Dagmar Haller (California ISO) -->
<xs:schema xmlns="http://www.caiso.com/soa/2009-11-01/RequestStartUpShutDownInstructions_v20091101.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2009-11-01/RequestStartUpShutDownInstructions_v20091101.xsd" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="RequestStartUpShutDownInstructions"
  type="RequestStartUpShutDownInstructions"/>
  <xs:complexType name="RequestStartUpShutDownInstructions">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
    </xs:sequence>
  </xs:complexType>

```

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```

<xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
  <xs:element name="resourceTypeList" type="resourceTypeList" minOccurs="0"/>
  <xs:element name="resourceSubTypeList" type="resourceSubTypeList" minOccurs="0"/>
  <xs:element name="instructionSourceList" type="instructionSourceList" minOccurs="0"/>
  <xs:element name="instructionTypeList" type="instructionTypeList" minOccurs="0"/>
  <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
  <xs:element name="operatingModeList" type="operatingModeList" minOccurs="0"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="schedulingCoordinatorList">
  <xs:sequence>
    <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceList">
  <xs:sequence>
    <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceTypeList">
  <xs:sequence>
    <xs:element name="resourceType" type="PTRResourceType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="resourceSubTypeList">
  <xs:sequence>
    <xs:element name="resourceSubType" type="PTRUCResSubType" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="instructionSourceList">
  <xs:sequence>
    <xs:element name="instructionSource" type="PTRInstructionSource" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="instructionTypeList">
  <xs:sequence>
    <xs:element name="instructionType" maxOccurs="unbounded">
      <xs:simpleType>
        <xs:restriction base="PTRInstructionType"/>
      </xs:simpleType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="operatingModeList">
  <xs:sequence>
    <xs:element name="operatingMode" type="PTROperatingMode" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
  </xs:restriction>
</xs:simpleType>

```

```

<xs:enumeration value="ITIE"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionSource">
  <xs:restriction base="xs:string">
    <xs:enumeration value="RUC"/>
    <xs:enumeration value="ELC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="STARTUP"/>
    <xs:enumeration value="TRANSITION"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingMode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

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### 8.4.3 Example XML File (RequestStartUpShutDownInstructions.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<RequestStartUpShutDownInstructions xmlns="http://www.caiso.com/soa/2007-02-28/RequestStartUpShutDownInstructions.xsd">
  <tradeDateStart>2007-02-27</tradeDateStart>
  <tradeDateEnd>2007-02-27</tradeDateEnd>
  <schedulingCoordinatorList>

```



```

<--< schedulingCoordinator>SC01</ schedulingCoordinator>
</ schedulingCoordinatorList>
</ RequestStartUpShutDownInstructions>
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
< RequestStartUpShutDownInstructions xsi:schemaLocation="http://www. caiso.com/soa/2009-11-
01/RequestStartUpShutDownInstructions_v20091101.xsd
RequestStartUpShutDownInstructions_v20091101.xsd" xmlns="http://www. caiso.com/soa/2009-11-
01/RequestStartUpShutDownInstructions_v20091101.xsd"
xmlns:xsi="http://www. w3.org/2001/XMLSchema-instance">
< tradeDateStart>2009-12-10</ tradeDateStart>
< tradeDateEnd>2009-12-10</ tradeDateEnd>
< schedulingCoordinatorList>
< schedulingCoordinator>SC01</ schedulingCoordinator>
</ schedulingCoordinatorList>
</ RequestStartUpShutDownInstructions>

```

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## 8.5 StartUp ShutDown Instructions Response

### 8.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	Yes
resourceSubType	A further classification of a resource. Valid values are PL (for participating load) , NPL (for non-participating load), , GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will only be populated when the record is a startup instruction of an MSG unit; otherwise this element will not be included in the output payload for transition instructions.</u>	<u>string</u>	<u>No</u>

Element	Data Description	Type	Req'd
<u>transitionFromConfiguration</u>	A transition connects two configurations. This element represents the starting configuration identifier of the transition for an MSG (multi-stage generator) resource.  This element will be populated when the InstructionType of the record is a "Transition"; otherwise this element will not be included in the output payload.	string	No
<u>transitionToConfiguration</u>	A transition connects two configurations. This element represents the ending configuration identifier of the transition for an MSG (multi-stage generator) resource.  This element will be populated when the InstructionType of the record is a "Transition"; otherwise this element will not be included in the output payload.	string	No
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
instructionSource	This element represents the source where the instruction originated. The valid values are RUC (for Residual Unit Commitment process), and ELC (For Extremely Long Start Commitment process).	string	Yes
instructionType	The type of instruction. Valid values are: STARTUP (for a start up instruction), TRANSITION (for a multi-stage generator or MSG transition instruction). The type of instruction. Valid value is STARTUP (for a start up instruction)	string	Yes
startTime	If the instructionType of the record is: <ul style="list-style-type: none"> <li>"Startup", then this element is the start date and time, in California Prevailing Time, when the unit should be online, i.e. expected to be at the Minimum Load Level;</li> <li>"Transition", then this element is the (start) date and time, in California Prevailing Time, when the multi-stage generator (MSG) unit should start its transitioning process. The start date and time, in California Prevailing Time, when the unit should be online, i.e. expected to be at the Minimum Load Level</li> </ul>	dateTime	Yes
endTime	If the instructionType of the record is: <ul style="list-style-type: none"> <li>"Startup", then this element's data value is NULL;</li> <li>"Transition", then this element is the (end) date and time, in California Prevailing Time, when the multi-stage generator (MSG) unit should complete its transitioning process.</li> </ul>	dateTime	No
bindingFlag	A flag to indicate if the instruction is binding <i>NOTE:</i> Startup instructions from RUC or the ELC process will always be binding.	string	Yes
instructionCost	The cost associated with the instruction.	float	Yes
operatingMode	This element represents whether the unit is operating in generating or pumping mode. Valid values are GEN (for generating mode), and PUMP (for pumping mode).	string	No

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## 8.5.2 Schema (StartUpShutDownInstructions\_v20091101.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2007-08-15/StartUpShutDownInstructions.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-08-15/StartUpShutDownInstructions.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="StartUpShutDownInstructions" type="m:StartUpShutDownInstructions"/>
  <xs:complexType name="StartUpShutDownInstructions">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="StartUpShutDownInstruction" type="m:MTStartUpShutDownInstruction"
minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MTStartUpShutDownInstruction">
    <xs:sequence>
      <xs:element name="resource" type="xs:string"/>
      <xs:element name="resourceType" type="m:PTRResourceType"/>
      <xs:element name="schedulingCoordinator" type="xs:string"/>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="instructionSource" type="m:PTRInstructionSource"/>
      <xs:element name="instructionType" type="m:PTRInstructionType"/>
      <xs:element name="startTime" type="xs:dateTime"/>
      <xs:element name="bindingFlag" type="m:PTRFlag"/>
      <xs:element name="instructionCost" type="xs:float"/>
      <xs:element name="operatingMode" type="m:PTROperatingModeType" minOccurs="0"/>
      <xs:element name="resourceSubType" type="m:PTRUCResSubType" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="PTRResourceType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="GEN"/>
      <xs:enumeration value="LOAD"/>
      <xs:enumeration value="TIE"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="PTRInstructionSource">
    <xs:restriction base="xs:string">

```

```

</xs:enumeration value="RUC"/>
</xs:enumeration value="ELC"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="STARTUP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingModeType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2009-11-01/StartUpShutDownInstructions_v20091101.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2009-11-01/StartUpShutDownInstructions_v20091101.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="StartUpShutDownInstructions" type="m:StartUpShutDownInstructions"/>
  <xs:complexType name="StartUpShutDownInstructions">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
  </xs:complexType>
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime">
      <xs:annotation>

```

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<xs:documentation>Application level relevant time and date for when this instance of the
message was produced.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="Source" type="xs:string">
<xs:annotation>
<xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
<xs:sequence>
<xs:element name="StartUpShutDownInstruction" type="m:MTStartUpShutDownInstruction"
minOccurs="0" maxOccurs="unbounded">
<xs:annotation>
<xs:documentation>Shows resources with start-up or shutdown instructions from the Day-
Ahead Market and/or RUC process</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MTStartUpShutDownInstruction">
<xs:sequence>
<xs:element name="resource" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of a resource</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="resourceType" type="m:PTRResourceType">
<xs:annotation>
<xs:documentation>Type of product or service applied in the
transaction</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="configuration" type="xs:string" minOccurs="0">
<xs:annotation>
<xs:documentation>Configuration ID of a Multi-Stage Generator
resource</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="schedulingCoordinator" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
<xs:annotation>
<xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
</xs:annotation>

```

```

</xs:element>
<xs:element name="instructionSource" type="m:PTRInstructionSource">
  <xs:annotation>
    <xs:documentation>Indicates the source of the instruction: Self-committed, Day-Ahead
    Market, or from the RUC process</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="instructionType" type="m:PTRInstructionType">
  <xs:annotation>
    <xs:documentation>Indicates whether the instruction is a Start-up or a Transition between
    configurations</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="startTime" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>start time</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="endTime" type="xs:dateTime" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Applies only to Transition instruction</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="transitionFromConfiguration" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Applies only to Transition instruction</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="transitionToConfiguration" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Applies only to Transition instruction</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="bindingFlag" type="m:PTRFlag">
  <xs:annotation>
    <xs:documentation>binding flag</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="instructionCost" type="xs:float"/>
<xs:element name="operatingMode" type="m:PTROperatingModeType" minOccurs="0"/>
<xs:element name="resourceSubType" type="m:PTRUCResSubType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Resource sub type</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>

```

```

</xs:simpleType>
<xs:simpleType name="PTRInstructionSource">
  <xs:restriction base="xs:string">
    <xs:enumeration value="RUC"/>
    <xs:enumeration value="ELC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRInstructionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="STARTUP"/>
    <xs:enumeration value="TRANSITION"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingModeType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 8.5.3 Example XML File

([DAMStartUpShutDownInstructionssampleStartUpShutDownInstructions.xml](#))

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:StartUpShutDownInstructions xsi:schemaLocation="http://www.caiso.com/soa/2009-11-01/StartUpShutDownInstructions_v20091101.xsd StartUpShutDownInstructions_v20091101.xsd"
xmlns:m="http://www.caiso.com/soa/2009-11-01/StartUpShutDownInstructions_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

```

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```

<m:MessageHeader>
  <m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
  <m:Source>CAISO</m:Source>
</m:MessageHeader>
<m:MessagePayload>
  <m:StartUpShutDownInstruction>
    <m:resource>Resource1</m:resource>
    <m:resourceType>GEN</m:resourceType>
    <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
    <m:tradeDate>2009-12-10</m:tradeDate>
    <m:instructionSource>RUC</m:instructionSource>
    <m:instructionType>TRANSITION</m:instructionType>
    <m:startTime>2009-12-11T10:00:00</m:startTime>
    <m:endTime>2009-12-11T10:30:00</m:endTime>
    <m:transitionFromConfiguration>Resource1_1x1</m:transitionFromConfiguration>
    <m:transitionToConfiguration>Resource1_2x1</m:transitionToConfiguration>
    <m:bindingFlag>Y</m:bindingFlag>
    <m:instructionCost>15</m:instructionCost>
  </m:StartUpShutDownInstruction>
</m:MessagePayload>
</m:StartUpShutDownInstructions>

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<StartUpShutDownInstructions xmlns="http://www.aiso.com/soa/2007-02-28/StartUpShutDownInstructions.xsd">
  <MessageHeader>
    <TimeDate>2007-02-27T18:00:00</TimeDate>
    <Source>Source</Source>
  </MessageHeader>
  <MessagePayload>
    <StartUpShutDownInstruction>
      <resource>RES-01</resource>
      <resourceType>GEN</resourceType>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <tradeDate>2007-02-27</tradeDate>
      <instructionSource>RUC</instructionSource>
      <instructionType>STARTUP</instructionType>
      <startTime>2007-02-27T07:00:00.000-00:00</startTime>
      <bindingFlag>Y</bindingFlag>
      <instructionCost>120</instructionCost>
      <operatingMode>GEN</operatingMode>
      <resourceSubType>GEN</resourceSubType>
    </StartUpShutDownInstruction>
  </MessagePayload>
</StartUpShutDownInstructions>

```

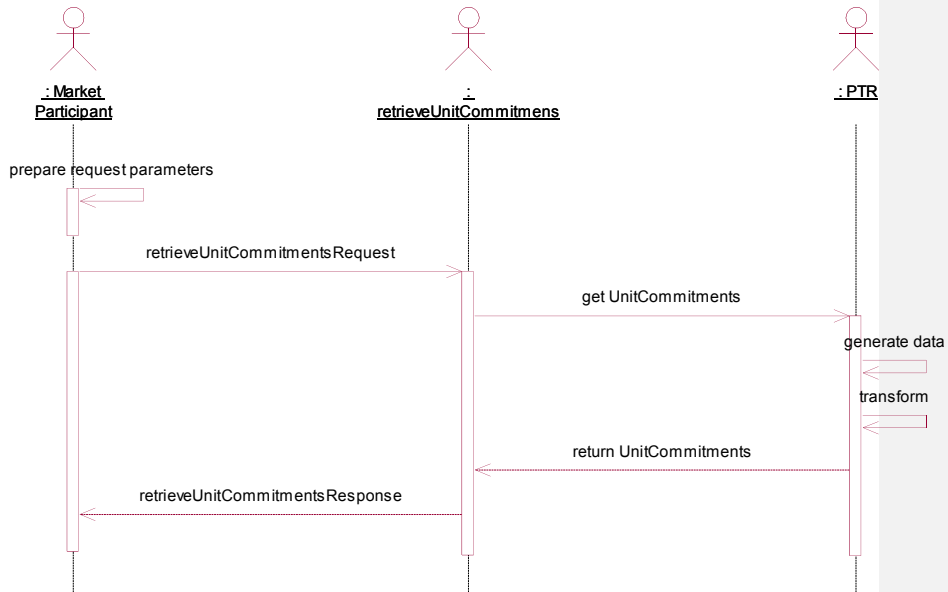
## 8.6 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 9 Retrieve Unit Commitments

### 9.1 Use Model

The diagram below shows the sequence for retrieving Unit Commitments data.



### 9.2 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
RetrieveUnitCommitments	Input	RequestUnitCommitments	<a href="#">retrieveUnitCommitments_v20091101.wsdl</a>	RequestUnitCommitments.xsd
	Output	RetrieveUnitCommitments	<a href="#">RetrieveUnitCommitments.wsdl</a>	<a href="#">UnitCommitments_v20091101.xsd</a> UnitCommitments.xsd
	Fault	FaultReturntype		StandardOutput.xsd

### 9.3 WSDL

**(retrieveUnitCommitments\_v20091101.wsdl retrieveUnitCommitments.wsdl)**

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```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsd="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-08-15/retrieveUnitCommitments.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-02-28/RequestUnitCommitments.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-08-15/UnitCommitments.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-08-15/retrieveUnitCommitments.wsdl">
  <wsdl:documentation>
    <!-- A web service to retrieve Unit Commitments -->
  </wsdl:documentation>
  <wsdl:types>
    <xs:schema>
      <!-- <xs:import namespace="http://www.caiso.com/soa/2007-02-28/RequestUnitCommitments.xsd"
      schemaLocation="RequestUnitCommitments.xsd"/> -->
    </xs:schema>
    <xs:schema>
      <!-- <xs:import namespace="http://www.caiso.com/soa/2007-08-15/UnitCommitments.xsd"
      schemaLocation="UnitCommitments.xsd"/> -->
    </xs:schema>
    <xs:schema>
      <!-- <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
      schemaLocation="StandardOutput.xsd"/> -->
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="retrieveUnitCommitmentsRequest">
    <wsdl:part name="requestData" element="typeIn:RequestUnitCommitments">
      <wsdl:documentation>send request data</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveUnitCommitmentsResponse">
    <wsdl:part name="UnitCommitments" element="typeOut:UnitCommitments">
      <wsdl:documentation>return Unit Commitments</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturn type">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">
      <wsdl:documentation>fault information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:portType name="retrieveUnitCommitments">
    <wsdl:operation name="retrieveUnitCommitments">
      <wsdl:documentation>retrieve Unit Commitments</wsdl:documentation>
      <wsdl:input name="requestData" message="tns:retrieveUnitCommitmentsRequest"/>
    </wsdl:operation>
  </wsdl:portType>
</wsdl:definitions>
```



```

<wsdl:output name="UnitCommitments" message="tns:retrieveUnitCommitmentsResponse"/>
<wsdl:fault name="faultReturn" message="tns:faultReturn"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="retrieveUnitCommitments_Binding" type="tns:retrieveUnitCommitments">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveUnitCommitments">
    <soap:operation soapAction="http://www.caiso.com/soa/2007-08-15/retrieveUnitCommitments"
style="document"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="UnitCommitments">
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveUnitCommitmentsService">
  <wsdl:port name="retrieveUnitCommitmentsServicePort"
binding="tns:retrieveUnitCommitments_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-08-15/retrieveUnitCommitments"/>
  </wsdl:port>
</wsdl:service>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-01/retrieveUnitCommitments_v20091101.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveUnitCommitments_v20091101.wsdl"

  xmlns:typeIn="http://www.caiso.com/soa/2007-02-28/RequestUnitCommitments.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2009-11-01/UnitCommitments_v20091101.xsd"

```

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```
<xmlns:typeFault="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd">
<wsdl:documentation>
  A web service to retrieve Unit Commitments
</wsdl:documentation>

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<wsdl:types>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2007-02-28/RequestUnitCommitments.xsd"
    schemaLocation="RequestUnitCommitments.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2009-11-01/UnitCommitments_v20091101.xsd"
    schemaLocation="UnitCommitments_v20091101.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
    schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveUnitCommitmentsRequest">
  <wsdl:part name="requestData" element="typeIn:RequestUnitCommitments">
    <wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveUnitCommitmentsResponse">
  <wsdl:part name="UnitCommitments" element="typeOut:UnitCommitments">
    <wsdl:documentation>return Unit Commitments</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveUnitCommitments_v20091101">
  <wsdl:operation name="retrieveUnitCommitments_v20091101">
    <wsdl:documentation>retrieve Unit Commitments</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveUnitCommitmentsRequest" />
    <wsdl:output name="UnitCommitments" message="tns:retrieveUnitCommitmentsResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn Type" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
```

```

<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveUnitCommitments_Binding"
type="tns:retrieveUnitCommitments_v20091101">
  <soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveUnitCommitments_v20091101">
    <soap:operation style="document"
soapAction="http://www.caiso.com/soa/2009-11-01/retrieveUnitCommitments_v20091101"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="UnitCommitments">
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveUnitCommitments_v20091101Service">
  <wsdl:port name="retrieveUnitCommitmentsServicePort"
binding="tns:retrieveUnitCommitments_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveUnitCommitments_v20091101"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

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## 9.4 Unit Commitments Request

### 9.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	No

Element	Data Description	Type	Req'd
resourceSubType	A further classification of a resource. Valid values are PL (for participating load) , NPL (for non-participating load) , GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
operatingMode	This element represents whether the unit is operating in generating or pumping mode. Valid values are GEN (for generating mode), and PUMP (for pumping mode).	string	No
commitmentType	This element represents the source where the commitment originated. For the purpose of this report, a commitment can be self commitment or can originate from the market. When the commitment is originated from the market, it can be originated by either the IFM process or the RUC process of the market. Valid values are SELF (for self commitment), IFM (for IFM process of market), and RUC (for RUC process of market).	string	No
resource	The unique identifier for a resource.	string	No

## 9.4.2 Schema (RequestUnitCommitments.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 U (http://www.altova.com) by Xiaofeng Wang (Xtensible Solutions) -->
<xs:schema xmlns="http://www.caiso.com/soa/2007-02-28/RequestUnitCommitments.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-02-28/RequestUnitCommitments.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestUnitCommitments" type="RequestUnitCommitments"/>
  <xs:complexType name="RequestUnitCommitments">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceTypeList" type="resourceTypeList" minOccurs="0"/>
      <xs:element name="resourceSubTypeList" type="resourceSubTypeList" minOccurs="0"/>
      <xs:element name="operatingModeList" type="operatingModeList" minOccurs="0"/>
      <xs:element name="commitmentTypeList" type="commitmentTypeList" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="operatingModeList">
    <xs:sequence>
      <xs:element name="operatingMode" type="PTROperatingMode" nillable="true"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="commitmentTypeList">
    <xs:sequence>
      <xs:element name="commitmentType" type="PTRCommitmentType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceTypeList">
    <xs:sequence>
      <xs:element name="resourceType" type="PTRResourceType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceSubTypeList">
    <xs:sequence>
      <xs:element name="resourceSubType" type="PTRUCResSubType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingMode">
  <xs:annotation>
    <xs:documentation>Indicates whether the resource is in Generating or Pumping
mode</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRCommitmentType">
  <xs:annotation>
    <xs:documentation>Indicates whether the commitment originated from the market or was self-
committed</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="SELF"/>
    <xs:enumeration value="IFM"/>
    <xs:enumeration value="RUC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 9.4.3 Example XML File (RequestUnitCommitments.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<RequestUnitCommitments xmlns="http://www.caiso.com/soa/2007-02-
28/RequestUnitCommitments.xsd">
  <tradeDateStart>2007-02-27</tradeDateStart>
  <tradeDateEnd>2007-02-27</tradeDateEnd>

```



```

<schedulingCoordinatorList>
  <schedulingCoordinator>SC01</schedulingCoordinator>
</schedulingCoordinatorList>
</RequestUnitCommitments>

```

## 9.5 Unit Commitments Response

### 9.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
resourceType	The type of resource. Valid values are GEN (for a generating resource), LOAD (for a load resource) and ITIE (for an intertie resource).	string	Yes
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	string	No
schedulingCoordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketType	The identifier for the market type. Valid values are DAM (for day ahead market), and RTM (for the HASP reports).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
resourceSubType	A further classification of a resource. Valid values are PL (for participating load), NPL (for non-participating load), GEN (for generator), PUMP (for pump-storage generators), ITIE_I (for Import Intertie), ITIE_E (for Export Intertie), SYNC (for sync condenser).	string	No
operatingMode	This element represents whether the unit is operating in generating or pumping mode. Valid values are GEN (for generating mode), and PUMP (for pumping mode).	string	No

Element	Data Description	Type	Req'd
commitmentType	This element represents the source where the commitment originated. For the purpose of this report, a commitment can be self commitment or can originate from the market. When the commitment is originated from the market, it can be originated by either the IFM process or the RUC process of the market. Valid values are SELF (for self commitment), IFM (for IFM process of market), and RUC (for RUC process of market).	string	Yes
startTime	The start date and time, in California Prevailing Time, of the commitment.	dateTime	Yes
endTime	The end date and time, in California Prevailing Time, of the commitment.	dateTime	Yes

### 9.5.2 Schema ([UnitCommitments\\_v20091101.xsd](#)[UnitCommitments.xsd](#))

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2007-08-15/UnitCommitments.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-08-15/UnitCommitments.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="UnitCommitments" type="m:UnitCommitments"/>
  <xs:complexType name="UnitCommitments">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="UnitCommitment" type="m:UnitCommitmentMsg"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="UnitCommitmentMsg">
    <xs:sequence>
      <xs:element name="resource" type="xs:string"/>
      <xs:element name="resourceType" type="m:PTRResourceType"/>
      <xs:element name="schedulingCoordinator" type="xs:string"/>
      <xs:element name="marketType" type="m:MarketType"/>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="resourceSubType" type="m:PTRUCResSubType" minOccurs="0"/>
      <xs:element name="operatingMode" type="m:PTROperatingMode" nillable="true"
minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>

```



```

</xs:element name="commitmentType" type="m:PTRCommitmentType"/>
</xs:element name="startTime" type="xs:dateTime"/>
</xs:element name="endTime" type="xs:dateTime"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingMode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRCommitmentType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="SELF"/>
    <xs:enumeration value="IFM"/>
    <xs:enumeration value="RUC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2009-11-01/UnitCommitments_v20091101.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2009-11-01/UnitCommitments_v20091101.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="UnitCommitments" type="m:UnitCommitments"/>
</xs:complexType name="UnitCommitments">
  <xs:sequence>
    <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
    <xs:element name="MessagePayload" type="m:MessagePayload"/>
  </xs:sequence>

```

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```

</xs:complexType>
<xs:complexType name="MessageHeader">
  <xs:annotation>
    <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime">
      <xs:annotation>
        <xs:documentation>Application level relevant time and date for when this
message was produced.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Source" type="xs:string">
      <xs:annotation>
        <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="UnitCommitment" type="m:UnitCommitmentMsg"
maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Displays resources that are self-committed or committed by the CAISO
market</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="UnitCommitmentMsg">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="resourceType" type="m:PTRResourceType">
      <xs:annotation>
        <xs:documentation>Type of product or service applied in the
transaction</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="configuration" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Configuration ID for MSG resources</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>

```

```

<xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="marketType" type="m:MarketType">
  <xs:annotation>
    <xs:documentation>Type of market or process in which the curve applies to: Day-Ahead or
    Real-Time Market</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
  <xs:annotation>
    <xs:documentation>Date on when the trade transaction occurs within the
    market</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="resourceSubType" type="m:PTRUCResSubType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Resource sub type</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="operatingMode" type="m:PTROperatingMode" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Indicates whether the resource is in Generating or Pumping
    mode</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="commitmentType" type="m:PTRCommitmentType">
  <xs:annotation>
    <xs:documentation>Indicates whether the commitment originated from the market or was
    self-committed</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="startTime" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>Effective start date and time of the Unit
    Commitment</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="endTime" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>Effective end date and time of the Unit
    Commitment</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="LOAD"/>
    <xs:enumeration value="ITIE"/>
  </xs:restriction>
</xs:simpleType>

```

```

<xs:simpleType name="MarketType">
  <xs:annotation>
    <xs:documentation>maket type</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRUCResSubType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PUMP"/>
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PL"/>
    <xs:enumeration value="NPL"/>
    <xs:enumeration value="ITIE_I"/>
    <xs:enumeration value="ITIE_E"/>
    <xs:enumeration value="SYNC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTROperatingMode">
  <xs:annotation>
    <xs:documentation>Indicates whether the resource is in Generating or Pumping
mode</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN"/>
    <xs:enumeration value="PUMP"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PTRCommitmentType">
  <xs:annotation>
    <xs:documentation>Indicates whether the commitment originated from the market or was self-
committed</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="SELF"/>
    <xs:enumeration value="IFM"/>
    <xs:enumeration value="RUC"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 9.5.3 Example XML File (DAMStartsampleUnitCommitments.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<UnitCommitments xmlns="http://www.caiso.com/soa/2007-02-28/UnitCommitments.xsd">
  <MessageHeader>
    <TimeDate>2007-02-27T18:00:00</TimeDate>

```

```

<Source>Source</Source>
</MessageHeader>
<MessagePayload>
  <UnitCommitment>
    <resource>Resource1</resource>
    <resourceType>GEN</resourceType>
    <schedulingCoordinator>SC01</schedulingCoordinator>
    <marketType>DAM</marketType>
    <tradeDate>2007-02-27</tradeDate>
    <resourceSubType>GEN</resourceSubType>
    <commitmentType>IFM</commitmentType>
    <startTime>2007-02-27T07:32:18.000-00:00</startTime>
    <endTime>2007-02-27T08:32:18.000-00:00</endTime>
  </UnitCommitment>
</MessagePayload>
</UnitCommitments>
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com) -->
<m:UnitCommitments xsi:schemaLocation="http://www.aiso.com/soa/2009-11-01/UnitCommitments_v20091101.xsd UnitCommitments_v20091101.xsd"
xmlns:m="http://www.aiso.com/soa/2009-11-01/UnitCommitments_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:UnitCommitment>
      <m:resource>Resource1</m:resource>
      <m:resourceType>GEN</m:resourceType>
      <m:configuration>Resource1_1x1</m:configuration>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:marketType>DAM</m:marketType>
      <m:tradeDate>2009-12-10</m:tradeDate>
      <m:resourceSubType>GEN</m:resourceSubType>
      <m:commitmentType>SELF</m:commitmentType>
      <m:startTime>2009-12-12T07:00:00</m:startTime>
      <m:endTime>2009-12-13T07:00:00</m:endTime>
    </m:UnitCommitment>
    <m:UnitCommitment>
      <m:resource>Resource2</m:resource>
      <m:resourceType>GEN</m:resourceType>
      <m:configuration>Resource2_1x1</m:configuration>
      <m:schedulingCoordinator>SC02</m:schedulingCoordinator>
      <m:marketType>DAM</m:marketType>
      <m:tradeDate>2009-12-10</m:tradeDate>
      <m:resourceSubType>GEN</m:resourceSubType>
      <m:commitmentType>IFM</m:commitmentType>
      <m:startTime>2009-12-12T07:00:00</m:startTime>
      <m:endTime>2009-12-13T07:00:00</m:endTime>
    </m:UnitCommitment>
  </m:MessagePayload>
</m:UnitCommitments>

```

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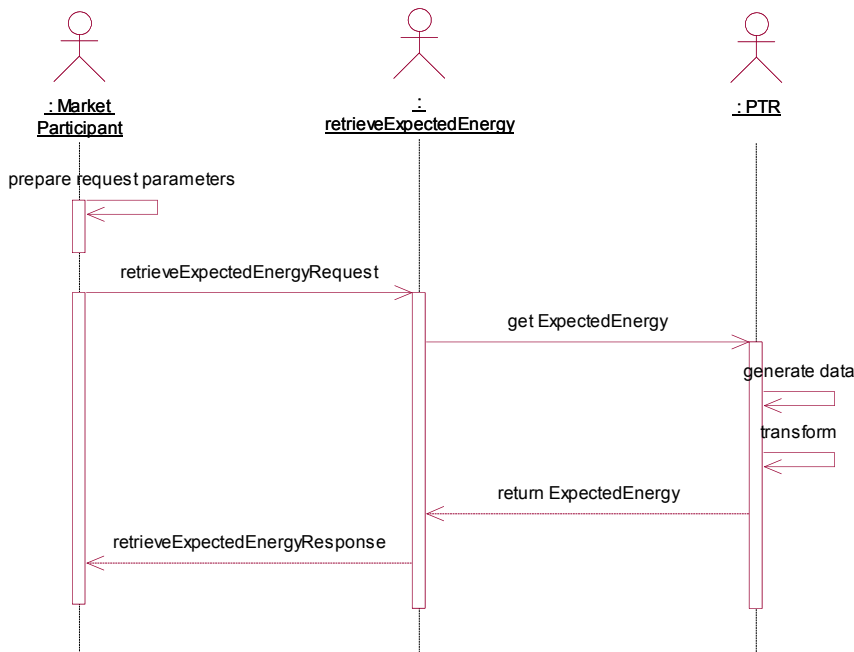
## 9.6 *Fault Return*

The fault return message is the same for all PTR services—see Section 4.6.

## 10 Retrieve Expected Energy

### 10.1 Use Model

The diagram below shows the sequence for retrieving Expected Energy data.



### 10.2 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
RetrieveExpectedEnergy	Input	RequestExpectedEnergy	RetrieveExpectedEnergy_v20091101.wsdl	RequestExpectedEnergy.xsd
	Output	RetrieveExpectedEnergy	retrieveExpectedEnergy_v20091101_DocAttach.wsdl	ExpectedEnergy_v20091101.xsd
	Fault	faultReturnTypes		StandardOutput.xsd

### 10.3 WSDL (retrieveExpectedEnergy\_v20091101.wsdl) RPC Style

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```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2009-11-01/ExpectedEnergy_v20091101.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve Expected Energy data
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
        schemaLocation="RequestExpectedEnergy.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
        schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
  <!-- a request and response case to use the data type defined in TYPE for payload -->
  <wsdl:message name="retrieveExpectedEnergyRequest">
    <wsdl:part name="requestData" type="typeIn:RequestExpectedEnergy">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveExpectedEnergyHeader">

```



```

<!-- attachment wrapper -->
<wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
  <wsdl:documentation>attachment information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyResponse">
  <wsdl:part name="ExpectedEnergy_attachment" type="xs:base64Binary">
    <wsdl:documentation>return Expected Energy</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn" type="typeFault:outputDataType">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergy_v20091101">
  <wsdl:operation name="retrieveExpectedEnergy_v20091101">
    <wsdl:documentation>retrieve Expected Energy data</wsdl:documentation>
    <wsdl:input message="tns:retrieveExpectedEnergyRequest" />
    <wsdl:output message="tns:retrieveExpectedEnergyResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergy_Binding"
type="tns:retrieveExpectedEnergy_v20091101">
  <soap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveExpectedEnergy_v20091101">
    <soap:operation style="rpc"
soapAction="http://www.aiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101"/>
  <wsdl:input>
    <soap:body use="literal" namespace="http://www.aiso.com/soa/2009-11-
01/retrieveExpectedEnergy_v20091101"/>
  </wsdl:input>
  <wsdl:output>
    <mime:multipartRelated>
      <mime:part>
        <soap:body use="literal" namespace="http://www.aiso.com/soa/2009-11-
01/retrieveExpectedEnergy_v20091101"/>
      </mime:part>
      <mime:part>
        <mime:content part="ExpectedEnergy_attachment"
type="application/octetstream"/>
      </mime:part>
    </mime:multipartRelated>
  <wsdl:header message="tns:retrieveExpectedEnergyHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>

```

```

</wsdl:output>
<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveExpectedEnergy_v20091101Service">
  <wsdl:port name="retrieveExpectedEnergyServicePort"
binding="tns:retrieveExpectedEnergy_Binding">
  <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergy_v20091101"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergy.wsdl"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsi="http://ws-i.org/schemas/conformanceClaim"

xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

targetNamespace="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergy.wsdl"
xmlns:tns="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergy.wsdl"

xmlns:schemaInfor="http://www.caiso.com/soa/2008-05-21/ExpectedEnergy.xsd"

xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
xmlns:typeHeader="http://www.caiso.com/soa/2006-06-
13/StandardAttachmentInfor.xsd"
xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

<wsdl:documentation>
  A web service to retrieve Expected Energy data
</wsdl:documentation>

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined
above -->

```

```

</wsdl:types>
</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd" schemaLocation="RequestExpectedEnergy.xsd" />
</xs:schema>
</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd" schemaLocation="StandardAttachmentInfor.xsd" />
</xs:schema>
</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd" schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveExpectedEnergyRequest">
  <wsdl:part name="requestData" type="typeIn:RequestExpectedEnergy">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor"
element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyResponse">
  <wsdl:part name="ExpectedEnergy_attachment" type="xs:base64Binary">
    <wsdl:documentation>return Expected Energy</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergy">
  <wsdl:operation name="retrieveExpectedEnergy">

```

```

<wSDL:documentation>retrieve Expected Energy data</wSDL:documentation>
<wSDL:input message="tns:retrieveExpectedEnergyRequest" />
<wSDL:output message="tns:retrieveExpectedEnergyResponse" />
<wSDL:fault name="faultReturn" message="tns:faultReturn" />
</wSDL:operation>
</wSDL:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wSDL:binding name="retrieveExpectedEnergy_Binding"
type="tns:retrieveExpectedEnergy">
  <soap:binding style="rpc"
  transport="http://schemas.xmlsoap.org/soap/http"/>
  <wSDL:operation name="retrieveExpectedEnergy">
    <soap:operation style="rpc"
    soapAction="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergy"/>
    <wSDL:input>
      <soap:body use="literal" namespace="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergy"/>
    </wSDL:input>
    <wSDL:output>
      <mime:multipartRelated>
        <mime:part>
          <soap:body use="literal" namespace="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergy"/>
        </mime:part>
        <mime:part>
          <mime:content part="ExpectedEnergy_attachment"
          type="application/octetstream"/>
        </mime:part>
      </mime:multipartRelated>
      <soap:header message="tns:retrieveExpectedEnergyHeader"
      part="standardAttachmentInfor" use="literal" wSDL:required="true"/>
    </wSDL:output>
    <wSDL:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wSDL:fault>
  </wSDL:operation>
</wSDL:binding>

<wSDL:service name="retrieveExpectedEnergyService">
  <wSDL:port name="retrieveExpectedEnergyServicePort"
binding="tns:retrieveExpectedEnergy_Binding">

```

```

<soap:address location="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergy"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

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#### 10.4 WSDL (retrieveExpectedEnergy\_v20091101\_DocAttach.wsdl) .NET Style

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101_DocAttach.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101_DocAttach.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2009-11-01/ExpectedEnergy_v20091101.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">
  <wsdl:documentation>
    A web service to retrieve Expected Energy data
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
        schemaLocation="RequestExpectedEnergy.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
        schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
  </wsdl:types>

```

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```
<xs:import namespace="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
schemaLocation="ISOAttachment.xsd" />
</xs:schema>
<xs:schema>
<xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveExpectedEnergy_DocAttachRequest">
<wsdl:part name="requestData" element="typeIn:RequestExpectedEnergy">
<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergy_DocAttachHeader">
<!-- attachment wrapper -->
<wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
<wsdl:documentation>attachment information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergy_DocAttachResponse">
<wsdl:part name="ExpectedEnergy_attachment" element="typeOut:ISOAttachment">
<wsdl:documentation>return Expected Energy data</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergy_v20091101_DocAttach">
<wsdl:operation name="retrieveExpectedEnergy_v20091101_DocAttach">
<wsdl:documentation>retrieve Expected Energy data</wsdl:documentation>
<wsdl:input message="tns:retrieveExpectedEnergy_DocAttachRequest" />
<wsdl:output message="tns:retrieveExpectedEnergy_DocAttachResponse" />
<wsdl:fault name="faultReturn" message="tns:faultReturn Type" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergy_DocAttach_Binding"
type="tns:retrieveExpectedEnergy_v20091101_DocAttach">
<soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveExpectedEnergy_v20091101_DocAttach">
<soap:operation style="document" />
</wsdl:operation>
</wsdl:binding>
</wsdl:binding>
```



```
soapAction="http://www.caiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101_DocAttach"/>
<wsdl:input>
  <soap:body use="literal"/>
</wsdl:input>
<wsdl:output>
  <soap:header message="tns:retrieveExpectedEnergy_DocAttachHeader"
    part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
  <soap:body use="literal" parts="ExpectedEnergy_attachment"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveExpectedEnergy_v20091101_DocAttachService">
  <wsdl:port name="retrieveExpectedEnergy_DocAttachServicePort"
    binding="tns:retrieveExpectedEnergy_DocAttach_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-01/retrieveExpectedEnergy_v20091101_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergy_DocAttach.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergy_DocAttach.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2008-05-21/ExpectedEnergy.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
```

```

xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">
<wsdl:documentation>
  A web service to retrieve Expected Energy data
</wsdl:documentation>

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined
above -->
<wsdl:types>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2008-05-
21/RequestExpectedEnergy.xsd" schemaLocation="RequestExpectedEnergy.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2006-06-
13/StandardAttachmentInfor.xsd" schemaLocation="StandardAttachmentInfor.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
schemaLocation="ISOAttachment.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response ease to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveExpectedEnergy_DocAttachRequest">
  <wsdl:part name="requestData" element="typeIn:RequestExpectedEnergy">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergy_DocAttachHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor"
element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergy_DocAttachResponse">
  <wsdl:part name="ExpectedEnergy_attachment" element="typeOut:ISOAttachment">

```



```

<wsdl:documentation>return Expected Energy data</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn">
  <wsdl:part name="faultReturn" element="typeFault.outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergy_DocAttach">
  <wsdl:operation name="retrieveExpectedEnergy_DocAttach">
    <wsdl:documentation>retrieve Expected Energy data</wsdl:documentation>
    <wsdl:input message="tns:retrieveExpectedEnergy_DocAttachRequest" />
    <wsdl:output message="tns:retrieveExpectedEnergy_DocAttachResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergy_DocAttach_Binding"
  type="tns:retrieveExpectedEnergy_DocAttach">
  <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveExpectedEnergy_DocAttach">
    <soap:operation style="document"
      soapAction="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergy_DocAttach"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:header message="tns:retrieveExpectedEnergy_DocAttachHeader"
        part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
      <soap:body use="literal" parts="ExpectedEnergy_attachment"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

```

```

<wsdl:service name="retrieveExpectedEnergy_DocAttachService">
<wsdl:port name="retrieveExpectedEnergy_DocAttachServicePort"
binding="tns:retrieveExpectedEnergy_DocAttach_Binding">
<soap:address location="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergy_DocAttach"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 10.5 Expected Energy Request

### 10.5.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
IntervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains.	integer	No
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resource	The unique identifier for a resource.	string	No

## 10.5.2 Schema (RequestExpectedEnergy.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Dagmar Haller
(California ISO) -->
<xs:schema xmlns="http://www.aiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.aiso.com/soa/2008-05-21/RequestExpectedEnergy.xsd"
elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestExpectedEnergy" type="RequestExpectedEnergy"/>
  <xs:complexType name="RequestExpectedEnergy">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRList" type="HRList" minOccurs="0"/>
      <xs:element name="intervalNumList" type="intervalNumList" minOccurs="0"/>
      <xs:element name="schedulingCoordinator" type="xs:string" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="intervalNumList">
    <xs:sequence>
      <xs:element name="intervalNum" type="IntervalNumType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="IntervalNumType">
    <xs:restriction base="xs:integer">
      <xs:enumeration value="1"/>
      <xs:enumeration value="2"/>
      <xs:enumeration value="3"/>
      <xs:enumeration value="4"/>
      <xs:enumeration value="5"/>
      <xs:enumeration value="6"/>
    </xs:restriction>
  </xs:simpleType>

```



```

<xs:enumeration value="7"/>
<xs:enumeration value="8"/>
<xs:enumeration value="9"/>
<xs:enumeration value="10"/>
<xs:enumeration value="11"/>
<xs:enumeration value="12"/>
</xs:restriction>
</xs:simpleType>
</xs:schema>

```

## 10.6 Expected Energy Response

### 10.6.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	string	No
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
intervalDuration	The duration of an interval in minutes (in California Prevailing Time).	integer	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes

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Element	Data Description	Type	Req'd
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 60 minutes, the trade hour will comprise of only one interval of 60 minutes. If, on the other hand, the interval duration is 15 minutes, the trade hour will comprise of four intervals of 15 minutes each. The intervals are numbered sequentially starting with the earliest one numbered 1.	integer	Yes
Energy Type	Energy component for which the settlement allocation is based on.  Examples are: Optimal Energy, Standard Ramping Energy, Ramping Energy Deviation, Residual Energy, Minimum Load Energy, SLIC Energy, Exceptional Dispatch Energy, RMR Energy, MSSLF Energy, Real-Time Self-Scheduled Energy, Pumping Energy, etc.  <i>Note:</i> For a listing of all of the valid EE types, reference The BPM for Market Operations, Appendix C, Section C.4	string	Yes
expectedEnergy	The expected energy value in MWH unit.	float	Yes
MSS-OE overlapping	Indicates that the MSS load following energy overlaps with the optimal energy (Y/N)	string	Yes

## 10.6.2 Schema (ExpectedEnergy\_v20091101.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2009-11-01/ExpectedEnergy_v20091101.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2009-11-01/ExpectedEnergy_v20091101.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="ExpectedEnergy" type="m:ExpectedEnergy"/>
  <xs:complexType name="ExpectedEnergy">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">

```

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```

</xs:annotation>
  <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="ExpectedEnergyRecord" type="m:ExpectedEnergyRecord"
maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Displays the post-market Expected Energy results from energy
accounting process</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ExpectedEnergyRecord">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="configuration" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Configuration ID of a Multi-Stage Generator
resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="intervalDuration" type="xs:integer"/>
    <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:EETradeHourData" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
</xs:complexType name="EETradeHourData">

```

```

<xs:sequence>
  <xs:element name="HR" type="xs:integer">
    <xs:annotation>
      <xs:documentation>trade hour</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="intervalNum" type="xs:integer"/>
  <xs:element name="energyTypeCode" type="xs:string"/>
  <xs:element name="expectedEnergy" type="xs:float">
    <xs:annotation>
      <xs:documentation>Expected energy value in MWh</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="OEOverlapMSS" type="m:YesNo" minOccurs="0">
    <xs:annotation>
      <xs:documentation>For both Expected Energy and Expected Energy Allocation reports, this
      flag indicates the overlapping expected energy between OE and MSSLFE.</xs:documentation>
    </xs:annotation>
  </xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2008-05-21/ExpectedEnergy.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.aiso.com/soa/2008-05-21/ExpectedEnergy.xsd"
  elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="ExpectedEnergy" type="m:ExpectedEnergy"/>
  <xs:complexType name="ExpectedEnergy">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader"
      minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the
      message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>

```

```

<xs:documentation>Application level relevant time and date for when this
instance of the message was produced.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="Source" type="xs:string">
<xs:annotation>
<xs:documentation>Source system that publishes the message. For CAISO,
examples include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC,
RTM, SaMC, SIBR, SLIC, etc.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
<xs:sequence>
<xs:element name="ExpectedEnergyRecord" type="m:ExpectedEnergyRecord"
maxOccurs="unbounded">
<xs:annotation>
<xs:documentation>Displays the post market Expected Energy results from
energy accounting process</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="ExpectedEnergyRecord">
<xs:sequence>
<xs:element name="resource" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of a resource</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="schedulingCoordinator" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of the Scheduling
Coordinator</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
<xs:annotation>
<xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="intervalDuration" type="xs:integer"/>

```



```

</xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:EETradeHourData"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="EETradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="intervalNum" type="xs:integer"/>
    <xs:element name="energyTypeCode" type="xs:string"/>
    <xs:element name="expectedEnergy" type="xs:float">
      <xs:annotation>
        <xs:documentation>Expected energy value in MWh</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="OEOverlapMSS" type="m:YesNo" minOccurs="0">
      <xs:annotation>
        <xs:documentation>For both Expected Energy and Expected Energy
Allocation reports, this flag indicates the overlapping expected energy between OE and
MSSLFE.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 10.6.3 Example XML File ([sampleExpectedEnergy.xml](#))

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:ExpectedEnergy xsi:schemaLocation="http://www.caiso.com/soa/2009-11-01/ExpectedEnergy_v20091101.xsd ExpectedEnergy_v20091101.xsd"
xmlns:m="http://www.caiso.com/soa/2009-11-01/ExpectedEnergy_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2010-06-17T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:ExpectedEnergyRecord>
      <m:resource>Resource1</m:resource>
      <m:configuration>Resource1_2x1</m:configuration>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:tradeDate>2010-06-17</m:tradeDate>
      <m:intervalDuration>10</m:intervalDuration>
      <m:TradeHour>
        <m:TradeHourData>
          <m:HR>1</m:HR>
          <m:intervalNum>1</m:intervalNum>
          <m:energyTypeCode>OE</m:energyTypeCode>
          <m:expectedEnergy>1.23</m:expectedEnergy>
          <m:OEOverlapMSS>NO</m:OEOverlapMSS>
        </m:TradeHourData>
        <m:TradeHourData>
          <m:HR>1</m:HR>
          <m:intervalNum>1</m:intervalNum>
          <m:energyTypeCode>TEE</m:energyTypeCode>
          <m:expectedEnergy>2.87</m:expectedEnergy>
          <m:OEOverlapMSS>NO</m:OEOverlapMSS>
        </m:TradeHourData>
        <m:TradeHourData>
          <m:HR>1</m:HR>
          <m:intervalNum>1</m:intervalNum>
          <m:energyTypeCode>DABE</m:energyTypeCode>
          <m:expectedEnergy>5.44</m:expectedEnergy>
          <m:OEOverlapMSS>NO</m:OEOverlapMSS>
        </m:TradeHourData>
        <m:TradeHourData>
          <m:HR>1</m:HR>
          <m:intervalNum>1</m:intervalNum>
          <m:energyTypeCode>DASE</m:energyTypeCode>
          <m:expectedEnergy>0.57</m:expectedEnergy>
          <m:OEOverlapMSS>NO</m:OEOverlapMSS>
        </m:TradeHourData>
        <m:TradeHourData>
          <m:HR>1</m:HR>
          <m:intervalNum>1</m:intervalNum>
          <m:energyTypeCode>HASE</m:energyTypeCode>

```

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```
</m:expectedEnergy>2.57</m:expectedEnergy>
</m:OEOverlapMSS>NO</m:OEOverlapMSS>
</m:TradeHourData>
</m:TradeHour>
</m:ExpectedEnergyRecord>
</m:MessagePayload>
</m:ExpectedEnergy><?xml version="1.0" encoding="UTF-8"?>
<ExpectedEnergy xmlns="http://www.caiso.com/soa/2008-05-21/ExpectedEnergy.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2008-05-21/ExpectedEnergy.xsd
http://flame1/mrtu/IMS_R5/ExpectedEnergy/ExpectedEnergy.xsd">
  <MessageHeader>
    <TimeDate>2008-09-23T16:10:29</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <ExpectedEnergyRecord>
      <resource>SCE1_MIR2_I_F_D00002</resource>
      <schedulingCoordinator>SCE1</schedulingCoordinator>
      <tradeDate>2008-09-10</tradeDate>
      <intervalDuration>10</intervalDuration>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <energyTypeCode>OE</energyTypeCode>
          <expectedEnergy>1.57228066499022</expectedEnergy>
          <OEOverlapMSS>NO</OEOverlapMSS>
        </TradeHourData>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <energyTypeCode>TEE</energyTypeCode>
          <expectedEnergy>499995833333333</expectedEnergy>
          <OEOverlapMSS>NO</OEOverlapMSS>
        </TradeHourData>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <energyTypeCode>DABE</energyTypeCode>
          <expectedEnergy>490829166666667</expectedEnergy>
          <OEOverlapMSS>NO</OEOverlapMSS>
        </TradeHourData>
        <TradeHourData>
          <HR>1</HR>
```

```
<intervalNum>1</intervalNum>
<energyTypeCode>DASE</energyTypeCode>
<expectedEnergy>.490829166666667</expectedEnergy>
<OEOverlapMSS>NO</OEOverlapMSS>
</TradeHourData>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>1</intervalNum>
  <energyTypeCode>HASE</energyTypeCode>
  <expectedEnergy>1.58144733165688</expectedEnergy>
  <OEOverlapMSS>NO</OEOverlapMSS>
</TradeHourData>
</TradeHour>
</ExpectedEnergyRecord>
</MessagePayload>
</ExpectedEnergy>
```

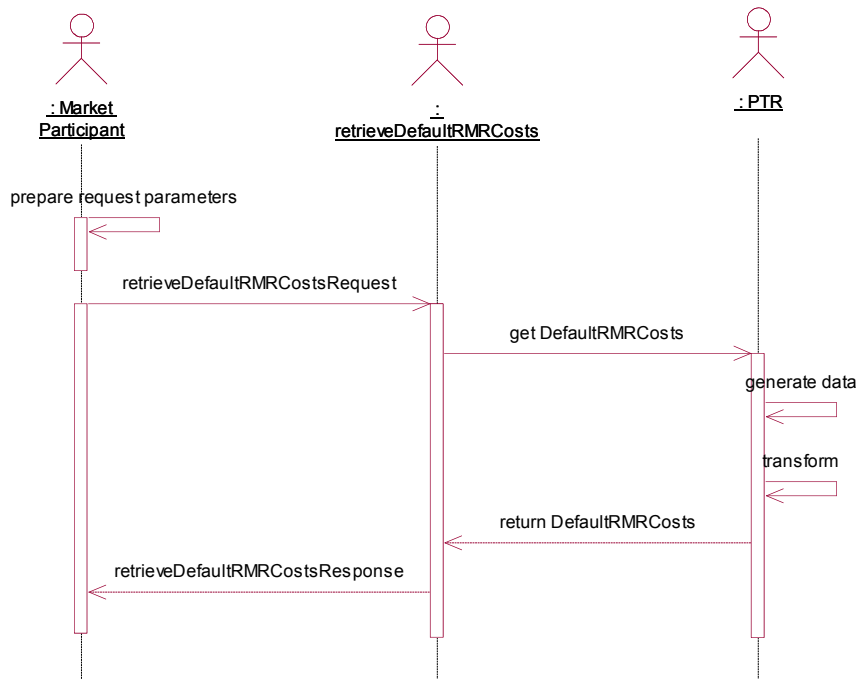
## 10.7 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 11 Retrieve Default RMR Costs

### 11.1 Use Model

The diagram below shows the sequence for retrieving Default RMR Costs data.



### 11.2 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
RetrieveDefaultRMRCosts	Input	RequestDefaultRMRCosts	<a href="#">RetrieveDefaultRMRCosts.wsdl</a>	RequestDefaultRMRCosts.xsd
	Output	RetrieveDefaultRMRCosts	<a href="#">RetrieveDefaultRMRCosts.wsdl</a>	<a href="#">DefaultRMRCosts.xsd</a> <a href="#">DefaultRMRCosts.xsd</a>
	Fault	faultReturntype		StandardOutput.xsd

## 11.3 WSDL

### **(retrieveDefaultRMRCosts.wsdl/retrieveDefaultRMRCosts.wsdl)**

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsd="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-
19/retrieveDefaultRMRCosts.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-01-
19/RequestDefaultRMRCosts.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-01-
19/DefaultRMRCosts.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveDefaultRMRCosts.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestDefaultRMRCosts.xsd"
schemaLocation="RequestDefaultRMRCosts.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/DefaultRMRCosts.xsd"
schemaLocation="DefaultRMRCosts.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="retrieveDefaultRMRCostsRequest">
    <wsdl:part name="requestData" element="typeIn:RequestDefaultRMRCosts">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveDefaultRMRCostsResponse">
    <wsdl:part name="DefaultRMRCosts" element="typeOut:DefaultRMRCosts">
      <wsdl:documentation>return Default RMR Costs</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturntype">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">
      <wsdl:documentation>fault information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:portType name="retrieveDefaultRMRCosts">
    <wsdl:operation name="retrieveDefaultRMRCosts">
      <wsdl:documentation>retrieve Default RMR Costs</wsdl:documentation>
      <wsdl:input name="requestData" message="tns:retrieveDefaultRMRCostsRequest"/>
      <wsdl:output name="DefaultRMRCosts" message="tns:retrieveDefaultRMRCostsResponse"/>
      <wsdl:fault name="faultReturn" message="tns:faultReturntype"/>
    </wsdl:operation>
  </wsdl:portType>

```

```

</wsdl:portType>
<wsdl:binding name="retrieveDefaultRMRCosts_Binding" type="tns:retrieveDefaultRMRCosts">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveDefaultRMRCosts">
    <soap:operation soapAction="http://www.caiso.com/soa/2007-01-19/retrieveDefaultRMRCosts"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveDefaultRMRCostsService">
  <wsdl:port name="retrieveDefaultRMRCostsServicePort"
binding="tns:retrieveDefaultRMRCosts_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-01-19/retrieveDefaultRMRCosts"/>
  </wsdl:port>
</wsdl:service>
<wsdl:documentation>
  A web service to retrieve Default RMR Costs
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-
19/retrieveDefaultRMRCosts.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-01-
19/RequestDefaultRMRCosts.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-01-
19/DefaultRMRCosts.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveDefaultRMRCosts.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestDefaultRMRCosts.xsd"
schemaLocation="RequestDefaultRMRCosts.xsd"/>
    </xs:schema>
    <xs:schema>

```



```
<xs:import namespace="http://www.caiso.com/soa/2007-01-19/DefaultRMRCosts.xsd"
schemaLocation="DefaultRMRCosts.xsd"/>
</xs:schema>
<xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
</xs:schema>
</wsdl:types>
<wsdl:message name="retrieveDefaultRMRCostsRequest">
<wsdl:part name="requestData" element="typeIn:RequestDefaultRMRCosts">
<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveDefaultRMRCostsResponse">
<wsdl:part name="DefaultRMRCosts" element="typeOut:DefaultRMRCosts">
<wsdl:documentation>return Default RMR Costs</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:portType name="retrieveDefaultRMRCosts">
<wsdl:operation name="retrieveDefaultRMRCosts">
<wsdl:documentation>retrieve Default RMR Costs</wsdl:documentation>
<wsdl:input name="requestData" message="tns:retrieveDefaultRMRCostsRequest"/>
<wsdl:output name="DefaultRMRCosts" message="tns:retrieveDefaultRMRCostsResponse"/>
<wsdl:fault name="faultReturn" message="tns:faultReturn"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="retrieveDefaultRMRCosts_Binding" type="tns:retrieveDefaultRMRCosts">
<soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveDefaultRMRCosts">
<soap:operation soapAction="http://www.caiso.com/soa/2007-01-19/retrieveDefaultRMRCosts"
style="document"/>
<wsdl:input>
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output>
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveDefaultRMRCostsService">
<wsdl:port name="retrieveDefaultRMRCostsServicePort"
binding="tns:retrieveDefaultRMRCosts_Binding">
<soap:address location="http://www.caiso.com/soa/2007-01-19/retrieveDefaultRMRCosts"/>
</wsdl:port>
</wsdl:service>
```



```

<wsdl:documentation>
  A web service to retrieve Default RMR Costs
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>

```

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## 11.4 Default RMR Costs Request

### 11.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resource	The unique identifier for a resource.	string	No

## 11.4.2 Schema (RequestDefaultRMRCosts.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 U (http://www.altova.com) by Xiaofeng Wang (Xtensible Solutions) -->
<xs:schema xmlns="http://www.caiso.com/soa/2007-01-19/RequestDefaultRMRCosts.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-01-19/RequestDefaultRMRCosts.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestDefaultRMRCosts" type="RequestDefaultRMRCosts"/>
  <xs:complexType name="RequestDefaultRMRCosts">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

## 11.4.3 Example XML File (RequestDefaultRMRCosts.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<RequestDefaultRMRCosts xmlns="http://www.caiso.com/soa/2007-01-19/RequestDefaultRMRCosts.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.caiso.com/soa/2007-01-19/RequestDefaultRMRCosts.xsd:\PTRREL~1\XSDs\PTR\DefaultRMRCosts\RequestDefaultRMRCosts.xsd">
  <tradeDateStart>2007-01-17</tradeDateStart>
  <tradeDateEnd>2007-01-17</tradeDateEnd>
</RequestDefaultRMRCosts>
```

## 11.5 Default RMR Costs Response

### 11.5.1 Element Table

Element	Data Description	Type	Req'd
---------	------------------	------	-------

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
minLoadCost	Default minimum load cost.	float	Yes
segmentNum	The segment number for the startup cost curve.	integer	Yes
minutes	Cooling time in minutes for the segment of the startup cost curve.	float	Yes
price	Price in dollars for for the segment of the startup cost curve.	float	Yes

### 11.5.2 Schema (DefaultRMRCosts.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2007-01-19/DefaultRMRCosts.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-01-
19/DefaultRMRCosts.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="DefaultRMRCosts" type="m:DefaultRMRCosts"/>
  <xs:complexType name="DefaultRMRCosts">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="DefaultRMRCost" type="m:DefaultRMRCost" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="DefaultRMRCost">
    <xs:sequence>

```

```

<xs:element name="resource" type="xs:string"/>
<xs:element name="schedulingCoordinator" type="xs:string"/>
<xs:element name="tradeDate" type="xs:date"/>
<xs:element name="minLoadCost" type="xs:float"/>
<xs:element name="StartupCost" type="m:StartupCost"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="StartupCost">
<xs:sequence>
<xs:element name="StartupCostCurveSeg" type="m:StartupCostCurveSegAllReq"
maxOccurs="3"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="StartupCostCurveSegAllReq">
<xs:sequence>
<xs:element name="segmentNum" type="xs:integer"/>
<xs:element name="minutes" type="xs:float"/>
<xs:element name="price" type="xs:float"/>
</xs:sequence>
</xs:complexType>
</xs:schema><?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2007-01-19/DefaultRMRCosts.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-01-
19/DefaultRMRCosts.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
<xs:element name="DefaultRMRCosts" type="m:DefaultRMRCosts"/>
<xs:complexType name="DefaultRMRCosts">
<xs:sequence>
<xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
<xs:element name="MessagePayload" type="m:MessagePayload"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessageHeader">
<xs:sequence>
<xs:element name="TimeDate" type="xs:dateTime"/>
<xs:element name="Source" type="xs:string"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
<xs:sequence>
<xs:element name="DefaultRMRCost" type="m:DefaultRMRCost" maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="DefaultRMRCost">
<xs:sequence>
<xs:element name="resource" type="xs:string"/>
<xs:element name="schedulingCoordinator" type="xs:string"/>
<xs:element name="tradeDate" type="xs:date"/>
<xs:element name="minLoadCost" type="xs:float"/>
<xs:element name="StartupCost" type="m:StartupCost"/>
</xs:sequence>
</xs:complexType>
</xs:complexType name="StartupCost">
</xs:sequence>

```

```

<xs:element name="StartUpCostCurveSeg" type="m:StartUpCostCurveSegAllReq"
maxOccurs="3"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="StartUpCostCurveSegAllReq">
<xs:sequence>
<xs:element name="segmentNum" type="xs:integer"/>
<xs:element name="minutes" type="xs:float"/>
<xs:element name="price" type="xs:float"/>
</xs:sequence>
</xs:complexType>
</xs:schema>

```

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### 11.5.3 Example XML File (DefaultRMRCosts.xml/DefaultRMRCosts.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com) -->
<DefaultRMRCosts xmlns="http://www.aiso.com/soa/2007-01-19/DefaultRMRCosts.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.aiso.com/soa/2007-01-
19/DefaultRMRCosts.xsd:PTRREL-1\XSDs\PTR\DefaultRMRCosts\DefaultRMRCosts.xsd">
<MessageHeader>
<TimeDate>2007-01-17T18:00:00</TimeDate>
<Source>Source</Source>
</MessageHeader>
<MessagePayload>
<DefaultRMRCost>
<resource>Resource1</resource>
<schedulingCoordinator>SC01</schedulingCoordinator>
<tradeDate>2007-01-17</tradeDate>
<minLoadCost>50</minLoadCost>
<StartUpCost>
<StartUpCostCurveSeg>
<segmentNum>1</segmentNum>
<minutes>5</minutes>
<price>10</price>
</StartUpCostCurveSeg>
</StartUpCost>
</DefaultRMRCost>
<DefaultRMRCost>
<resource>Resource2</resource>
<schedulingCoordinator>SC01</schedulingCoordinator>
<tradeDate>2007-01-17</tradeDate>
<minLoadCost>50</minLoadCost>
<StartUpCost>
<StartUpCostCurveSeg>
<segmentNum>1</segmentNum>
<minutes>5</minutes>
<price>10</price>

```

```

</StartUpCostCurveSeg>
</StartUpCost>
</DefaultRMRCost>
<DefaultRMRCost>
  <resource>Resource3</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <minLoadCost>50</minLoadCost>
  <StartUpCost>
    <StartUpCostCurveSeg>
      <segmentNum>1</segmentNum>
      <minutes>5</minutes>
      <price>10</price>
    </StartUpCostCurveSeg>
  </StartUpCost>
</DefaultRMRCost>
<DefaultRMRCost>
  <resource>Resource4</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <minLoadCost>50</minLoadCost>
  <StartUpCost>
    <StartUpCostCurveSeg>
      <segmentNum>1</segmentNum>
      <minutes>5</minutes>
      <price>10</price>
    </StartUpCostCurveSeg>
  </StartUpCost>
</DefaultRMRCost>
<DefaultRMRCost>
  <resource>Resource5</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <minLoadCost>50</minLoadCost>
  <StartUpCost>
    <StartUpCostCurveSeg>
      <segmentNum>1</segmentNum>
      <minutes>5</minutes>
      <price>10</price>
    </StartUpCostCurveSeg>
  </StartUpCost>
</DefaultRMRCost>
</MessagePayload>
</DefaultRMRCosts> <?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<DefaultRMRCosts xmlns="http://www.caiso.com/soa/2007-01-19/DefaultRMRCosts.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.caiso.com/soa/2007-01-19/DefaultRMRCosts.xsd:PTRREL~1\XSDs\PTR\DefaultRMRCosts\DefaultRMRCosts.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T18:00:00</TimeDate>
    <Source>Source</Source>
  </MessageHeader>

```

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```

<MessagePayload>
  <DefaultRMRCost>
    <resource>Resource1</resource>
    <schedulingCoordinator>SC01</schedulingCoordinator>
    <tradeDate>2007-01-17</tradeDate>
    <minLoadCost>50</minLoadCost>
    <StartupCost>
      <StartupCostCurveSeg>
        <segmentNum>1</segmentNum>
        <minutes>5</minutes>
        <price>10</price>
      </StartupCostCurveSeg>
    </StartupCost>
  </DefaultRMRCost>
  <DefaultRMRCost>
    <resource>Resource2</resource>
    <schedulingCoordinator>SC01</schedulingCoordinator>
    <tradeDate>2007-01-17</tradeDate>
    <minLoadCost>50</minLoadCost>
    <StartupCost>
      <StartupCostCurveSeg>
        <segmentNum>1</segmentNum>
        <minutes>5</minutes>
        <price>10</price>
      </StartupCostCurveSeg>
    </StartupCost>
  </DefaultRMRCost>
  <DefaultRMRCost>
    <resource>Resource3</resource>
    <schedulingCoordinator>SC01</schedulingCoordinator>
    <tradeDate>2007-01-17</tradeDate>
    <minLoadCost>50</minLoadCost>
    <StartupCost>
      <StartupCostCurveSeg>
        <segmentNum>1</segmentNum>
        <minutes>5</minutes>
        <price>10</price>
      </StartupCostCurveSeg>
    </StartupCost>
  </DefaultRMRCost>
  <DefaultRMRCost>
    <resource>Resource4</resource>
    <schedulingCoordinator>SC01</schedulingCoordinator>
    <tradeDate>2007-01-17</tradeDate>
    <minLoadCost>50</minLoadCost>
    <StartupCost>
      <StartupCostCurveSeg>
        <segmentNum>1</segmentNum>
        <minutes>5</minutes>
        <price>10</price>
      </StartupCostCurveSeg>
    </StartupCost>
  </DefaultRMRCost>

```

```
<DefaultRMRCost>  
  <resource>Resource5</resource>  
  <schedulingCoordinator>SC01</schedulingCoordinator>  
  <tradeDate>2007-01-17</tradeDate>  
  <minLoadCost>50</minLoadCost>  
  <StartupCost>  
    <StartupCostCurveSeg>  
      <segmentNum>1</segmentNum>  
      <minutes>5</minutes>  
      <price>10</price>  
    </StartupCostCurveSeg>  
  </StartupCost>  
</DefaultRMRCost>  
</MessagePayload>  
</DefaultRMRCosts>
```

## 11.6 Fault Return

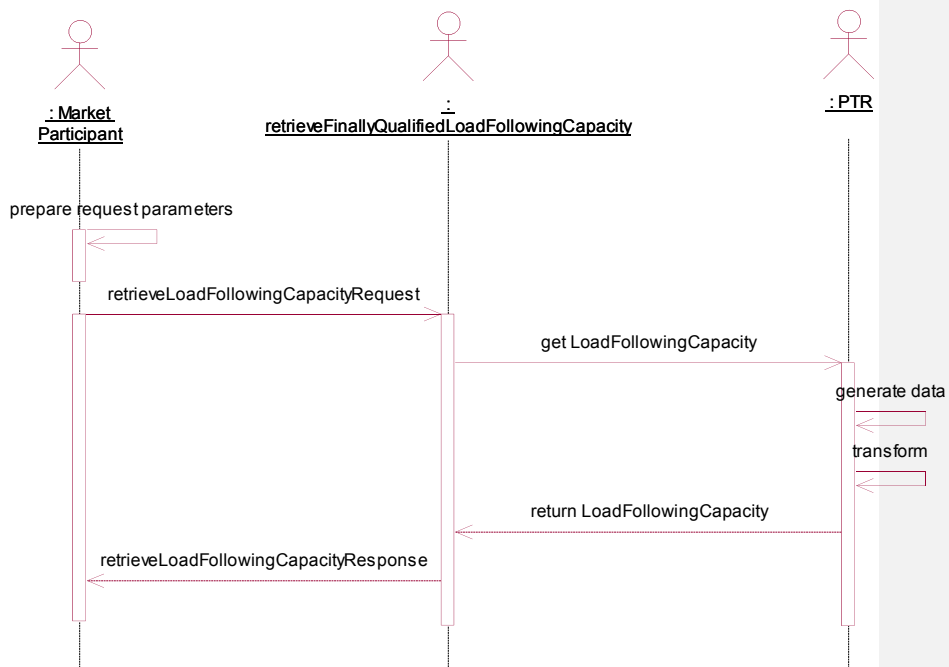
The fault return message is the same for all PTR services—see Section 4.6.



## 12 Retrieve Finally Qualified Load Following Capacity

### 12.1 Use Model

The diagram below shows the sequence for retrieving Finally Qualified Load Following Capacity data.



### 12.2 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
Retrieve Finally QualifiedLoadFollowingCapacity	Input	RequestFinallyQualifiedLoadFollowingCapacity	RetrieveFinallyQualifiedLoadFollowingCapacity.wsdl	RequestFinallyQualifiedLoadFollowingCapacity.xsd

	Output	RetrieveFinallyQualifiedLoadFollowingCapacity	FinallyQualifiedLoadFollowingCapacity.xsd
	Fault	faultReturnTypes	StandardOutput.xsd

### 12.3 WSDL (*retrieveFinallyQualifiedLoadFollowingCapacity.wsdl*)

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsd="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-19/retrieveFinallyQualifiedLoadFollowingCapacity.wsdl" xmlns:typIn="http://www.caiso.com/soa/2007-01-19/RequestFinallyQualifiedLoadFollowingCapacity.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2007-01-19/FinallyQualifiedLoadFollowingCapacity.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
  targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveFinallyQualifiedLoadFollowingCapacity.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestFinallyQualifiedLoadFollowingCapacity.xsd"
        schemaLocation="RequestFinallyQualifiedLoadFollowingCapacity.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/FinallyQualifiedLoadFollowingCapacity.xsd"
        schemaLocation="FinallyQualifiedLoadFollowingCapacity.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="retrieveFinallyQualifiedLoadFollowingCapacityRequest">
    <wsdl:part name="requestData" element="typeIn:RequestFinallyQualifiedLoadFollowingCapacity">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveFinallyQualifiedLoadFollowingCapacityResponse">
    <wsdl:part name="FinallyQualifiedLoadFollowingCapacity"
      element="typeOut:FinallyQualifiedLoadFollowingCapacity">
      <wsdl:documentation>return Load Following Capacities</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturnTypes">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">
      <wsdl:documentation>fault information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>

```

```

</wsdl:part>
</wsdl:message>
<wsdl:portType name="retrieveFinallyQualifiedLoadFollowingCapacity">
  <wsdl:operation name="retrieveFinallyQualifiedLoadFollowingCapacity">
    <wsdl:documentation>retrieve Load Following Capacities</wsdl:documentation>
    <wsdl:input name="requestData"
message="tns:retrieveFinallyQualifiedLoadFollowingCapacityRequest"/>
    <wsdl:output name="FinallyQualifiedLoadFollowingCapacity"
message="tns:retrieveFinallyQualifiedLoadFollowingCapacityResponse"/>
    <wsdl:fault name="faultReturn" message="tns:faultReturn"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="retrieveFinallyQualifiedLoadFollowingCapacity_Binding"
type="tns:retrieveFinallyQualifiedLoadFollowingCapacity">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveFinallyQualifiedLoadFollowingCapacity">
    <soap:operation soapAction="http://www.caiso.com/soa/2007-01-
19/retrieveFinallyQualifiedLoadFollowingCapacity" style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveFinallyQualifiedLoadFollowingCapacityService">
  <wsdl:port name="retrieveFinallyQualifiedLoadFollowingCapacityServicePort"
binding="tns:retrieveFinallyQualifiedLoadFollowingCapacity_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-01-
19/retrieveFinallyQualifiedLoadFollowingCapacity"/>
  </wsdl:port>
</wsdl:service>
<wsdl:documentation>
  A web service to retrieve Load Following Capacities
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>

```

## 12.4 Finally Qualified Load Following Capacity Request

### 12.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
marketType	The identifier for the market type. Valid value is DAM (for day ahead market).	string	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resourceType	The type of resource. valid values for this service are GEN & PUMP	string	No
LFCType	This field indicates if the schedule is for Load Following Up or Load Following Down capacity. Valid values are UP (for Load Following Up Capacity) and DOWN (for Load Following Down Capacity).	string	No
resource	The unique identifier for a resource.	string	No

## 12.4.2 Schema (RequestFinallyQualifiedLoadFollowingCapacity.xsd)

```

<?xml version="1.0" encoding="UTF-8" ?>
- <!--
edited with XMLSpy v2007 sp2 (http://www.altova.com) by Harry
Garton (Xtensible Solutions)
-->
= <xs:schema xmlns="http://www.caiso.com/soa/2007-05-
15/RequestFinallyQualifiedLoadFollowingCapacity.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.caiso.com/soa/2007-05-
15/RequestFinallyQualifiedLoadFollowingCapacity.xsd"
elementFormDefault="qualified" attributeFormDefault="unqualified">
<xs:element
name="RequestFinallyQualifiedLoadFollowingCapacity"
type="RequestFinallyQualifiedLoadFollowingCapacity" />
= <xs:complexType
name="RequestFinallyQualifiedLoadFollowingCapacity">
= <xs:sequence>
<xs:element name="tradeDateStart" type="xs:date" />
<xs:element name="tradeDateEnd" type="xs:date" />
<xs:element name="HRList" type="HRList" minOccurs="0"
/>
<xs:element name="marketTypeList"
type="marketTypeList" />
<xs:element name="schedulingCoordinatorList"
type="schedulingCoordinatorList" minOccurs="0" />
<xs:element name="resourceTypeList"
type="resourceTypeList" minOccurs="0" />
<xs:element name="LFCTypeList" type="LFCTypeList"
minOccurs="0" />
<xs:element name="resourceList" type="resourceList"
minOccurs="0" />
</xs:sequence>
</xs:complexType>
= <xs:complexType name="HRList">
= <xs:sequence>
<xs:element name="HR" type="xs:integer"
maxOccurs="unbounded" />
</xs:sequence>

```

```

</xs:complexType>
= <xs:complexType name="schedulingCoordinatorList">
  = <xs:sequence>
    <xs:element name="schedulingCoordinator"
      type="xs:string" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
= <xs:complexType name="resourceList">
  = <xs:sequence>
    <xs:element name="resource" type="xs:string"
      maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
= <xs:complexType name="resourceTypeList">
  = <xs:sequence>
    <xs:element name="resourceType"
      type="LFCResourceType" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
= <xs:complexType name="marketTypeList">
  = <xs:sequence>
    <xs:element name="marketType" type="MarketType"
      maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
= <xs:complexType name="LFCTypeList">
  = <xs:sequence>
    <xs:element name="LFCType"
      type="LoadFollowingCapacityType"
      maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
= <xs:simpleType name="MarketType">
  = <xs:restriction base="xs:string">
    <xs:enumeration value="DAM" />
    <xs:enumeration value="RTM" />
  </xs:restriction>

```

```

</xs:restriction>
</xs:simpleType>
<xs:simpleType name="LFCResourceType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="GEN" />
    <xs:enumeration value="PUMP" />
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="LoadFollowingCapacityType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="UP" />
    <xs:enumeration value="DOWN" />
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 12.4.3 Example XML File (RequestFQLFC.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<RequestFinallyQualifiedLoadFollowingCapacity xmlns="http://www.caiso.com/soa/2007-01-19/RequestFinallyQualifiedLoadFollowingCapacity.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2007-01-19/RequestFinallyQualifiedLoadFollowingCapacity.xsd:\PTRREL~1\XSDs\PTR\FinallyQualifiedLoadFollowingCapacity\RequestFinallyQualifiedLoadFollowingCapacity.xsd">
  <tradeDateStart>2007-01-17</tradeDateStart>
  <tradeDateEnd>2007-01-17</tradeDateEnd>
  <marketTypeList>
    <marketType>DAM</marketType>
  </marketTypeList>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
</RequestFinallyQualifiedLoadFollowingCapacity>

```

## 12.5 Finally Qualified Load Following Capacity Response

### 12.5.1 Element Table

Element	Data Description	Type	Req'd
---------	------------------	------	-------

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketType	The identifier for the market type. Valid value is DAM (for day ahead market)	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
resourceType	The type of resource. The only valid value for this service is GEN (for a generating resource).	string	Yes
intervalDuration	The duration of an interval in minutes (in California Prevailing Time).	integer	Yes
LFCType	This field indicates if the schedule is for Load Following Up or Load Following Down capacity. Valid values are UP (for Load Following Up Capacity) and DOWN (for Load Following Down Capacity).	string	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 60 minutes, the trade hour will comprise of only one interval of 60 minutes. If, on the other hand, the interval duration is 15 minutes, the trade hour will comprise of four intervals of 15 minutes each. The intervals are numbered sequentially starting with the earliest one numbered 1.	integer	Yes
MW	Load Following Capacity in MW for the interval.	float	Yes

### 12.5.2 Schema (FinallyQualifiedLoadFollowingCapacity.xsd)

```

<?xml version="1.0" encoding="UTF-8" ?>
= <xs:schema xmlns:m="http://www.aiso.com/soa/2007-05-15/FinallyQualifiedLoadFollowingCapacity.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.aiso.com/soa/2007-05-

```



```

15/FinallyQualifiedLoadFollowingCapacity.xsd
elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="FinallyQualifiedLoadFollowingCapacity"
    type="m:FinallyQualifiedLoadFollowingCapacity" />
<xs:complexType name="FinallyQualifiedLoadFollowingCapacity">
  <xs:sequence>
    <xs:element name="MessageHeader"
      type="m:MessageHeader" minOccurs="0" />
    <xs:element name="MessagePayload"
      type="m:MessagePayload" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessageHeader">
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime" />
    <xs:element name="Source" type="xs:string" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="LoadFollowingCapacity"
      type="m:LoadFollowingCapacity"
      maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="LoadFollowingCapacity">
  <xs:sequence>
    <xs:element name="resource" type="xs:string" />
    <xs:element name="schedulingCoordinator"
      type="xs:string" />
    <xs:element name="marketType" type="m:MarketType" />
    <xs:element name="tradeDate" type="xs:date" />
    <xs:element name="resourceType"
      type="m:LFCResourceType" />
    <xs:element name="intervalDuration" type="xs:integer"
      />
  </xs:sequence>

```

```

<xs:element name="LFCType"
  type="m:LoadFollowingCapacityType" />
<xs:element name="TradeHour" type="m:TradeHour"
  maxOccurs="25" />
</xs:sequence>
</xs:complexType>
= <xs:simpleType name="MarketType">
  = <xs:restriction base="xs:string">
    <xs:enumeration value="DAM" />
    <xs:enumeration value="RTM" />
  </xs:restriction>
</xs:simpleType>
= <xs:simpleType name="LFCResourceType">
  = <xs:restriction base="xs:string">
    <xs:enumeration value="GEN" />
    <xs:enumeration value="PUMP" />
  </xs:restriction>
</xs:simpleType>
= <xs:simpleType name="LoadFollowingCapacityType">
  = <xs:restriction base="xs:string">
    <xs:enumeration value="UP" />
    <xs:enumeration value="DOWN" />
  </xs:restriction>
</xs:simpleType>
= <xs:complexType name="TradeHour">
  = <xs:sequence>
    <xs:element name="TradeHourData"
      type="m:LFCTradeHourData" maxOccurs="unbounded"
      />
  </xs:sequence>
</xs:complexType>
= <xs:complexType name="LFCTradeHourData">
  = <xs:sequence>
    <xs:element name="HR" type="xs:integer" />
    <xs:element name="intervalNum" type="xs:integer" />
  </xs:sequence>

```

```

    <xs:element name="MW" type="xs:float" />
  </xs:sequence>
</xs:complexType>
</xs:schema>

```

### 12.5.3 Example XML File (DAMQLFC.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<FinallyQualifiedLoadFollowingCapacity xmlns="http://www.caiso.com/soa/2007-01-19/FinallyQualifiedLoadFollowingCapacity.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.caiso.com/soa/2007-01-19/FinallyQualifiedLoadFollowingCapacity.xsd:\PTRREL~1\XSDs\PTR\FinallyQualifiedLoadFollowingCapacity\FinallyQualifiedLoadFollowingCapacity.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T18:00:00</TimeDate>
    <Source>Source</Source>
  </MessageHeader>
  <MessagePayload>
    <LoadFollowingCapacity>
      <resource>Resource1</resource>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <resourceType>GEN</resourceType>
      <intervalDuration>60</intervalDuration>
      <LFCType>UP</LFCType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </LoadFollowingCapacity>
    <LoadFollowingCapacity>
      <resource>Resource2</resource>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>DAM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <resourceType>PUMP</resourceType>
      <intervalDuration>60</intervalDuration>
      <LFCType>UP</LFCType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </LoadFollowingCapacity>
  </MessagePayload>
</FinallyQualifiedLoadFollowingCapacity>

```

```

</TradeHour>
</LoadFollowingCapacity>
<LoadFollowingCapacity>
  <resource>Resource3</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <resourceType>GEN</resourceType>
  <intervalDuration>60</intervalDuration>
  <LFCType>DOWN</LFCType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</LoadFollowingCapacity>
<LoadFollowingCapacity>
  <resource>Resource4</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <resourceType>GEN</resourceType>
  <intervalDuration>60</intervalDuration>
  <LFCType>DOWN</LFCType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</LoadFollowingCapacity>
<LoadFollowingCapacity>
  <resource>Resource5</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>DAM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <resourceType>GEN</resourceType>
  <intervalDuration>60</intervalDuration>
  <LFCType>UP</LFCType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</LoadFollowingCapacity>
</MessagePayload>
</FinallyQualifiedLoadFollowingCapacity>

```

## 12.5.4 Example XML File (RTMQLFC.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<FinallyQualifiedLoadFollowingCapacity xmlns="http://www.aiso.com/soa/2007-01-19/FinallyQualifiedLoadFollowingCapacity.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.aiso.com/soa/2007-01-19/FinallyQualifiedLoadFollowingCapacity.xsd\PTRREL~1\XSDs\PTR\FinallyQualifiedLoadFollowingCapacity\FinallyQualifiedLoadFollowingCapacity.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T18:00:00</TimeDate>
    <Source>Source</Source>
  </MessageHeader>
  <MessagePayload>
    <LoadFollowingCapacity>
      <resource>Resource1</resource>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>RTM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <resourceType>GEN</resourceType>
      <intervalDuration>15</intervalDuration>
      <LFCType>UP</LFCType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </LoadFollowingCapacity>
    <LoadFollowingCapacity>
      <resource>Resource2</resource>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>RTM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <resourceType>GEN</resourceType>
      <intervalDuration>15</intervalDuration>
      <LFCType>UP</LFCType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <MW>50</MW>
        </TradeHourData>
      </TradeHour>
    </LoadFollowingCapacity>
    <LoadFollowingCapacity>
      <resource>Resource3</resource>
      <schedulingCoordinator>SC01</schedulingCoordinator>
      <marketType>RTM</marketType>
      <tradeDate>2007-01-17</tradeDate>
      <resourceType>GEN</resourceType>
      <intervalDuration>15</intervalDuration>
    </LoadFollowingCapacity>
  </MessagePayload>
</FinallyQualifiedLoadFollowingCapacity>

```

```

<LFCType>DOWN</LFCType>
<TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <intervalNum>1</intervalNum>
    <MW>50</MW>
  </TradeHourData>
</TradeHour>
</LoadFollowingCapacity>
<LoadFollowingCapacity>
  <resource>Resource4</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <resourceType>GEN</resourceType>
  <intervalDuration>15</intervalDuration>
  <LFCType>DOWN</LFCType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</LoadFollowingCapacity>
<LoadFollowingCapacity>
  <resource>Resource5</resource>
  <schedulingCoordinator>SC01</schedulingCoordinator>
  <marketType>RTM</marketType>
  <tradeDate>2007-01-17</tradeDate>
  <resourceType>GEN</resourceType>
  <intervalDuration>15</intervalDuration>
  <LFCType>UP</LFCType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <intervalNum>1</intervalNum>
      <MW>50</MW>
    </TradeHourData>
  </TradeHour>
</LoadFollowingCapacity>
</MessagePayload>
</FinallyQualifiedLoadFollowingCapacity>

```

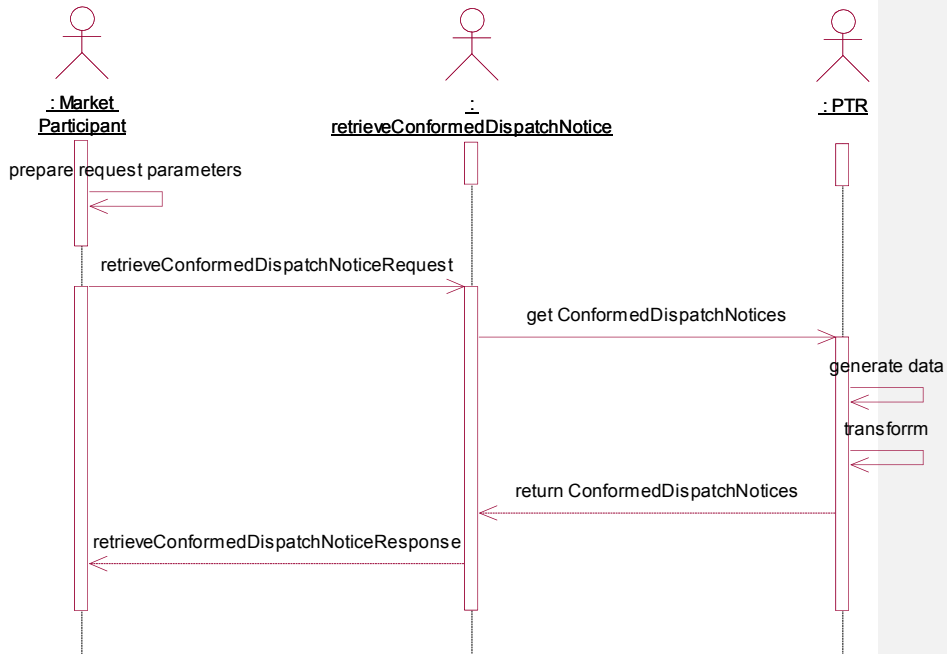
## 12.6 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 13 Retrieve Conformed Dispatch Notice

### 13.1 Use Model

The diagram below shows the sequence for retrieving Conformed Dispatch Notice data.



### 13.2 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
Retrieve ConformedDispatchNotice	Input	RequestConformedDispatchNotice	RetrieveConformedDispatchNotice.wsdl	RequestConformedDispatchNotice.xsd
	Output	RetrieveConformedDispatchNotice		ConformedDispatchNotice.xsd
	Fault	faultReturnTypes		StandardOutput.xsd

### 13.3 WSDL (*retrieveConformedDispatchNotice.wsdl*)

```
<?xml version="1.0" encoding="utf-8" ?>
<wSDL:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
  targetNamespace="http://www.aiso.com/soa/2007-06-01/retrieveConformedDispatchNotice.wsdl"
  xmlns:tns="http://www.aiso.com/soa/2007-06-01/retrieveConformedDispatchNotice.wsdl"
  xmlns:typeIn="http://www.aiso.com/soa/2007-01-19/RequestConformedDispatchNotice.xsd"
  xmlns:typeOut="http://www.aiso.com/soa/2007-06-01/ConformedDispatchNotice.xsd"
  xmlns:typeFault="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd">
  <wSDL:documentation>A web service to retrieve conformed dispatch notices</wSDL:documentation>
  - <!--
  type elements define data types used in this wsdl document
  using xml schema
  -->
  - <!--
  note the namespaces defined matched up with the typeIn and
  typeOut defined above
  -->
  <wSDL:types>
  <xs:schema>
    <xs:import
      namespace="http://www.aiso.com/soa/2007-01-19/RequestConformedDispatchNotice.xsd"
      schemaLocation="RequestConformedDispatchNotice.xsd" />
    </xs:schema>
  <xs:schema>
    <xs:import
      namespace="http://www.aiso.com/soa/2007-06-
```



```

01/ConformedDispatchNotice.xsd"
  schemaLocation="ConformedDispatchNotice.xsd" />
</xs:schema>
- <xs:schema>
  <xs:import
    namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
    schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>
- <!--
message elements define input and output parameters
-->
- <!--
a request and response case to use the data type defined in
TYPE for payload
-->
= <wsdl:message
  name="retrieveConformedDispatchNoticeRequest">
  = <wsdl:part name="requestData"
    element="typeIn:RequestConformedDispatchNotice">
    <wsdl:documentation>send request
date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
= <wsdl:message
  name="retrieveConformedDispatchNoticeResponse">
  = <wsdl:part name="ConformedDispatchNotice"
    element="typeOut:ConformedDispatchNotice">
    <wsdl:documentation>return conformed dispatch
notices</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
= <wsdl:message name="faultReturntype">
  = <wsdl:part name="faultReturn"
    element="typeFault:outputDataType">
    <wsdl:documentation>fault
information</wsdl:documentation>
  </wsdl:part>

```

```

</wsdl:message>
- <!--
portType elements define the abstract interface of a web
service
-->
- <!--
to use the message type defined in message above
-->
= <wsdl:portType name="retrieveConformedDispatchNotice">
  = <wsdl:operation name="retrieveConformedDispatchNotice">
    <wsdl:documentation>retrieve conformed dispatch
    notices</wsdl:documentation>
    <wsdl:input name="requestData"
    message="tns:retrieveConformedDispatchNoticeReque
    st" />
    <wsdl:output name="ConformedDispatchNotice"
    message="tns:retrieveConformedDispatchNoticeRespo
    nse" />
    <wsdl:fault name="faultReturn"
    message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>
- <!--
binding elements define protocols and encoding styles
-->
- <!--
to bind the operation defined in portType
-->
= <wsdl:binding name="retrieveConformedDispatchNotice_Binding"
type="tns:retrieveConformedDispatchNotice">
  <soap:binding style="document"
  transport="http://schemas.xmlsoap.org/soap/http" />
  = <wsdl:operation name="retrieveConformedDispatchNotice">
    <soap:operation style="document"
    soapAction="http://www.caiso.com/soa/2007-06-
    01/retrieveConformedDispatchNotice" />
  = <wsdl:input name="requestData">
    <soap:body use="literal" />
  </wsdl:input>

```

```

=> <wsdl:output name="ConformedDispatchNotice">
    <soap:body use="literal" />
</wsdl:output>
=> <wsdl:fault name="faultReturn">
    <soap:fault name="faultReturn" use="literal" />
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
=> <wsdl:service name="retrieveConformedDispatchNoticeService">
=> <wsdl:port
    name="retrieveConformedDispatchNoticeServicePort"
    binding="tns:retrieveConformedDispatchNotice_Binding">
    <soap:address
        location="http://www.caiso.com/soa/2007-06-
        01/retrieveConformedDispatchNotice" />
    </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

## 13.4 Conformed Dispatch Notice Request

### 13.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resource	The unique identifier for a resource.	string	No

### 13.4.2 Schema (RequestConformedDispatchNotice.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 U (http://www.altova.com) by Xiaofeng Wang (Xtensible Solutions) -->
<xs:schema xmlns="http://www.caiso.com/soa/2007-01-19/RequestConformedDispatchNotice.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2007-01-19/RequestConformedDispatchNotice.xsd" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="RequestConformedDispatchNotice" type="RequestConformedDispatchNotice"/>
  <xs:complexType name="RequestConformedDispatchNotice">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRList" type="HRList" minOccurs="0"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

### 13.4.3 Example XML File (RequestConformedDispatchNotice.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Khoi Nguyen (California ISO) -->
<RequestConformedDispatchNotice xmlns="http://www.caiso.com/soa/2007-01-19/RequestConformedDispatchNotice.xsd">
  <tradeDateStart>2007-02-27</tradeDateStart>
  <tradeDateEnd>2007-02-27</tradeDateEnd>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
</RequestConformedDispatchNotice>
```

## 13.5 Conformed Dispatch Notice Response

### 13.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource (in ConformedDispNotice class)	The unique identifier for a resource.	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
flag	Volate Support Flag. This field indicates if the unit was dispatched for voltage support. Valid values are Y (for yes) and N (for no).	string	Yes
dispatchMW	DEC MW value dispatched for local voltage support	float	No
precedence	The precedence for unit substitution. The lower number has a higher precedence.	integer	Yes
resource (in SubstitutableUnit class)	The unique identifier for the substituting resource.	string	Yes
MW	Scheduled MW value for the substituting resource.	float	Yes
energy (in DayAheadResults class)	Sum of energy schedules in the Day-Ahead market.	float	No
spin	Sum of Ancillary Service Spinning Awards.	float	No
nonSpin	Sum of Ancillary Service Non-Spinning Awards.	float	No
regUp	Sum of Ancillary Service Regulation Up Awards.	float	No
regDown	Sum of Ancillary Service Regulation Down Awards.	float	No
RMRDispatch (in DayAheadResults class)	Dispatched/scheduled value that was either manually or generated by the market run, pursuant to the RMR Contract.	float	No

Element	Data Description	Type	Req'd
CCR (in DayAheadResults class)	Corresponds to the Competitive Constraint Run value for the Day-Ahead market	float	No
RMRDispatchEnergy Total (in RealTimeResults class)	Sum (six intervals) of the RMR Dispatch Energy	float	No
CCR (in RealTimeResults class)	Corresponds to the Competitive Constraint Run value for the Real-Time market	float	No
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 60 minutes, the trade hour will comprise of only one interval of 60 minutes. If, on the other hand, the interval duration is 15 minutes, the trade hour will comprise of four intervals of 15 minutes each. The intervals are numbered sequentially starting with the earliest one numbered 1.	integer	Yes
energy (in RMRDispatchEnergy class)	RMR Dispatch Energy per 10-minute intervals.	float	Yes

### 13.5.2 Schema (ConformedDispatchNotice.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2007-06-01/ConformedDispatchNotice.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-06-01/ConformedDispatchNotice.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="ConformedDispatchNotice" type="m:ConformedDispatchNotice"/>
  <xs:complexType name="ConformedDispatchNotice">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">

```

```

    <xs:annotation>
      <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
    </xs:annotation>
  </xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="ConformedDispNotice" type="m:ConformedDispNotice"
maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Summary of the Day-Ahead and Real-Time Market results of RMR
Units</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ConformedDispNotice">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:TradeHourData" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="VoltageSupport" type="m:CDNVoltageSupport" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>

```

```

<xs:element name="UnitSubstitution" type="m:UnitSubstitution" minOccurs="0"/>
<xs:element name="DayAheadResult" type="m:CDNDayAheadResult" minOccurs="0"/>
<xs:element name="RealTimeResult" type="m:ConformedDispRealTimeResult"
minOccurs="0"/>
<xs:element name="RMRDispatchEnergy" type="m:CDNRMRDispatchEnergy" minOccurs="0"
maxOccurs="6"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="CDNVoltageSupport">
<xs:sequence>
<xs:element name="flag" type="m:PTRFlag"/>
<xs:element name="dispatchMW" type="xs:float" minOccurs="0"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="PTRFlag">
<xs:restriction base="xs:string">
<xs:enumeration value="Y"/>
<xs:enumeration value="N"/>
</xs:restriction>
</xs:simpleType>
<xs:complexType name="UnitSubstitution">
<xs:sequence>
<xs:element name="SubstitutableUnit" type="m:CDNSubstitutableUnit" maxOccurs="3"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="CDNSubstitutableUnit">
<xs:sequence>
<xs:element name="precedence" type="xs:integer">
<xs:annotation>
<xs:documentation>An indicator of the order a resource should be substituted. The lower
the number the higher the precedence.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="resource" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of a resource</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="MW" type="xs:float"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="CDNDayAheadResult">
<xs:sequence>
<xs:element name="energy" type="xs:float" minOccurs="0">
<xs:annotation>
<xs:documentation>Sum of Energy Schedules</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="spin" type="xs:float" minOccurs="0">
<xs:annotation>
<xs:documentation>Sum of Ancillary Service Spinning Awards</xs:documentation>
</xs:annotation>
</xs:element>

```



```

<xs:element name="nonSpin" type="xs:float" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Sum of Ancillary Service Non-Spinning Awards</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="regUp" type="xs:float" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Sum of Ancillary Service Regulation Up Awards</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="regDown" type="xs:float" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Sum of Ancillary Service Regulation Down
Awards</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="RMRDispatch" type="xs:float" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Corresponds to the RMR Dispatch value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CCR" type="xs:float" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Corresponds to the Competitive Constraint Run
value</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="ConformedDispRealTimeResult">
  <xs:sequence>
    <xs:element name="CCR" type="xs:float" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Corresponds to the Competitive Constraint Run
value</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="RMRDispatchEnergyTotal" type="xs:float" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Corresponds to the RMR Dispatch value</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CDNRMRDispatchEnergy">
  <xs:sequence>
    <xs:element name="intervalNum" type="xs:integer"/>
    <xs:element name="energy" type="xs:float">
      <xs:annotation>
        <xs:documentation>Energy Schedules per 10-minute intervals</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>

```



```
</xs:complexType>  
</xs:schema>
```

### 13.5.3 Example XML File (ConformedDispatchNotice.xml)

```
<?xml version="1.0" encoding="UTF-8"?>  
<!--Sample XML file generated by XMLSpy v2007 (http://www.altova.com)-->  
<m:ConformedDispatchNotice xsi:schemaLocation="http://www.caiso.com/soa/2007-06-01/ConformedDispatchNotice.xsd xfrm_ConformedDispatchNotice1.xsd"  
  xmlns:m="http://www.caiso.com/soa/2007-06-01/ConformedDispatchNotice.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:ConformedDispNotice>  
      <m:resource>String</m:resource>  
      <m:schedulingCoordinator>String</m:schedulingCoordinator>  
      <m:tradeDate>1967-08-13</m:tradeDate>  
      <m:TradeHour>  
        <m:TradeHourData>  
          <m:HR>0</m:HR>  
          <m:VoltageSupport>  
            <m:flag>Y</m:flag>  
            <m:dispatchMW>3.14159E0</m:dispatchMW>  
          </m:VoltageSupport>  
          <m:UnitSubstitution>  
            <m:SubstitutableUnit>  
              <m:precedence>0</m:precedence>  
              <m:resource>String</m:resource>  
              <m:MW>3.14159E0</m:MW>  
            </m:SubstitutableUnit>  
            <m:SubstitutableUnit>  
              <m:precedence>0</m:precedence>  
              <m:resource>String</m:resource>  
              <m:MW>3.14159E0</m:MW>  
            </m:SubstitutableUnit>  
          </m:UnitSubstitution>  
          <m:DayAheadResult>  
            <m:energy>3.14159E0</m:energy>  
            <m:spin>3.14159E0</m:spin>  
            <m:nonSpin>3.14159E0</m:nonSpin>  
            <m:regUp>3.14159E0</m:regUp>  
            <m:regDown>3.14159E0</m:regDown>  
            <m:RMRDispatch>3.14159E0</m:RMRDispatch>  
            <m:CCR>3.14159E0</m:CCR>
```

```

</m:DayAheadResult>
<m:RealTimeResult>
  <m:CCR>3.14159E0</m:CCR>
  <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
</m:RealTimeResult>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
</m:TradeHourData>
<m:TradeHourData>
  <m:HR>0</m:HR>
  <m:VoltageSupport>
    <m:flag>Y</m:flag>
    <m:dispatchMW>3.14159E0</m:dispatchMW>
  </m:VoltageSupport>
  <m:UnitSubstitution>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
  </m:UnitSubstitution>
</m:DayAheadResult>
<m:energy>3.14159E0</m:energy>
<m:spin>3.14159E0</m:spin>
<m:nonSpin>3.14159E0</m:nonSpin>
<m:regUp>3.14159E0</m:regUp>
<m:regDown>3.14159E0</m:regDown>
<m:RMRDispatch>3.14159E0</m:RMRDispatch>
<m:CCR>3.14159E0</m:CCR>
</m:DayAheadResult>
<m:RealTimeResult>
  <m:CCR>3.14159E0</m:CCR>
  <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
</m:RealTimeResult>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>

```

```

</m:TradeHourData>
</m:TradeHour>
<m:TradeHour>
  <m:TradeHourData>
    <m:HR>0</m:HR>
    <m:VoltageSupport>
      <m:flag>Y</m:flag>
      <m:dispatchMW>3.14159E0</m:dispatchMW>
    </m:VoltageSupport>
    <m:UnitSubstitution>
      <m:SubstitutableUnit>
        <m:precedence>0</m:precedence>
        <m:resource>String</m:resource>
        <m:MW>3.14159E0</m:MW>
      </m:SubstitutableUnit>
      <m:SubstitutableUnit>
        <m:precedence>0</m:precedence>
        <m:resource>String</m:resource>
        <m:MW>3.14159E0</m:MW>
      </m:SubstitutableUnit>
    </m:UnitSubstitution>
    <m:DayAheadResult>
      <m:energy>3.14159E0</m:energy>
      <m:spin>3.14159E0</m:spin>
      <m:nonSpin>3.14159E0</m:nonSpin>
      <m:regUp>3.14159E0</m:regUp>
      <m:regDown>3.14159E0</m:regDown>
      <m:RMRDispatch>3.14159E0</m:RMRDispatch>
      <m:CCR>3.14159E0</m:CCR>
    </m:DayAheadResult>
    <m:RealTimeResult>
      <m:CCR>3.14159E0</m:CCR>
      <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
    </m:RealTimeResult>
    <m:RMRDispatchEnergy>
      <m:intervalNum>0</m:intervalNum>
      <m:energy>3.14159E0</m:energy>
    </m:RMRDispatchEnergy>
    <m:RMRDispatchEnergy>
      <m:intervalNum>0</m:intervalNum>
      <m:energy>3.14159E0</m:energy>
    </m:RMRDispatchEnergy>
  </m:TradeHourData>
</m:TradeHourData>
<m:TradeHourData>
  <m:HR>0</m:HR>
  <m:VoltageSupport>
    <m:flag>Y</m:flag>
    <m:dispatchMW>3.14159E0</m:dispatchMW>
  </m:VoltageSupport>
  <m:UnitSubstitution>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
    </m:SubstitutableUnit>
  </m:UnitSubstitution>

```

```

    <m:MW>3.14159E0</m:MW>
  </m:SubstitutableUnit>
</m:SubstitutableUnit>
  <m:precedence>0</m:precedence>
  <m:resource>String</m:resource>
  <m:MW>3.14159E0</m:MW>
</m:SubstitutableUnit>
</m:UnitSubstitution>
<m:DayAheadResult>
  <m:energy>3.14159E0</m:energy>
  <m:spin>3.14159E0</m:spin>
  <m:nonSpin>3.14159E0</m:nonSpin>
  <m:regUp>3.14159E0</m:regUp>
  <m:regDown>3.14159E0</m:regDown>
  <m:RMRDispatch>3.14159E0</m:RMRDispatch>
  <m:CCR>3.14159E0</m:CCR>
</m:DayAheadResult>
<m:RealTimeResult>
  <m:CCR>3.14159E0</m:CCR>
  <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
</m:RealTimeResult>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
</m:TradeHourData>
</m:TradeHour>
</m:ConformedDispNotice>
<m:ConformedDispNotice>
  <m:resource>String</m:resource>
  <m:schedulingCoordinator>String</m:schedulingCoordinator>
  <m:tradeDate>1967-08-13</m:tradeDate>
</m:TradeHour>
  <m:TradeHourData>
    <m:HR>0</m:HR>
    <m:VoltageSupport>
      <m:flag>Y</m:flag>
      <m:dispatchMW>3.14159E0</m:dispatchMW>
    </m:VoltageSupport>
  </m:TradeHourData>
  <m:UnitSubstitution>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
  </m:UnitSubstitution>

```

```

</m:SubstitutableUnit>
</m:UnitSubstitution>
<m:DayAheadResult>
  <m:energy>3.14159E0</m:energy>
  <m:spin>3.14159E0</m:spin>
  <m:nonSpin>3.14159E0</m:nonSpin>
  <m:regUp>3.14159E0</m:regUp>
  <m:regDown>3.14159E0</m:regDown>
  <m:RMRDispatch>3.14159E0</m:RMRDispatch>
  <m:CCR>3.14159E0</m:CCR>
</m:DayAheadResult>
<m:RealTimeResult>
  <m:CCR>3.14159E0</m:CCR>
  <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
</m:RealTimeResult>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
</m:TradeHourData>
<m:TradeHourData>
  <m:HR>0</m:HR>
  <m:VoltageSupport>
    <m:flag>Y</m:flag>
    <m:dispatchMW>3.14159E0</m:dispatchMW>
  </m:VoltageSupport>
  <m:UnitSubstitution>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
  </m:UnitSubstitution>
  <m:DayAheadResult>
    <m:energy>3.14159E0</m:energy>
    <m:spin>3.14159E0</m:spin>
    <m:nonSpin>3.14159E0</m:nonSpin>
    <m:regUp>3.14159E0</m:regUp>
    <m:regDown>3.14159E0</m:regDown>
    <m:RMRDispatch>3.14159E0</m:RMRDispatch>
    <m:CCR>3.14159E0</m:CCR>
  </m:DayAheadResult>
  <m:RealTimeResult>
    <m:CCR>3.14159E0</m:CCR>
  </m:RealTimeResult>

```

```

    <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
  </m:RealTimeResult>
  <m:RMRDispatchEnergy>
    <m:intervalNum>0</m:intervalNum>
    <m:energy>3.14159E0</m:energy>
  </m:RMRDispatchEnergy>
  <m:RMRDispatchEnergy>
    <m:intervalNum>0</m:intervalNum>
    <m:energy>3.14159E0</m:energy>
  </m:RMRDispatchEnergy>
  <m:TradeHourData>
</m:TradeHour>
<m:TradeHour>
  <m:TradeHourData>
    <m:HR>0</m:HR>
    <m:VoltageSupport>
      <m:flag>Y</m:flag>
      <m:dispatchMW>3.14159E0</m:dispatchMW>
    </m:VoltageSupport>
    <m:UnitSubstitution>
      <m:SubstitutableUnit>
        <m:precedence>0</m:precedence>
        <m:resource>String</m:resource>
        <m:MW>3.14159E0</m:MW>
      </m:SubstitutableUnit>
      <m:SubstitutableUnit>
        <m:precedence>0</m:precedence>
        <m:resource>String</m:resource>
        <m:MW>3.14159E0</m:MW>
      </m:SubstitutableUnit>
    </m:UnitSubstitution>
    <m:DayAheadResult>
      <m:energy>3.14159E0</m:energy>
      <m:spin>3.14159E0</m:spin>
      <m:nonSpin>3.14159E0</m:nonSpin>
      <m:regUp>3.14159E0</m:regUp>
      <m:regDown>3.14159E0</m:regDown>
      <m:RMRDispatch>3.14159E0</m:RMRDispatch>
      <m:CCR>3.14159E0</m:CCR>
    </m:DayAheadResult>
  </m:RealTimeResult>
  <m:CCR>3.14159E0</m:CCR>
  <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
</m:RealTimeResult>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
<m:RMRDispatchEnergy>
  <m:intervalNum>0</m:intervalNum>
  <m:energy>3.14159E0</m:energy>
</m:RMRDispatchEnergy>
</m:TradeHourData>

```

```

<m:TradeHourData>
  <m:HR>0</m:HR>
  <m:VoltageSupport>
    <m:flag>Y</m:flag>
    <m:dispatchMW>3.14159E0</m:dispatchMW>
  </m:VoltageSupport>
  <m:UnitSubstitution>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
    <m:SubstitutableUnit>
      <m:precedence>0</m:precedence>
      <m:resource>String</m:resource>
      <m:MW>3.14159E0</m:MW>
    </m:SubstitutableUnit>
  </m:UnitSubstitution>
  <m:DayAheadResult>
    <m:energy>3.14159E0</m:energy>
    <m:spin>3.14159E0</m:spin>
    <m:nonSpin>3.14159E0</m:nonSpin>
    <m:regUp>3.14159E0</m:regUp>
    <m:regDown>3.14159E0</m:regDown>
    <m:RMRDispatch>3.14159E0</m:RMRDispatch>
    <m:CCR>3.14159E0</m:CCR>
  </m:DayAheadResult>
  <m:RealTimeResult>
    <m:CCR>3.14159E0</m:CCR>
    <m:RMRDispatchEnergyTotal>3.14159E0</m:RMRDispatchEnergyTotal>
  </m:RealTimeResult>
  <m:RMRDispatchEnergy>
    <m:intervalNum>0</m:intervalNum>
    <m:energy>3.14159E0</m:energy>
  </m:RMRDispatchEnergy>
  <m:RMRDispatchEnergy>
    <m:intervalNum>0</m:intervalNum>
    <m:energy>3.14159E0</m:energy>
  </m:RMRDispatchEnergy>
</m:TradeHourData>
</m:TradeHour>
</m:ConformedDispNotice>
</m:MessagePayload>
</m:ConformedDispatchNotice>

```

### 13.6 Fault Return

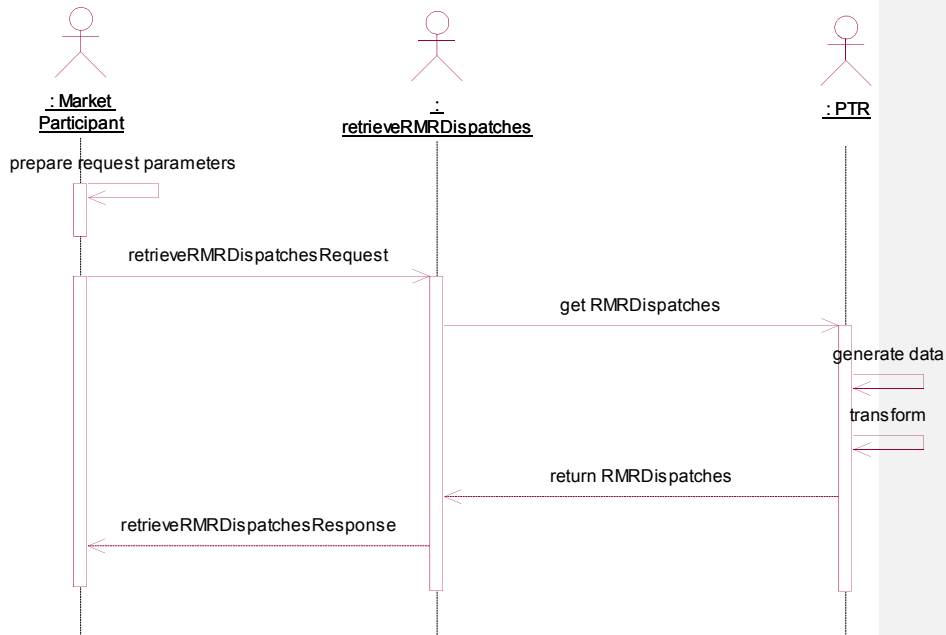
The fault return message is the same for all PTR services—see Section 4.6.



## 14 Retrieve RMR Dispatches

### 14.1 Use Model

The diagram below shows the sequence for retrieving RMR Dispatches data.



### 14.2 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
RetrieveRMRDispatches	Input	RequestRMRDispatches	<a href="#">RetrieveRMRDispatches.wSDL</a>	RequestRMRDispatches.xsd
	Output	RetrieveRMRDispatches	<a href="#">RetrieveRMRDispatches.wSDL</a>	<a href="#">RMRDispatches.xsd</a> <a href="#">RMRDispatches.xsd</a>
	Fault	faultReturnTypes		StandardOutput.xsd

### 14.3 WSDL (*retrieveRMRDispatches.wsdl**retrieveRMRDispatches.wsdl*)

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-
19/retrieveRMRDispatches.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-01-
19/RequestRMRDispatches.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-01-
19/RMRDispatches.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveRMRDispatches.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestRMRDispatches.xsd"
schemaLocation="RequestRMRDispatches.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RMRDispatches.xsd"
schemaLocation="RMRDispatches.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="retrieveRMRDispatchesRequest">
    <wsdl:part name="requestData" element="typeIn:RequestRMRDispatches">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveRMRDispatchesResponse">
    <wsdl:part name="RMRDispatches" element="typeOut:RMRDispatches">
      <wsdl:documentation>return RMR Dispatches</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
  <wsdl:portType name="retrieveRMRDispatches">
    <wsdl:operation name="retrieveRMRDispatches">
      <wsdl:documentation>retrieve RMR Dispatches</wsdl:documentation>
      <wsdl:input name="requestData" message="tns:retrieveRMRDispatchesRequest"/>
      <wsdl:output name="RMRDispatches" message="tns:retrieveRMRDispatchesResponse"/>
      <wsdl:fault name="faultReturn" message="tns:faultReturn"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="retrieveRMRDispatches_Binding" type="tns:retrieveRMRDispatches">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  </wsdl:binding>

```

```

<wsdl:operation name="retrieveRMRDispatches">
  <soap:operation soapAction="http://www.caiso.com/soa/2007-01-19/retrieveRMRDispatches"
style="document"/>
  <wsdl:input>
    <soap:body use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body use="literal"/>
  </wsdl:output>
  <wsdl:fault name="faultReturn">
    <soap:fault name="faultReturn" use="literal"/>
  </wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveRMRDispatchesService">
  <wsdl:port name="retrieveRMRDispatchesServicePort"
binding="tns:retrieveRMRDispatches_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-01-19/retrieveRMRDispatches"/>
  </wsdl:port>
</wsdl:service>
<wsdl:documentation>
  A web service to retrieve RMR Dispatches
</wsdl:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/eonformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://www.caiso.com/soa/2007-01-
19/retrieveRMRDispatches.wsdl" xmlns:typeIn="http://www.caiso.com/soa/2007-01-
19/RequestRMRDispatches.xsd" xmlns:typeOut="http://www.caiso.com/soa/2007-01-
19/RMRDispatches.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
targetNamespace="http://www.caiso.com/soa/2007-01-19/retrieveRMRDispatches.wsdl">
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RequestRMRDispatches.xsd"
schemaLocation="RequestRMRDispatches.xsd"/>
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2007-01-19/RMRDispatches.xsd"
schemaLocation="RMRDispatches.xsd"/>
    </xs:schema>
  </wsdl:types>

```

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```

<xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
  schemaLocation="StandardOutput.xsd"/>
</xs:schema>
</wsdl:types>
<wsdl:message name="retrieveRMRDispatchesRequest">
  <wsdl:part name="requestData" element="typeIn:RequestRMRDispatches">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveRMRDispatchesResponse">
  <wsdl:part name="RMRDispatches" element="typeOut:RMRDispatches">
    <wsdl:documentation>return RMR Dispatches</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturntype">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:portType name="retrieveRMRDispatches">
  <wsdl:operation name="retrieveRMRDispatches">
    <wsdl:documentation>retrieve RMR Dispatches</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveRMRDispatchesRequest"/>
    <wsdl:output name="RMRDispatches" message="tns:retrieveRMRDispatchesResponse"/>
    <wsdl:fault name="faultReturn" message="tns:faultReturntype"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="retrieveRMRDispatches_Binding" type="tns:retrieveRMRDispatches">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveRMRDispatches">
    <soap:operation soapAction="http://www.caiso.com/soa/2007-01-19/retrieveRMRDispatches"
    style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="retrieveRMRDispatchesService">
  <wsdl:port name="retrieveRMRDispatchesServicePort"
  binding="tns:retrieveRMRDispatches_Binding">
    <soap:address location="http://www.caiso.com/soa/2007-01-19/retrieveRMRDispatches"/>
  </wsdl:port>
</wsdl:service>
</wsdl:documentation>
  A web service to retrieve RMR Dispatches
</wsdl:documentation>

```

```

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
</wsdl:definitions>

```

## 14.4 RMR Dispatches Request

### 14.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
marketType	The identifier for the market type. Valid value is DAM (for day ahead market).	string	Yes
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resource	The unique identifier for a resource.	string	No

#### 14.4.2 Schema (RequestRMRDispatches.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 U (http://www.altova.com) by Xiaofeng Wang (Xtensible Solutions) -->
<xs:schema xmlns="http://www.aiso.com/soa/2007-01-19/RequestRMRDispatches.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-01-19/RequestRMRDispatches.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestRMRDispatches" type="RequestRMRDispatches"/>
  <xs:complexType name="RequestRMRDispatches">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="marketTypeList" type="marketTypeList"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="marketTypeList">
    <xs:sequence>
      <xs:element name="marketType" type="DAMMarketType" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="DAMMarketType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="DAM"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

#### 14.4.3 Example XML File (RequestRMRDispatches.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<RequestRMRDispatches xmlns="http://www.aiso.com/soa/2007-01-19/RequestRMRDispatches.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.aiso.com/soa/2007-01-19/RequestRMRDispatches.xsd;PTRREL~1\XSDs\PTR\RMRDispatches\RequestRMRDispatches.xsd">
  <tradeDateStart>2007-01-17</tradeDateStart>
  <tradeDateEnd>2007-01-17</tradeDateEnd>
  <marketTypeList>
    <marketType>DAM</marketType>
  </marketTypeList>
</RequestRMRDispatches>
```



```

</marketTypeList>
<schedulingCoordinatorList>
  <schedulingCoordinator>SC01</schedulingCoordinator>
</schedulingCoordinatorList>
</RequestRMRDispatches>

```

## 14.5 RMR Dispatches Response

### 14.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
marketType	The identifier for the market type. Valid value is DAM (for day ahead market).	string	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
schedMW	Day-Ahead Energy Schedule cleared and scheduled through the IFM run, in MW unit	float	Yes
RMRFlag	<p>RMR Flag indicating if the resource was dispatched under the RMR Contract. This will be set to 'Yes' when it was:</p> <ul style="list-style-type: none"> <li>▪ Manually dispatched by an Operator; or</li> <li>▪ Generated by the market run where the unit has an AC (All Constraints) schedule value greater than the CC (Competitive Constraint) schedule, even if the (IFM) Day-Ahead Schedule is zero.</li> </ul> <p>Valid values are Y (for yes) and N (for no).</p>	string	Yes
instructionSource	This element represents the source where the instruction originated. Valid values are DA (for Day Ahead process), SELF (for Self Commitment), and RUC (for Residual Unit Commitment process).	string	Yes

## 14.5.2 Schema (RMRDispatches.xsdRMRDispatches.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2007-01-19/RMRDispatches.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-01-
19/RMRDispatches.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RMRDispatches" type="m:RMRDispatches"/>
  <xs:complexType name="RMRDispatches">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="RMRDispatch" type="m:RMRDispatch" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="RMRDispatch">
    <xs:sequence>
      <xs:element name="resource" type="xs:string"/>
      <xs:element name="schedulingCoordinator" type="xs:string"/>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="marketType" type="m:DAMMarketType"/>
      <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="DAMMarketType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="DAM"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="TradeHour">
    <xs:sequence>
      <xs:element name="TradeHourData" type="m:RMRDispTradeHourData"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="RMRDispTradeHourData">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer"/>
      <xs:element name="schedMW" type="xs:float"/>
      <xs:element name="RMRFlag" type="m:PTRFlag"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="PTRFlag">
    <xs:restriction base="xs:string">

```



```

</xs:enumeration value="Y"/>
</xs:enumeration value="N"/>
</xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2007-01-19/RMRDispatches.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2007-01-
19/RMRDispatches.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RMRDispatches" type="m:RMRDispatches"/>
  <xs:complexType name="RMRDispatches">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime"/>
      <xs:element name="Source" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="RMRDispatch" type="m:RMRDispatch" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="RMRDispatch">
    <xs:sequence>
      <xs:element name="resource" type="xs:string"/>
      <xs:element name="schedulingCoordinator" type="xs:string"/>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="marketType" type="m:DAMMarketType"/>
      <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="DAMMarketType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="DAM"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="TradeHour">
    <xs:sequence>
      <xs:element name="TradeHourData" type="m:RMRDispTradeHourData"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="RMRDispTradeHourData">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer"/>
      <xs:element name="schedMW" type="xs:float"/>
      <xs:element name="RMRFlag" type="m:PTRFlag"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:complexType>
<xs:simpleType name="PTRFlag">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Y"/>
    <xs:enumeration value="N"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

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### 14.5.3 Example XML File (RMRDispatches.xml/RMRDispatches.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com) -->
<RMRDispatches xmlns="http://www.caiso.com/soa/2007-01-19/RMRDispatches.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.caiso.com/soa/2007-01-19/RMRDispatches.xsd:PTRREL-1\XSDs\PTR\RMRDispatches\RMRDispatches.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T17:32:18.000-00:00</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <RMRDispatch>
      <resource>RES-01</resource>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <tradeDate>2007-01-17</tradeDate>
      <marketType>DAM</marketType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <schedMW>100</schedMW>
          <RMRFlag>Y</RMRFlag>
        </TradeHourData>
      </TradeHour>
    </RMRDispatch>
    <RMRDispatch>
      <resource>RES-02</resource>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <tradeDate>2007-01-17</tradeDate>
      <marketType>DAM</marketType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <schedMW>100</schedMW>
          <RMRFlag>Y</RMRFlag>
        </TradeHourData>
      </TradeHour>
    </RMRDispatch>
    <RMRDispatch>
      <resource>RES-03</resource>
      <schedulingCoordinator>SC001</schedulingCoordinator>

```



```
<tradeDate>2007-01-17</tradeDate>
<marketType>DAM</marketType>
<TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <schedMW>100</schedMW>
    <RMRFlag>Y</RMRFlag>
  </TradeHourData>
</TradeHour>
</RMRDispatch>
<RMRDispatch>
  <resource>RES-04</resource>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <marketType>DAM</marketType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <schedMW>100</schedMW>
      <RMRFlag>Y</RMRFlag>
    </TradeHourData>
  </TradeHour>
</RMRDispatch>
<RMRDispatch>
  <resource>RES-05</resource>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <marketType>DAM</marketType>
  <TradeHour>
    <TradeHourData>
      <HR>1</HR>
      <schedMW>100</schedMW>
      <RMRFlag>Y</RMRFlag>
    </TradeHourData>
  </TradeHour>
</RMRDispatch>
</MessagePayload>
</RMRDispatches><?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2006 sp1 U (http://www.altova.com)-->
<RMRDispatches xmlns="http://www.caiso.com/soa/2007-01-19/RMRDispatches.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2007-01-
19/RMRDispatches.xsd:PTRREL~1\XSDs\PTR\RMRDispatches\RMRDispatches.xsd">
  <MessageHeader>
    <TimeDate>2007-01-17T17:32:18.000-00:00</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <RMRDispatch>
      <resource>RES-01</resource>
      <schedulingCoordinator>SC001</schedulingCoordinator>
      <tradeDate>2007-01-17</tradeDate>
      <marketType>DAM</marketType>
```

```

<TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <schedMW>100</schedMW>
    <RMRFlag>Y</RMRFlag>
  </TradeHourData>
</TradeHour>
</RMRDispatch>
<RMRDispatch>
  <resource>RES-02</resource>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <marketType>DAM</marketType>
</TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <schedMW>100</schedMW>
    <RMRFlag>Y</RMRFlag>
  </TradeHourData>
</TradeHour>
</RMRDispatch>
<RMRDispatch>
  <resource>RES-03</resource>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <marketType>DAM</marketType>
</TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <schedMW>100</schedMW>
    <RMRFlag>Y</RMRFlag>
  </TradeHourData>
</TradeHour>
</RMRDispatch>
<RMRDispatch>
  <resource>RES-04</resource>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <marketType>DAM</marketType>
</TradeHour>
  <TradeHourData>
    <HR>1</HR>
    <schedMW>100</schedMW>
    <RMRFlag>Y</RMRFlag>
  </TradeHourData>
</TradeHour>
</RMRDispatch>
<RMRDispatch>
  <resource>RES-05</resource>
  <schedulingCoordinator>SC001</schedulingCoordinator>
  <tradeDate>2007-01-17</tradeDate>
  <marketType>DAM</marketType>
</TradeHour>

```



```
<TradeHourData>  
  <HR>1</HR>  
  <schedMW>100</schedMW>  
  <RMRFflag>Y</RMRFflag>  
</TradeHourData>  
</TradeHour>  
</RMRDispatch>  
</MessagePayload>  
</RMRDispatches>
```

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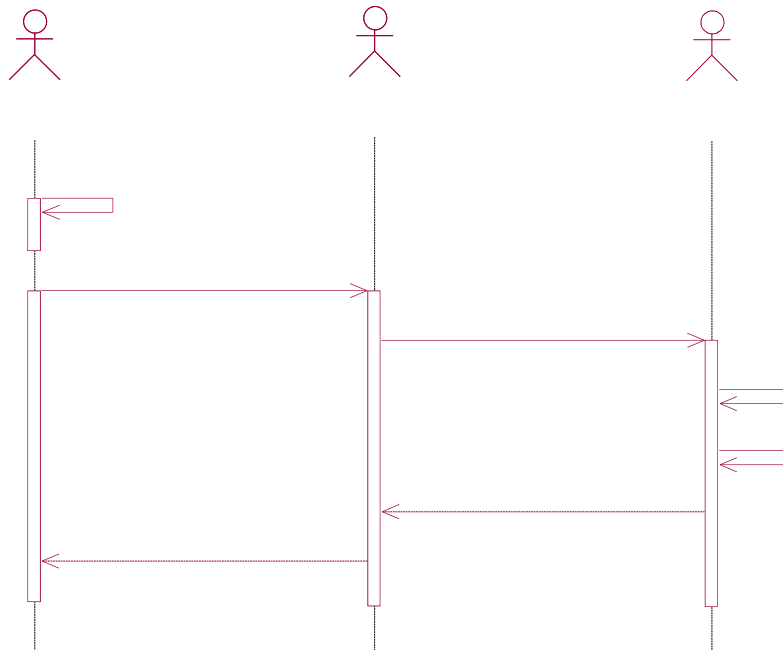
## 14.6 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 15 Retrieve ISO Commitment Cost Details

### 15.1 Use Model

The diagram below shows the sequence for retrieving ISO Commitment Cost details data.



### 15.2 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
Retrieve retrieveISOCommitmentCostDetails	Input	RequestISOCommitmentCostDetails	<a href="#">retrieveISOCommitmentCostDetails_v20091101.wsdl#RetrieveISOCommitmentCostDetails</a>	RequestISOCommitmentCostDetails.xsd
	Output	Retrieve retrieveISOCommitmentCostDetails	<a href="#">retrieveISOCommitmentCostDetails_v20091101.wsdl#RetrieveISOCommitmentCostDetails</a>	ISOCommitmentCostDetails_v20091101.xsd

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	Fault	faultReturntype	<a href="#">retrieveISOCommitmentCostDetails_v20091101_DocAttach.wsdl</a>	StandardOutput.xsd
--	-------	-----------------	---	--------------------

### 15.3 WSDL ([retrieveISOCommitmentCostDetails\\_v20091101.wsdl](#)) RPC Style

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```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2008-08-09/retrieveISOCommitmentCostDetails.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2008-08-09/retrieveISOCommitmentCostDetails.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2008-05-21/ISOCommitmentCostDetails.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestISOCommitmentCostDetails.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
  <A web service to retrieve the ISO Commitment Cost Details
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
  <xs:schema>

```



```
<xs:import namespace="http://www.caiso.com/soa/2008-05-21/RequestISOCommitmentCostDetails.xsd"
schemaLocation="RequestISOCommitmentCostDetails.xsd" />
</xs:schema>
</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd" schemaLocation="StandardAttachmentInfor.xsd" />
</xs:schema>
</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response ease to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveISOCommitmentCostDetailsRequest">
<wsdl:part name="requestData" type="typeIn:RequestISOCommitmentCostDetails">
<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetailsHeader">
<!-- attachment wrapper -->
<wsdl:part name="standardAttachmentInfor"
element="typeHeader:standardAttachmentInfor">
<wsdl:documentation>attachment information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetailsResponse">
<wsdl:part name="ISOCommitmentCostDetails_attachment"
type="xs:base64Binary">
<wsdl:documentation>return ISO Commitment Cost Details</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveISOCommitmentCostDetails">
<wsdl:operation name="retrieveISOCommitmentCostDetails">
```



```

<wsdl:documentation>retrieve ISO Commitment Cost
Details</wsdl:documentation>
<wsdl:input message="tns:retrieveISOCommitmentCostDetailsRequest" />
<wsdl:output message="tns:retrieveISOCommitmentCostDetailsResponse" />
<wsdl:fault name="faultReturn" message="tns:faultReturn" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveISOCommitmentCostDetails_Binding"
type="tns:retrieveISOCommitmentCostDetails">
  <soap:binding style="rpe"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveISOCommitmentCostDetails">
    <soap:operation style="rpe"
soapAction="http://www.caiso.com/soa/2008-08-
09/retrieveISOCommitmentCostDetails"/>
    <wsdl:input>
      <soap:body use="literal" namespace="http://www.caiso.com/soa/2008-08-
09/retrieveISOCommitmentCostDetails"/>
    </wsdl:input>
    <wsdl:output>
      <mime:multipartRelated>
        <mime:part>
          <soap:body use="literal" namespace="http://www.caiso.com/soa/2008-08-
09/retrieveISOCommitmentCostDetails"/>
        </mime:part>
        <mime:part>
          <mime:content part="ISOCommitmentCostDetails_attachment"
type="application/octetstream"/>
        </mime:part>
      </mime:multipartRelated>
      <soap:header message="tns:retrieveISOCommitmentCostDetailsHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveISOCommitmentCostDetailsService">

```

```

<wsdl:port name="retrieveISOCommitmentCostDetailsServicePort"
binding="tns:retrieveISOCommitmentCostDetails_Binding">
  <soap:address location="http://www.caiso.com/soa/2008-08-
09/retrieveISOCommitmentCostDetails"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions> <?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2009-11-
01/ISOCommitmentCostDetails_v20091101.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestISOCommitmentCostDetails.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
  A web service to retrieve the ISO Commitment Cost Details
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
  <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2008-05-
21/RequestISOCommitmentCostDetails.xsd" schemaLocation="RequestISOCommitmentCostDetails.xsd"
  />
  </xs:schema>
  <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  schemaLocation="StandardAttachmentInfor.xsd" />
  </xs:schema>
  <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
  schemaLocation="StandardOutput.xsd" />
  </xs:schema>

```

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```

</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveISOCommitmentCostDetailsRequest">
  <wsdl:part name="requestData" type="typeIn:RequestISOCommitmentCostDetails">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetailsHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetailsResponse">
  <wsdl:part name="ISOCommitmentCostDetails_attachment" type="xs:base64Binary">
    <wsdl:documentation>return ISO Commitment Cost Details</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveISOCommitmentCostDetails_v20091101">
  <wsdl:operation name="retrieveISOCommitmentCostDetails_v20091101">
    <wsdl:documentation>retrieve ISO Commitment Cost Details</wsdl:documentation>
    <wsdl:input message="tns:retrieveISOCommitmentCostDetailsRequest" />
    <wsdl:output message="tns:retrieveISOCommitmentCostDetailsResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn Type" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveISOCommitmentCostDetails_Binding"
type="tns:retrieveISOCommitmentCostDetails_v20091101">
  <soap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveISOCommitmentCostDetails_v20091101">
    <soap:operation style="rpc"
soapAction="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101"/>
    <wsdl:input>
      <soap:body use="literal" namespace="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101"/>
    </wsdl:input>
    <wsdl:output>
      <mime:multipartRelated>

```



```
</mime:part>
  <soap:body use="literal" namespace="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101"/>
</mime:part>
</mime:part>
  <mime:content part="ISOCommitmentCostDetails_attachment"
type="application/octetstream"/>
</mime:part>
</mime:multipartRelated>
<soap:header message="tns:retrieveISOCommitmentCostDetailsHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveISOCommitmentCostDetails_v20091101Service">
  <wsdl:port name="retrieveISOCommitmentCostDetailsServicePort"
binding="tns:retrieveISOCommitmentCostDetails_Binding">
  <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>
```

## 15.4 WSDL

### ***(retrieveISOCommitmentCostDetails\_v20091101\_DocAttach.wsdl/retriev eISOCommitmentCostDetails\_DocAttach.wsdl) .NET Style***

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

targetNamespace="http://www.caiso.com/soa/2008-08-
09/retrieveISOCommitmentCostDetails_DocAttach.wsdl"
```

```

<!--xmlns:tns="http://www.caiso.com/soa/2008-08-09/retrieveISOCommitmentCostDetails_DocAttach.wsdl"
-->

<!--xmlns:schemaInfor="http://www.caiso.com/soa/2008-05-21/ISOCommitmentCostDetails.xsd"
-->

<!--xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestISOCommitmentCostDetails.xsd"
-->
<!--xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
-->
<!--xmlns:typeOut="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
-->
<!--xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"-->

<wSDL:documentation>
<!-- A web service to retrieve ISO Commitment Cost Details
-->
</wSDL:documentation>

<!-- type elements define data types used in this wSDL document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<wSDL:types>
<xs:schema>
<!--<xs:import namespace="http://www.caiso.com/soa/2008-05-21/RequestISOCommitmentCostDetails.xsd"
schemaLocation="RequestISOCommitmentCostDetails.xsd" /-->
-->
</xs:schema>
<xs:schema>
<!--<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd" schemaLocation="StandardAttachmentInfor.xsd" /-->
-->
</xs:schema>
<xs:schema>
<!--<xs:import namespace="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
schemaLocation="ISOAttachment.xsd" /-->
-->
</xs:schema>
<xs:schema>
<!--<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" /-->
-->
</xs:schema>
</wSDL:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wSDL:message name="retrieveISOCommitmentCostDetails_DocAttachRequest"-->

```

```

<wsdl:part name="requestData"
element="typeIn:RequestISOCommitmentCostDetails">
<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetails_DocAttachHeader">
<!-- attachment wrapper -->
<wsdl:part name="standardAttachmentInfor"
element="typeHeader:standardAttachmentInfor">
<wsdl:documentation>attachment information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetails_DocAttachResponse">
<wsdl:part name="ISOCommitmentCostDetails_attachment"
element="typeOut:ISOAttachment">
<wsdl:documentation>return ISO Commitment Cost Details</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveISOCommitmentCostDetails_DocAttach">
<wsdl:operation name="retrieveISOCommitmentCostDetails_DocAttach">
<wsdl:documentation>retrieve ISO Commitment Cost
Details</wsdl:documentation>
<wsdl:input message="tns:retrieveISOCommitmentCostDetails_DocAttachRequest"
/>
<wsdl:output
message="tns:retrieveISOCommitmentCostDetails_DocAttachResponse"/>
<wsdl:fault name="faultReturn" message="tns:faultReturn Type"/>
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveISOCommitmentCostDetails_DocAttach_Binding"
type="tns:retrieveISOCommitmentCostDetails_DocAttach">
<soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>

```

```

<wsdl:operation name="retrieveISOCommitmentCostDetails_DocAttach">
  <soap:operation style="document"
  soapAction="http://www.aiso.com/soa/2008-08-
  09/retrieveISOCommitmentCostDetails_DocAttach"/>
  <wsdl:input>
    <soap:body use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:header
  message="tns:retrieveISOCommitmentCostDetails_DocAttachHeader"
  part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
    <soap:body use="literal" parts="ISOCommitmentCostDetails_attachment"/>
  </wsdl:output>
  <wsdl:fault name="faultReturn">
    <soap:fault name="faultReturn" use="literal"/>
  </wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveISOCommitmentCostDetails_DocAttachService">
  <wsdl:port name="retrieveISOCommitmentCostDetails_DocAttachServicePort"
  binding="tns:retrieveISOCommitmentCostDetails_DocAttach_Binding">
    <soap:address location="http://www.aiso.com/soa/2008-08-
  09/retrieveISOCommitmentCostDetails_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.aiso.com/soa/2009-11-
  01/retrieveISOCommitmentCostDetails_v20091101_DocAttach.wsdl"
  xmlns:tns="http://www.aiso.com/soa/2009-11-
  01/retrieveISOCommitmentCostDetails_v20091101_DocAttach.wsdl"

  xmlns:schemaInfor="http://www.aiso.com/soa/2009-11-
  01/ISOCommitmentCostDetails_v20091101.xsd"

```

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```

xmlns:typeIn="http://www.aiso.com/soa/2008-05-21/RequestISOCommitmentCostDetails.xsd"
xmlns:typeHeader="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
xmlns:typeOut="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
xmlns:typeFault="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd">

<wsdl:documentation>
  A web service to retrieve ISO Commitment Cost Details
</wsdl:documentation>

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<wsdl:types>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2008-05-
21/RequestISOCommitmentCostDetails.xsd" schemaLocation="RequestISOCommitmentCostDetails.xsd"
/>
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
schemaLocation="StandardAttachmentInfor.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
schemaLocation="ISOAttachment.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveISOCommitmentCostDetails_DocAttachRequest">
  <wsdl:part name="requestData" element="typeIn:RequestISOCommitmentCostDetails">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetails_DocAttachHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveISOCommitmentCostDetails_DocAttachResponse">
  <wsdl:part name="ISOCommitmentCostDetails_attachment" element="typeOut:ISOAttachment">
    <wsdl:documentation>return ISO Commitment Cost Details</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

```



```

</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveISOCommitmentCostDetails_v20091101_DocAttach">
  <wsdl:operation name="retrieveISOCommitmentCostDetails_v20091101_DocAttach">
    <wsdl:documentation>retrieve ISO Commitment Cost Details</wsdl:documentation>
    <wsdl:input message="tns:retrieveISOCommitmentCostDetails_DocAttachRequest" />
    <wsdl:output message="tns:retrieveISOCommitmentCostDetails_DocAttachResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveISOCommitmentCostDetails_DocAttach_Binding"
type="tns:retrieveISOCommitmentCostDetails_v20091101_DocAttach">
  <soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveISOCommitmentCostDetails_v20091101_DocAttach">
    <soap:operation style="document"
soapAction="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101_DocAttach"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:header message="tns:retrieveISOCommitmentCostDetails_DocAttachHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
      <soap:body use="literal" parts="ISOCommitmentCostDetails_attachment"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveISOCommitmentCostDetails_v20091101_DocAttachService">
  <wsdl:port name="retrieveISOCommitmentCostDetails_DocAttachServicePort"
binding="tns:retrieveISOCommitmentCostDetails_DocAttach_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveISOCommitmentCostDetails_v20091101_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 15.5 ISOCommitmentCostDetails Request

### 15.5.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
IntervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains.	integer	No
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
resource	The unique identifier for a resource.	string	No

## 15.5.2 Schema (RequestISOCommitmentCostDetails.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Dagmar Haller
(California ISO) -->
<xs:schema xmlns="http://www.aiso.com/soa/2008-05-
21/RequestISOCommitmentCostDetails.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.aiso.com/soa/2008-05-
21/RequestISOCommitmentCostDetails.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="RequestISOCommitmentCostDetails"
type="RequestISOCommitmentCostDetails"/>
  <xs:complexType name="RequestISOCommitmentCostDetails">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRLList" type="HRLList" minOccurs="0"/>
      <xs:element name="intervalNumList" type="intervalNumList" minOccurs="0"/>
      <xs:element name="schedulingCoordinator" type="xs:string" minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRLList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="intervalNumList">
    <xs:sequence>
      <xs:element name="intervalNum" type="CmmtCostIntervalNumType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="CmmtCostIntervalNumType">
    <xs:restriction base="xs:integer">
      <xs:enumeration value="1"/>
      <xs:enumeration value="2"/>
      <xs:enumeration value="3"/>
    </xs:restriction>
  </xs:simpleType>

```



```

<xs:enumeration value="4"/>
<xs:enumeration value="5"/>
<xs:enumeration value="6"/>
</xs:restriction>
</xs:simpleType>
</xs:schema>

```

## 15.6 ISOCommitmentCostDetail Response

### 15.6.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	string	No
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
intervalDuration	The duration of an interval in minutes (in California Prevailing Time).	integer	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 10 minutes, the trade hour will comprise of only ten interval of 10 minutes.	integer	Yes

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Element	Data Description	Type	Req'd
marketType	Market Type will be RTM for Real Time, RUC or IFM	string	Yes
StartUpCost	Start Up Cost for the Resource	float	No
StartUpCostEligibilityFlag	Eligibility Flag for the Start Up Cost	float	Yes
ShutDownCost	Pump Shut Down Cost for the Resource	float	No
ShutDownCostEligibilityFlag	Eligibility Flag for the Pump Shut Down Cost	String	No
NoLoadCost (aka Minimum Load Cost)	Minimum Load Cost for the Resource	float	No
NoLoadCostEligibilityFlag	Eligibility Flag for the Minimum Load	String	No
PumpingCost	Pump Shut Down Cost for the Resource	float	No
PumpingCostEligibilityFlag	Eligibility Flag for the Pump Shut Down Cost	String	No
RMRCommitmentFlag	Eligibility Flag for the RMR Commitment	String	No
transitionCost	<u>This is the bid cost recovery eligible transition cost for the multi-stage generator (MSG) resource</u>	float	No
transitionCostEligibilityFlag	<u>This is the eligibility flag for the Transition Cost</u>	string	No

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### 15.6.2 Schema (ISOCommitmentCostDetails\_v20091101.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Dagmar Haller (California ISO) -->
<xs:schema xmlns:m="http://www.aiso.com/soa/2008-05-21/ISOCommitmentCostDetails.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2008-05-21/ISOCommitmentCostDetails.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="ISOCommitmentCostDetails" type="m:ISOCommitmentCostDetails"/>
  <xs:complexType name="ISOCommitmentCostDetails">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>

```

```

</xs:complexType>
<xs:complexType name="MessageHeader">
  <xs:annotation>
    <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime">
      <xs:annotation>
        <xs:documentation>Application level relevant time and date for when this
instance of the message was produced.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Source" type="xs:string">
      <xs:annotation>
        <xs:documentation>Source system that publishes the message. For CAISO,
examples include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC,
RTM, SaMC, SIBR, SLIC, etc.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="ISOCommitmentCostRecord"
type="m:ISOCommitmentCostRecord" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Each record will contain the Commitment Flags and
Commitment Cost to validate the Bid Cost Recovery charge in
Settlements.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ISOCommitmentCostRecord">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>

```

```

</xs:documentation>Unique identifier of the Scheduling
Coordinator</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
<xs:annotation>
<xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="intervalDuration" type="xs:integer"/>
<xs:element name="marketType" type="m:AuxillaryCostMarketType">
<xs:annotation>
<xs:documentation>Same marketType enumeration as in
MQSAuxillaryData message</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="AuxillaryCostMarketType">
<xs:restriction base="xs:string">
<xs:enumeration value="DAM"/>
<xs:enumeration value="RTM"/>
<xs:enumeration value="RUC"/>
</xs:restriction>
</xs:simpleType>
<xs:complexType name="TradeHour">
<xs:sequence>
<xs:element name="TradeHourData" type="m:ISOCmtCostTradeHourData"
maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="ISOCmtCostTradeHourData">
<xs:sequence>
<xs:element name="HR" type="xs:integer">
<xs:annotation>
<xs:documentation>trade hour</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="intervalNum" type="xs:integer"/>
<xs:element name="StartUpCost" type="xs:float" minOccurs="0"/>
<xs:element name="StartUpCostEligibilityFlag" type="m:YesNo"
minOccurs="0"/>

```

```

<xs:element name="ShutDownCost" type="xs:float" minOccurs="0"/>
<xs:element name="ShutDownCostEligibilityFlag" type="m:YesNo"
minOccurs="0"/>
<xs:element name="NoLoadCost" type="xs:float" minOccurs="0">
<xs:annotation>
<xs:documentation>aka Minimum Load Cost</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="NoLoadCostEligibilityFlag" type="m:YesNo"
minOccurs="0"/>
<xs:element name="PumpingCost" type="xs:float" minOccurs="0"/>
<xs:element name="PumpingCostEligibilityFlag" type="m:YesNo"
minOccurs="0"/>
<xs:element name="RMRCommitmentFlag" type="m:YesNo" minOccurs="0">
<xs:annotation>
<xs:documentation>Eligibility Flag for the RMR
Commitment</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
<xs:restriction base="xs:string">
<xs:enumeration value="YES"/>
<xs:enumeration value="NO"/>
</xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2009-11-
01/ISOCommitmentCostDetails_v20091101.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.caiso.com/soa/2009-11-01/ISOCommitmentCostDetails_v20091101.xsd"
elementFormDefault="qualified" attributeFormDefault="unqualified">
<xs:element name="ISOCommitmentCostDetails" type="m:ISOCommitmentCostDetails"/>
<xs:complexType name="ISOCommitmentCostDetails">
<xs:sequence>
<xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
<xs:element name="MessagePayload" type="m:MessagePayload"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessageHeader">
<xs:annotation>
<xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
</xs:annotation>
<xs:sequence>
<xs:element name="TimeDate" type="xs:dateTime">
<xs:annotation>

```

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```

<xs:documentation>Application level relevant time and date for when this instance of the
message was produced.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="Source" type="xs:string">
<xs:annotation>
<xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
<xs:sequence>
<xs:element name="ISOCcommitmentCostRecord" type="m:ISOCcommitmentCostRecord"
maxOccurs="unbounded">
<xs:annotation>
<xs:documentation>Each record will contain the Commitment Flags and Commitment Cost
to validate the Bid Cost Recovery charge in Settlements.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="ISOCcommitmentCostRecord">
<xs:sequence>
<xs:element name="resource" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of a resource</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="configuration" type="xs:string" minOccurs="0">
<xs:annotation>
<xs:documentation>Configuration ID of a Multi-Stage Generator
resource</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="schedulingCoordinator" type="xs:string">
<xs:annotation>
<xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
<xs:annotation>
<xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="intervalDuration" type="xs:integer"/>
<xs:element name="marketType" type="m:AuxillaryCostMarketType">
<xs:annotation>
<xs:documentation>Same marketType enumeration as in MQSAuxillaryData
message</xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="AuxillaryCostMarketType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DAM"/>
    <xs:enumeration value="RTM"/>
    <xs:enumeration value="RUC"/>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:ISOCmtCostTradeHourData"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ISOCmtCostTradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="intervalNum" type="xs:integer"/>
    <xs:element name="StartupCost" type="xs:float" minOccurs="0"/>
    <xs:element name="StartupCostEligibilityFlag" type="m:YesNo" minOccurs="0"/>
    <xs:element name="ShutDownCost" type="xs:float" minOccurs="0"/>
    <xs:element name="ShutDownCostEligibilityFlag" type="m:YesNo" minOccurs="0"/>
    <xs:element name="NoLoadCost" type="xs:float" minOccurs="0">
      <xs:annotation>
        <xs:documentation>aka Minimum Load Cost</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="NoLoadCostEligibilityFlag" type="m:YesNo" minOccurs="0"/>
    <xs:element name="PumpingCost" type="xs:float" minOccurs="0"/>
    <xs:element name="PumpingCostEligibilityFlag" type="m:YesNo" minOccurs="0"/>
    <xs:element name="TransitionCost" type="xs:float" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Applies to MSG resources</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="TransitionCostEligibilityFlag" type="m:YesNo" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Applies to MSG reoursces</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="RMRCommitmentFlag" type="m:YesNo" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Eligibility Flag for the RMR Commitment</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>

```

```

</xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 15.6.3 Example XML File ([sampleISOCcommitmentCostDetails.xml](#))

```

<ISOCcommitmentCostDetails xmlns="http://www.caiso.com/soa/2008-05-21/ISOCcommitmentCostDetails.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.caiso.com/soa/2008-05-21/ISOCcommitmentCostDetails.xsd http://flame1/mrtu/IMS-R5/ISOCcommitmentCostDetail/ISOCcommitmentCostDetails.xsd">
  <MessageHeader>
    <TimeDate>2008-09-23T18:07:09</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <ISOCcommitmentCostRecord>
      <resource>OMAR_2_UNITS</resource>
      <schedulingCoordinator>SCE1</schedulingCoordinator>
      <tradeDate>2008-09-10</tradeDate>
      <intervalDuration>10</intervalDuration>
      <marketType>DAM</marketType>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <StartupCostEligibilityFlag>YES</StartupCostEligibilityFlag>
          <ShutdownCostEligibilityFlag>NO</ShutdownCostEligibilityFlag>
          <NoLoadCost>1652.055</NoLoadCost>
          <NoLoadCostEligibilityFlag>YES</NoLoadCostEligibilityFlag>
        </TradeHourData>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>2</intervalNum>
          <StartupCostEligibilityFlag>YES</StartupCostEligibilityFlag>
          <ShutdownCostEligibilityFlag>NO</ShutdownCostEligibilityFlag>
          <NoLoadCost>1652.055</NoLoadCost>
          <NoLoadCostEligibilityFlag>YES</NoLoadCostEligibilityFlag>
        </TradeHourData>
      </TradeHour>
    </ISOCcommitmentCostRecord>
  </MessagePayload>
</ISOCcommitmentCostDetails>

```

```

<TradeHourData>
  <HR>1</HR>
  <intervalNum>3</intervalNum>
  <StartUpCostEligibilityFlag>YES</StartUpCostEligibilityFlag>
  <ShutDownCostEligibilityFlag>NO</ShutDownCostEligibilityFlag>
  <NoLoadCost>1652.055</NoLoadCost>
  <NoLoadCostEligibilityFlag>YES</NoLoadCostEligibilityFlag>
</TradeHourData>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>4</intervalNum>
  <StartUpCostEligibilityFlag>YES</StartUpCostEligibilityFlag>
  <ShutDownCostEligibilityFlag>NO</ShutDownCostEligibilityFlag>
  <NoLoadCost>1652.055</NoLoadCost>
  <NoLoadCostEligibilityFlag>YES</NoLoadCostEligibilityFlag>
</TradeHourData>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>5</intervalNum>
  <StartUpCostEligibilityFlag>YES</StartUpCostEligibilityFlag>
  <ShutDownCostEligibilityFlag>NO</ShutDownCostEligibilityFlag>
  <NoLoadCost>1652.055</NoLoadCost>
  <NoLoadCostEligibilityFlag>YES</NoLoadCostEligibilityFlag>
</TradeHourData>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>6</intervalNum>
  <StartUpCostEligibilityFlag>YES</StartUpCostEligibilityFlag>
  <ShutDownCostEligibilityFlag>NO</ShutDownCostEligibilityFlag>
  <NoLoadCost>1652.055</NoLoadCost>
  <NoLoadCostEligibilityFlag>YES</NoLoadCostEligibilityFlag>
</TradeHourData>
</TradeHour>
</ISOCCommitmentCostRecord>
</MessagePayload>
</ISOCCommitmentCostDetails> <?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com) -->
<m:ISOCCommitmentCostDetails xsi:schemaLocation="http://www.caiso.com/soa/2009-11-01/ISOCCommitmentCostDetails_v20091101.xsd ISOCCommitmentCostDetails_v20091101.xsd"
xmlns:m="http://www.caiso.com/soa/2009-11-01/ISOCCommitmentCostDetails_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2009-12-10T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>

```

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```

<m:MessagePayload>
  <m:ISOCommitmentCostRecord>
    <m:resource>Resource1</m:resource>
    <m:configuration>Resource1_1x1</m:configuration>
    <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
    <m:tradeDate>2009-12-10</m:tradeDate>
    <m:intervalDuration>10</m:intervalDuration>
    <m:marketType>DAM</m:marketType>
    <m:TradeHour>
      <m:TradeHourData>
        <m:HR>1</m:HR>
        <m:intervalNum>1</m:intervalNum>
        <m:StartUpCost>5</m:StartUpCost>
        <m:StartUpCostEligibilityFlag>YES</m:StartUpCostEligibilityFlag>
        <m:ShutDownCost>3</m:ShutDownCost>
        <m:ShutDownCostEligibilityFlag>YES</m:ShutDownCostEligibilityFlag>
        <m:NoLoadCost>4</m:NoLoadCost>
        <m:NoLoadCostEligibilityFlag>YES</m:NoLoadCostEligibilityFlag>
        <m:PumpingCost>5</m:PumpingCost>
        <m:PumpingCostEligibilityFlag>YES</m:PumpingCostEligibilityFlag>
        <m:TransitionCost>6</m:TransitionCost>
        <m:TransitionCostEligibilityFlag>YES</m:TransitionCostEligibilityFlag>
        <m:RMRCCommitmentFlag>YES</m:RMRCCommitmentFlag>
      </m:TradeHourData>
    </m:TradeHour>
  </m:ISOCommitmentCostRecord>
</m:MessagePayload>
</m:ISOCommitmentCostDetails>

```

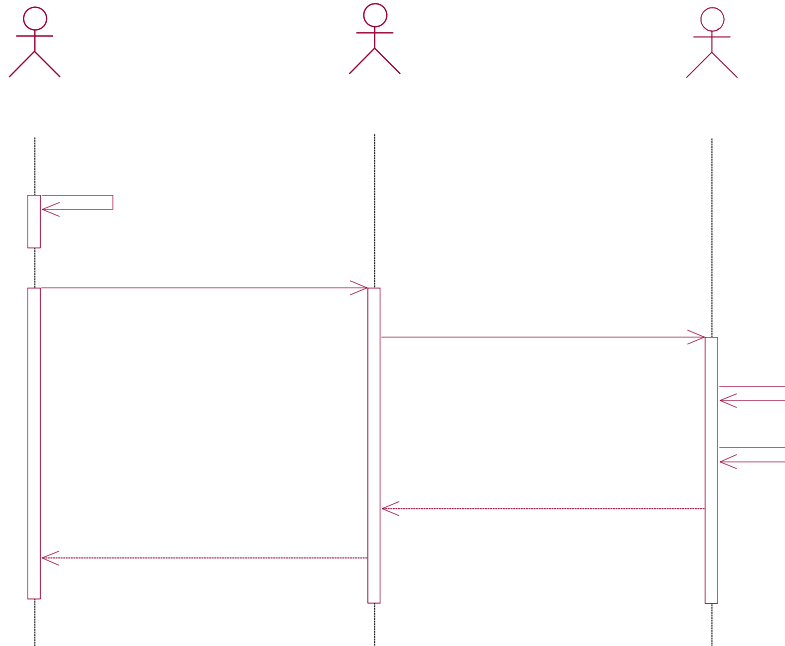
## 15.7 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 16 Retrieve Expected Energy Allocation Details

### 16.1 Use Model

The diagram below shows the sequence for retrieving ExpectedEnergyAllocationDetails data.



### 16.2 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
retrieveExpectedEnergyAllocationDetails	Input	requestexpectedenergyallocationdetails	retrieveExpectedEnergyAllocationDetails_v20091101.wsdl	RequestExpectedEnergyAllocationDetails.xsd
	Output	retrieveExpectedEnergyAllocationDetails		ExpectedEnergyAllocationDetails_v20091101.xsd
	Fault	faultReturnTypes	retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach.wsdl	StandardOutput.xsd

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### 16.3 WSDL (*retrieveExpectedEnergyAllocationDetails\_v20091101.wsdl*) RPC Style

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```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2009-11-
01/ExpectedEnergyAllocationDetails_v20091101.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergyAllocationDetails.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve the Expected Energy Allocation Details
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2008-05-
21/RequestExpectedEnergyAllocationDetails.xsd"
      schemaLocation="RequestExpectedEnergyAllocationDetails.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
      schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
      schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
```

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```

<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveExpectedEnergyAllocationDetailsRequest">
  <wsdl:part name="requestData" type="typeIn:RequestExpectedEnergyAllocationDetails">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyAllocationDetailsHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyAllocationDetailsResponse">
  <wsdl:part name="ExpectedEnergyAllocationDetails_attachment" type="xs:base64Binary">
    <wsdl:documentation>return Expected Energy Allocation Details</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturntype">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergyAllocationDetails_v20091101">
  <wsdl:operation name="retrieveExpectedEnergyAllocationDetails_v20091101">
    <wsdl:documentation>retrieve Expected Energy Allocation Details</wsdl:documentation>
    <wsdl:input message="tns:retrieveExpectedEnergyAllocationDetailsRequest" />
    <wsdl:output message="tns:retrieveExpectedEnergyAllocationDetailsResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturntype" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergyAllocationDetails_Binding"
type="tns:retrieveExpectedEnergyAllocationDetails_v20091101">
  <soap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveExpectedEnergyAllocationDetails_v20091101">
    <soap:operation style="rpc"
soapAction="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101"/>
  <wsdl:input>
    <soap:body use="literal" namespace="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101"/>
  </wsdl:input>
  <wsdl:output>
    <mime:multipartRelated>
      <mime:part>
        <soap:body use="literal" namespace="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101"/>

```



```

</mime:part>
<mime:part>
  <mime:content part="ExpectedEnergyAllocationDetails_attachment"
    type="application/octetstream"/>
</mime:part>
</mime:multipartRelated>
<soap:header message="tns:retrieveExpectedEnergyAllocationDetailsHeader"
  part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveExpectedEnergyAllocationDetails_v20091101Service">
  <wsdl:port name="retrieveExpectedEnergyAllocationDetailsServicePort"
    binding="tns:retrieveExpectedEnergyAllocationDetails_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2008-05-
21/ExpectedEnergyAllocationDetails.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2008-05-
21/RequestExpectedEnergyAllocationDetails.xsd"

```



```

<wsdl:part name="ExpectedEnergyAllocationDetails_attachment"
type="xs:base64Binary">
<wsdl:documentation>return Expected Energy Allocation
Details</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturntype">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergyAllocationDetails">
<wsdl:operation name="retrieveExpectedEnergyAllocationDetails">
<wsdl:documentation>retrieve Expected Energy Allocation
Details</wsdl:documentation>
<wsdl:input message="tns:retrieveExpectedEnergyAllocationDetailsRequest" />
<wsdl:output message="tns:retrieveExpectedEnergyAllocationDetailsResponse" />
<wsdl:fault name="faultReturn" message="tns:faultReturntype" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergyAllocationDetails_Binding"
type="tns:retrieveExpectedEnergyAllocationDetails">
<soap:binding style="rpe"
transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveExpectedEnergyAllocationDetails">
<soap:operation style="rpe"
soapAction="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails"/>
<wsdl:input>
<soap:body use="literal" namespace="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails"/>
</wsdl:input>
<wsdl:output>
<mime:multipartRelated>
<mime:part>
<soap:body use="literal" namespace="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails"/>
</mime:part>

```

```

</mime:part>
<mime:content part="ExpectedEnergyAllocationDetails_attachment"
type="application/octetstream"/>
</mime:part>
</mime:multipartRelated>
<soap:header message="tns:retrieveExpectedEnergyAllocationDetailsHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveExpectedEnergyAllocationDetailsService">
<wsdl:port name="retrieveExpectedEnergyAllocationDetailsServicePort"
binding="tns:retrieveExpectedEnergyAllocationDetails_Binding">
<soap:address location="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 16.4 WSDL (retrieveExpectedEnergyAllocationDetails\_v20091101\_DocAttach.wsdl) .NET Style

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

targetNamespace="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach.wsdl"
xmlns:tns="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach.wsdl"

xmlns:schemaInfor="http://www.caiso.com/soa/2009-11-
01/ExpectedEnergyAllocationDetails_v20091101.xsd"

```

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```

xmlns:typeIn="http://www.aiso.com/soa/2008-05-21/RequestExpectedEnergyAllocationDetails.xsd"
xmlns:typeHeader="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
xmlns:typeOut="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
xmlns:typeFault="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"/>

```

```

<wsdl:documentation>
  A web service to retrieve Expected Energy Allocation Details data
</wsdl:documentation>

```

```

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->

```

```

<wsdl:types>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2008-05-21/RequestExpectedEnergyAllocationDetails.xsd"
      schemaLocation="RequestExpectedEnergyAllocationDetails.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
        schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
        schemaLocation="ISOAttachment.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

```

```

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveExpectedEnergyAllocationDetails_DocAttachRequest">
  <wsdl:part name="requestData" element="typeIn:RequestExpectedEnergyAllocationDetails">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyAllocationDetails_DocAttachHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyAllocationDetails_DocAttachResponse">
  <wsdl:part name="ExpectedEnergyAllocationDetails_attachment" element="typeOut:ISOAttachment">
    <wsdl:documentation>return Expected Energy Allocation Details</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

```

```

</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach">
  <wsdl:operation name="retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach">
    <wsdl:documentation>retrieve Expected Energy Allocation Details</wsdl:documentation>
    <wsdl:input message="tns:retrieveExpectedEnergyAllocationDetails_DocAttachRequest" />
    <wsdl:output message="tns:retrieveExpectedEnergyAllocationDetails_DocAttachResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturnType" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergyAllocationDetails_DocAttach_Binding"
type="tns:retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach">
  <soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach">
    <soap:operation style="document"
soapAction="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:header message="tns:retrieveExpectedEnergyAllocationDetails_DocAttachHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
      <soap:body use="literal" parts="ExpectedEnergyAllocationDetails_attachment"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveExpectedEnergyAllocationDetails_v20091101_DocAttachService">
  <wsdl:port name="retrieveExpectedEnergyAllocationDetails_DocAttachServicePort"
binding="tns:retrieveExpectedEnergyAllocationDetails_DocAttach_Binding">
    <soap:address location="http://www.caiso.com/soa/2009-11-
01/retrieveExpectedEnergyAllocationDetails_v20091101_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"

```

```

<!-- xmlns:xs="http://www.w3.org/2001/XMLSchema"
-->
<!-- xmlns="http://schemas.xmlsoap.org/wsdl/"
-->
<!-- xmlns:wsi="http://www.w3.org/2001/XMLSchema"
-->
<!-- xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
-->
<!-- xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
-->
<!-- xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
-->
<!-- targetNamespace="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergyAllocationDetails_DocAttach.wsdl"
-->
<!-- xmlns:tns="http://www.caiso.com/soa/2008-08-09/retrieveExpectedEnergyAllocationDetails_DocAttach.wsdl"
-->
<!-- xmlns:schemaInfor="http://www.caiso.com/soa/2008-05-21/ExpectedEnergyAllocationDetails.xsd"
-->
<!-- xmlns:typeIn="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergyAllocationDetails.xsd"
-->
<!-- xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
-->
<!-- xmlns:typeOut="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
-->
<!-- xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">
-->
<wsi:documentation>
  A web service to retrieve Expected Energy Allocation Details data
</wsi:documentation>
<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<wsi:types>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2008-05-21/RequestExpectedEnergyAllocationDetails.xsd"
      schemaLocation="RequestExpectedEnergyAllocationDetails.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
      schemaLocation="StandardAttachmentInfor.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
      schemaLocation="ISOAttachment.xsd" />
  </xs:schema>

```

```

</xs:schema>
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveExpectedEnergyAllocationDetails_DocAttachRequest">
  <wsdl:part name="requestData"
  element="typeIn:RequestExpectedEnergyAllocationDetails">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveExpectedEnergyAllocationDetails_DocAttachHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor"
  element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message
name="retrieveExpectedEnergyAllocationDetails_DocAttachResponse">
  <wsdl:part name="ExpectedEnergyAllocationDetails_attachment"
  element="typeOut:ISOAttachment">
    <wsdl:documentation>return Expected Energy Allocation
Details</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturntype">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveExpectedEnergyAllocationDetails_DocAttach">
  <wsdl:operation name="retrieveExpectedEnergyAllocationDetails_DocAttach">
    <wsdl:documentation>retrieve Expected Energy Allocation
Details</wsdl:documentation>
    <wsdl:input
message="tns:retrieveExpectedEnergyAllocationDetails_DocAttachRequest" />

```



```

</wsdl:output
message="tns:retrieveExpectedEnergyAllocationDetails_DocAttachResponse" />
</wsdl:fault name="faultReturn" message="tns:faultReturn" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveExpectedEnergyAllocationDetails_DocAttach_Binding"
type="tns:retrieveExpectedEnergyAllocationDetails_DocAttach">
<soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveExpectedEnergyAllocationDetails_DocAttach">
<soap:operation style="document"
soapAction="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails_DocAttach"/>
<wsdl:input>
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output>
<soap:header
message="tns:retrieveExpectedEnergyAllocationDetails_DocAttachHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
<soap:body use="literal" parts="ExpectedEnergyAllocationDetails_attachment"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveExpectedEnergyAllocationDetails_DocAttachService">
<wsdl:port name="retrieveExpectedEnergyAllocationDetails_DocAttachServicePort"
binding="tns:retrieveExpectedEnergyAllocationDetails_DocAttach_Binding">
<soap:address location="http://www.caiso.com/soa/2008-08-
09/retrieveExpectedEnergyAllocationDetails_DocAttach"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 16.5 Expected Energy Allocation Details Request

### 16.5.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
IntervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains.	integer	No
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
marketServiceType	Market Service Type. Market Service Type depends on the SC's bid curve and market results. Valid values are ME (Market Energy Capacity), SR (Spin Capacity), NR (Non-spin Capacity), DAC (Day-Ahead Energy Capacity), DEC (Derate Capacity), NO_BID (when no bid segment is associated with the record).	string	No
resource	The unique identifier for a resource.	string	No

## 16.5.2 Schema (RequestExpectedEnergyAllocationDetails.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Dagmar Haller
(California ISO) -->
<xs:schema xmlns="http://www.aiso.com/soa/2008-05-
21/RequestExpectedEnergyAllocationDetails.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.aiso.com/soa/2008-05-
21/RequestExpectedEnergyAllocationDetails.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="RequestExpectedEnergyAllocationDetails"
type="RequestExpectedEnergyAllocationDetails"/>
  <xs:complexType name="RequestExpectedEnergyAllocationDetails">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="HRList" type="HRList" minOccurs="0"/>
      <xs:element name="intervalNumList" type="intervalNumList" minOccurs="0"/>
      <xs:element name="schedulingCoordinator" type="xs:string" minOccurs="0"/>
      <xs:element name="marketServiceTypeList" type="marketServiceTypeList"
minOccurs="0"/>
      <xs:element name="resourceList" type="resourceList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HRList">
    <xs:sequence>
      <xs:element name="HR" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="resourceList">
    <xs:sequence>
      <xs:element name="resource" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="marketServiceTypeList">
    <xs:sequence>
      <xs:element name="marketServiceType" type="MarketServiceType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="MarketServiceType">
    <xs:annotation>

```



<xs:documentation>ME -- Marker Energy Capacity SR -- Spin Capacity NR -- Non-spin Capacity DAC -- Day-ahead Energy Capacity DEC -- Derate Capacity</xs:documentation>

```

</xs:annotation>
<xs:restriction base="xs:string">
  <xs:enumeration value="ME"/>
  <xs:enumeration value="SR"/>
  <xs:enumeration value="NR"/>
  <xs:enumeration value="DAC"/>
  <xs:enumeration value="DEC"/>
</xs:restriction>
</xs:simpleType>
<xs:complexType name="intervalNumList">
  <xs:sequence>
    <xs:element name="intervalNum" type="IntervalNumType"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="IntervalNumType">
  <xs:restriction base="xs:integer">
    <xs:enumeration value="1"/>
    <xs:enumeration value="2"/>
    <xs:enumeration value="3"/>
    <xs:enumeration value="4"/>
    <xs:enumeration value="5"/>
    <xs:enumeration value="6"/>
    <xs:enumeration value="7"/>
    <xs:enumeration value="8"/>
    <xs:enumeration value="9"/>
    <xs:enumeration value="10"/>
    <xs:enumeration value="11"/>
    <xs:enumeration value="12"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

## 16.6 ExpectedEnergyAllocationDetails Response

### 16.6.1 Element Table

Element	Data Description	Type	Req'd
---------	------------------	------	-------

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
resource	The unique identifier for a resource.	string	Yes
<u>configuration</u>	<u>The unique identifier for a configuration of an MSG (multi-stage generator) resource.</u> <u>This element will be populated when the transaction applies to an MSG resource; otherwise this element will not be included in the output payload.</u>	string	No
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
intervalDuration	The duration of an interval in minutes (in California Prevailing Time).	integer	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
intervalNum	The interval number. An interval represents a specific part of a trade hour to which the current record pertains. A trade hour may comprise of one or more intervals, of equal duration, based on the interval duration. For example, if the interval duration is 60 minutes, the trade hour will comprise of only one interval of 60 minutes. If, on the other hand, the interval duration is 15 minutes, the trade hour will comprise of four intervals of 15 minutes each. The intervals are numbered sequentially starting with the earliest one numbered 1.	integer	Yes
marketServiceType	Market Service Type. Market Service Type depends on the SC's bid curve and market results. Valid values are ME (for Market Energy Capacity), SR (for Spin Capacity), NR (for Non-spin Capacity), DAC (for Day-Ahead Energy Capacity), DEC (for Derate Capacity), NO_BID (when no bid segment is associated with the record).	string	Yes
energyTypeCode	Energy component for which the settlement allocation is based on. Examples are: Optimal Energy, Standard Ramping Energy, Ramping Energy Deviation, Residual Energy, Minimum Load Energy, SLIC Energy, Exceptional Dispatch Energy, RMR Energy, MSSLF Energy, Real-Time Self-Scheduled Energy, Pumping Energy, etc. <i>Note:</i> For a listing of all of the valid EE types, reference The BPM for Market Operations, Appendix C, Section C.4	string	Yes

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Element	Data Description	Type	Req'd
bidPrice	The price awarded per Market Service Type from the SC's Bid Curve in dollar \$ unit	float	No
expectedEnergy	The expected energy value in MWH unit.	float	Yes
MSS-OE overlapping	Indicates that the MSS load following energy overlaps with the optimal energy (Y/N)	string	Yes

### 16.6.2 Schema (ExpectedEnergyAllocationDetails\_v20091101.xsd)

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```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2009-11-01/ExpectedEnergyAllocationDetails_v20091101.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2009-11-01/ExpectedEnergyAllocationDetails_v20091101.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="ExpectedEnergyAllocationDetails" type="m:ExpectedEnergyAllocationDetails"/>
  <xs:complexType name="ExpectedEnergyAllocationDetails">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">
        <xs:annotation>
          <xs:documentation>Source system that publishes the message. For CAISO, examples include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC, etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="ExpectedEnergyAllocRecord" type="m:ExpectedEnergyAllocRecord" minOccurs="0" maxOccurs="unbounded">
        <xs:annotation>

```

```

<xs:documentation>Displays the post-market Expected Energy results from energy
accounting process</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="ExpectedEnergyAllocRecord">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
      </xs:element>
      <xs:element name="configuration" type="xs:string" minOccurs="0">
        <xs:annotation>
          <xs:documentation>Configuration ID of a Multi-Stage Generator
resource</xs:documentation>
        </xs:annotation>
        </xs:element>
        <xs:element name="schedulingCoordinator" type="xs:string">
          <xs:annotation>
            <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
          </xs:annotation>
          </xs:element>
          <xs:element name="tradeDate" type="xs:date">
            <xs:annotation>
              <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
            </xs:annotation>
            </xs:element>
            <xs:element name="intervalDuration" type="xs:integer"/>
            <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
          </xs:sequence>
        </xs:complexType>
        <xs:complexType name="TradeHour">
          <xs:sequence>
            <xs:element name="TradeHourData" type="m:EEAllocTradeHourData"
maxOccurs="unbounded"/>
          </xs:sequence>
        </xs:complexType>
        <xs:complexType name="EEAllocTradeHourData">
          <xs:sequence>
            <xs:element name="HR" type="xs:integer">
              <xs:annotation>
                <xs:documentation>trade hour</xs:documentation>
              </xs:annotation>
              </xs:element>
              <xs:element name="intervalNum" type="xs:integer"/>
              <xs:element name="marketServiceType" type="m:MarketServiceType"/>
              <xs:element name="energyTypeCode" type="xs:string"/>
              <xs:element name="bidPrice" type="xs:float" minOccurs="0">
                <xs:annotation>
                  <xs:documentation>Bid price in dollar $ unit</xs:documentation>
                </xs:annotation>
              </xs:element>
            </xs:sequence>
          </xs:complexType>
        </xs:sequence>
      </xs:complexType>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:annotation>
</xs:element>
<xs:element name="expectedEnergy" type="xs:float">
  <xs:annotation>
    <xs:documentation>Expected energy value in MWh</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="OEOverlapMSS" type="m:YesNo" minOccurs="0">
  <xs:annotation>
    <xs:documentation>For both Expected Energy and Expected Energy Allocation reports, this
flag indicates the overlapping expected energy between OE and MSSLFE.</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="MarketServiceType">
  <xs:annotation>
    <xs:documentation>ME -- Marker Energy Capacity SR -- Spin Capacity NR -- Non-spin Capacity
DAC -- Day-ahead Energy Capacity DEC -- Derate Capacity</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="ME"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="DAC"/>
    <xs:enumeration value="DEC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.aiso.com/soa/2008-05-
21/ExpectedEnergyAllocationDetails.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.aiso.com/soa/2008-05-
21/ExpectedEnergyAllocationDetails.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="ExpectedEnergyAllocationDetails"
type="m:ExpectedEnergyAllocationDetails"/>
  <xs:complexType name="ExpectedEnergyAllocationDetails">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader"
minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>

```



```

</xs:complexType>
<xs:complexType name="MessageHeader">
  <xs:annotation>
    <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime">
      <xs:annotation>
        <xs:documentation>Application level relevant time and date for when this
instance of the message was produced.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Source" type="xs:string">
      <xs:annotation>
        <xs:documentation>Source system that publishes the message. For CAISO,
examples include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC,
RTM, SaMC, SIBR, SLIC, etc.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="ExpectedEnergyAllocRecord"
type="m:ExpectedEnergyAllocRecord" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Displays the post market Expected Energy results from
energy accounting process</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ExpectedEnergyAllocRecord">
  <xs:sequence>
    <xs:element name="resource" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of a resource</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling
Coordinator</xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="tradeDate" type="xs:date">
<xs:annotation>
<xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="intervalDuration" type="xs:integer"/>
<xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
<xs:sequence>
<xs:element name="TradeHourData" type="m:EEAllocTradeHourData"
maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="EEAllocTradeHourData">
<xs:sequence>
<xs:element name="HR" type="xs:integer">
<xs:annotation>
<xs:documentation>trade hour</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="intervalNum" type="xs:integer"/>
<xs:element name="marketServiceType" type="m:MarketServiceType"/>
<xs:element name="energyTypeCode" type="xs:string"/>
<xs:element name="bidPrice" type="xs:float" minOccurs="0">
<xs:annotation>
<xs:documentation>Bid price in dollar $ unit</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="expectedEnergy" type="xs:float">
<xs:annotation>
<xs:documentation>Expected energy value in MWh</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="OEOverlapMSS" type="m:YesNo" minOccurs="0">
<xs:annotation>
<xs:documentation>For both Expected Energy and Expected Energy
Allocation reports, this flag indicates the overlapping expected energy between OE and
MSSLFE.</xs:documentation>
</xs:annotation>

```

```

</xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="MarketServiceType">
  <xs:annotation>
    <xs:documentation>ME — Marker Energy Capacity SR — Spin Capacity NR —
    Non spin Capacity DAC — Day ahead Energy Capacity DEC — Derate
    Capacity</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="ME"/>
    <xs:enumeration value="SR"/>
    <xs:enumeration value="NR"/>
    <xs:enumeration value="DAC"/>
    <xs:enumeration value="DEC"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 16.6.3 Example XML File ([sampleExpectedEnergyAllocationDetails.xml](#))

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by California ISO (California ISO) -->
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:ExpectedEnergyAllocationDetails xsi:schemaLocation="http://www.aiso.com/soa/2009-11-
01/ExpectedEnergyAllocationDetails_v20091101.xsd ExpectedEnergyAllocationDetails_v20091101.xsd"
xmlns:m="http://www.aiso.com/soa/2009-11-01/ExpectedEnergyAllocationDetails_v20091101.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2010-06-17T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:ExpectedEnergyAllocRecord>
      <m:resource>Resource1</m:resource>
      <m:configuration>Resource1_2x1</m:configuration>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:tradeDate>2010-06-17</m:tradeDate>
      <m:intervalDuration>5</m:intervalDuration>
      <m:TradeHour>

```

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```

<m:TradeHourData>
  <m:HR>1</m:HR>
  <m:intervalNum>1</m:intervalNum>
  <m:marketServiceType>NR</m:marketServiceType>
  <m:energyTypeCode>OE</m:energyTypeCode>
  <m:bidPrice>35.14</m:bidPrice>
  <m:expectedEnergy>2.44</m:expectedEnergy>
  <m:OEOverlapMSS>YES</m:OEOverlapMSS>
</m:TradeHourData>
<m:TradeHourData>
  <m:HR>1</m:HR>
  <m:intervalNum>1</m:intervalNum>
  <m:marketServiceType>DAC</m:marketServiceType>
  <m:energyTypeCode>MLE</m:energyTypeCode>
  <m:bidPrice>57.22</m:bidPrice>
  <m:expectedEnergy>6.12</m:expectedEnergy>
  <m:OEOverlapMSS>NO</m:OEOverlapMSS>
</m:TradeHourData>
</m:TradeHour>
</m:ExpectedEnergyAllocRecord>
</m:MessagePayload>
</m:ExpectedEnergyAllocationDetails>
<?xml version="1.0" encoding="UTF-8"?>
<ExpectedEnergyAllocationDetails xmlns="http://www.caiso.com/soa/2008-05-21/ExpectedEnergyAllocationDetails.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.caiso.com/soa/2008-05-21/ExpectedEnergyAllocationDetails.xsd http://flame1/mrtu/IMS-R5/ExpectedEnergyAllocationDetails/ExpectedEnergyAllocationDetails.xsd">
  <MessageHeader>
    <TimeDate>2008-09-23T16:08:04</TimeDate>
    <Source>CAISO</Source>
  </MessageHeader>
  <MessagePayload>
    <ExpectedEnergyAllocRecord>
      <resource>BARRE_6_PEAKEK</resource>
      <schedulingCoordinator>SCE1</schedulingCoordinator>
      <tradeDate>2008-09-10</tradeDate>
      <intervalDuration>5</intervalDuration>
      <TradeHour>
        <TradeHourData>
          <HR>1</HR>
          <intervalNum>1</intervalNum>
          <marketServiceType>NR</marketServiceType>
          <energyTypeCode>OE</energyTypeCode>
          <bidPrice>98.12</bidPrice>
          <expectedEnergy>.029166666666666666</expectedEnergy>
          <OEOverlapMSS>NO</OEOverlapMSS>

```

```
</TradeHourData>
<TradeHourData>
  <HR>1</HR>
  <intervalNum>1</intervalNum>
  <marketServiceType>DAC</marketServiceType>
  <energyTypeCode>MLE</energyTypeCode>
  <expectedEnergy>2</expectedEnergy>
  <OEOverlapMSS>NO</OEOverlapMSS>
</TradeHourData>
</TradeHour>
</ExpectedEnergyAllocRecord>
</MessagePayload>
</ExpectedEnergyAllocationDetails>
```

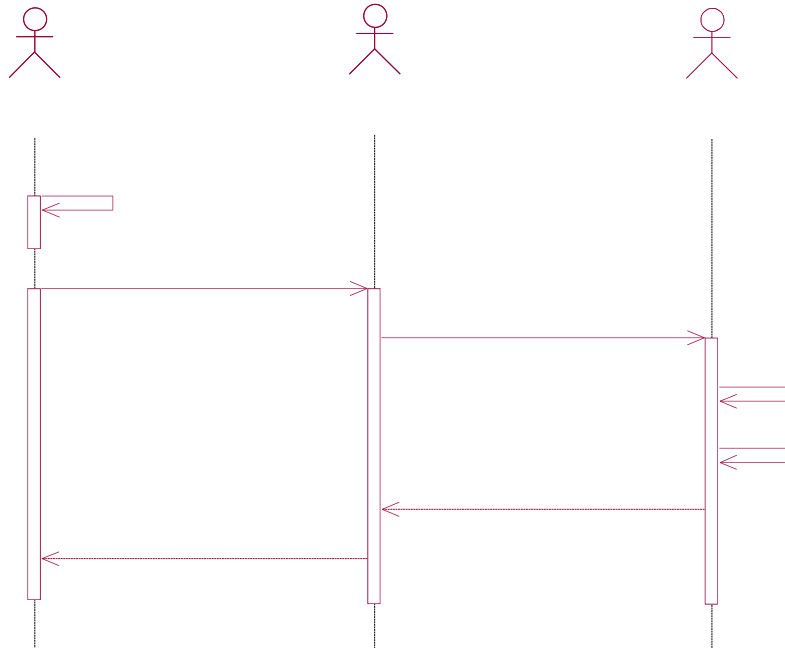
### 16.7 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 17 Retrieve Two Day Ahead MSSA Load Forecast

### 17.1 Use Model

The diagram below shows the sequence for retrieving Two Day Ahead MSSA Load Forecast data.



### 17.2 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
retrieveTwoDayMSSALoadForecast	Input	RequestTwoDayMSSALoadForecast	retrieveTwoDayMSSALoadForecast.wsdl	RequestTwoDayMSSALoadForecast.xsd
	Output	retrieveTwoDayMSSALoadForecast	retrieveTwoDayMSSALoadForecast_DocAttach.wsdl	TwoDayMSSALoadForecast.xsd
	Fault	faultReturnTypes		StandardOutput.xsd

### 17.3 WSDL (retrieveTwoDayMSSALoadForecast.wsdl)

```

<?xml version="1.0" encoding="utf-8" ?>
- <wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"

```



```
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:wsi="http://ws-
i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
targetNamespace="http://www.aiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast.wsdl"
xmlns:tns="http://www.aiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast.wsdl"
xmlns:typeIn="http://www.aiso.com/soa/2008-08-
09/RequestTwoDayMSSALoadForecast.xsd"
xmlns:typeOut="http://www.aiso.com/soa/2008-08-
09/TwoDayMSSALoadForecast.xsd" xmlns:typeFault="http://www.aiso.com/soa/2006-
06-13/StandardOutput.xsd">
  <wsdl:documentation>A web service to retrieve Two Day Ahead MSSA Load Forecast
data</wsdl:documentation>
- <!-- type elements define data types used in this wsdl document using xml schema
-->
- <!-- note the namespaces defined matched up with the typeIn and typeOut defined
above
-->
- <wsdl:types>
- <xs:schema>
  <xs:import namespace="http://www.aiso.com/soa/2008-08-
09/RequestTwoDayMSSALoadForecast.xsd"
schemaLocation="RequestTwoDayMSSALoadForecast.xsd" />
  </xs:schema>
- <xs:schema>
  <xs:import namespace="http://www.aiso.com/soa/2008-08-
09/TwoDayMSSALoadForecast.xsd"
schemaLocation="TwoDayMSSALoadForecast.xsd" />
  </xs:schema>
- <xs:schema>
  <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>
- <!-- message elements define input and output parameters
-->
- <!-- a request and response case to use the data type defined in TYPE for payload
-->
- <wsdl:message name="retrieveTwoDayMSSALoadForecastRequest">
```

```

- <wsdl:part name="requestData"
element="typeIn:RequestTwoDayMSSALoadForecast">
  <wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
- <wsdl:message name="retrieveTwoDayMSSALoadForecastResponse">
- <wsdl:part name="TwoDayMSSALoadForecast"
element="typeOut:TwoDayMSSALoadForecast">
  <wsdl:documentation>return Two Day Ahead Load Forecast
data</wsdl:documentation>
</wsdl:part>
</wsdl:message>
- <wsdl:message name="faultReturn" type="faultReturn">
- <wsdl:part name="faultReturn" element="typeFault:outputDataType">
  <wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
- <!-- portType elements define the abstract interface of a web service
-->
- <!-- to use the message type defined in message above
-->
- <wsdl:portType name="retrieveTwoDayMSSALoadForecast">
- <wsdl:operation name="retrieveTwoDayMSSALoadForecast">
  <wsdl:documentation>retrieve Two Day Ahead Load Forecast
data</wsdl:documentation>
  <wsdl:input name="requestData"
message="tns:retrieveTwoDayMSSALoadForecastRequest" />
  <wsdl:output name="TwoDayMSSALoadForecast"
message="tns:retrieveTwoDayMSSALoadForecastResponse" />
  <wsdl:fault name="faultReturn" message="tns:faultReturn" />
</wsdl:operation>
</wsdl:portType>
- <!-- binding elements define protocols and encoding styles
-->
- <!-- to bind the operation defined in portType
-->
- <wsdl:binding name="retrieveTwoDayMSSALoadForecast_Binding"
type="tns:retrieveTwoDayMSSALoadForecast">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http" />
- <wsdl:operation name="retrieveTwoDayMSSALoadForecast">
  <soap:operation style="document" soapAction="http://www.aiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast" />
- <wsdl:input name="requestData">
  <soap:body use="literal" />

```





```
</wsdl:input>
- <wsdl:output name="TwoDayMSSALoadForecast">
  <soap:body use="literal" />
</wsdl:output>
- <wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal" />
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
- <wsdl:service name="retrieveTwoDayMSSALoadForecastService">
- <wsdl:port name="retrieveTwoDayMSSALoadForecastServicePort"
binding="tns:retrieveTwoDayMSSALoadForecast_Binding">
  <soap:address location="http://www.caiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast" />
</wsdl:port>
</wsdl:service>
</wsdl:definitions>
```

#### **17.4 WSDL (retrieveTwoDayMSSALoadForecast\_DocAttach.wsdl) .NET Style**

```
<?xml version="1.0" encoding="utf-8" ?>
- <wsdl:definitions xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:ws-i="http://ws-
i.org/schemas/conformanceClaim/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
targetNamespace="http://www.caiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast_DocAttach.wsdl"
xmlns:tns="http://www.caiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast_DocAttach.wsdl"
xmlns:schemaInfor="http://www.caiso.com/soa/2008-08-
09/TwoDayMSSALoadForecast.xsd" xmlns:typeIn="http://www.caiso.com/soa/2008-08-
09/RequestTwoDayMSSALoadForecast.xsd"
xmlns:typeHeader="http://www.caiso.com/soa/2006-06-
13/StandardAttachmentInfor.xsd" xmlns:typeOut="http://www.caiso.com/soa/2006-10-
26/ISOAttachment.xsd" xmlns:typeFault="http://www.caiso.com/soa/2006-06-
13/StandardOutput.xsd">
  <wsdl:documentation>A web service to retrieve Two Day Ahead MSSA Load Forecast
data</wsdl:documentation>
- <!-- type elements define data types used in this wsdl document using xml schema
```

```

-->
- <!-- note the namespaces defined matched up with the typeIn and typeOut defined
above
-->
- <wsdl:types>
- <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2008-08-
09/RequestTwoDayMSSALoadForecast.xsd"
schemaLocation="RequestTwoDayMSSALoadForecast.xsd" />
  </xs:schema>
- <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2006-06-
13/StandardAttachmentInfor.xsd" schemaLocation="StandardAttachmentInfor.xsd" />
  </xs:schema>
- <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"
schemaLocation="ISOAttachment.xsd" />
  </xs:schema>
- <xs:schema>
  <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>
- <!-- message elements define input and output parameters
-->
- <!-- a request and response case to use the data type defined in TYPE for payload
-->
- <wsdl:message name="retrieveTwoDayMSSALoadForecast_DocAttachRequest">
- <wsdl:part name="requestData"
element="typeIn:RequestTwoDayMSSALoadForecast">
  <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
- <wsdl:message name="retrieveTwoDayMSSALoadForecast_DocAttachHeader">
- <!-- attachment wrapper
-->
- <wsdl:part name="standardAttachmentInfor"
element="typeHeader:standardAttachmentInfor">
  <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
- <wsdl:message name="retrieveTwoDayMSSALoadForecast_DocAttachResponse">
- <wsdl:part name="TwoDayMSSALoadForecast_attachment"
element="typeOut:ISOAttachment">

```

```

<wsdl:documentation>return Two Day Ahead MSSA Load Forecast
data</wsdl:documentation>
</wsdl:part>
</wsdl:message>
- <wsdl:message name="faultReturn" type="typeFault:outputDataType">
- <wsdl:part name="faultReturn" element="typeFault:outputDataType">
  <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
- <!-- portType elements define the abstract interface of a web service
-->
- <!-- to use the message type defined in message above
-->
- <wsdl:portType name="retrieveTwoDayMSSALoadForecast_DocAttach">
- <wsdl:operation name="retrieveTwoDayMSSALoadForecast_DocAttach">
  <wsdl:documentation>retrieve Two Day Ahead MSSA Load Forecast
data</wsdl:documentation>
  <wsdl:input message="tns:retrieveTwoDayMSSALoadForecast_DocAttachRequest" />
  <wsdl:output message="tns:retrieveTwoDayMSSALoadForecast_DocAttachResponse"
  />
  <wsdl:fault name="faultReturn" message="tns:faultReturn" />
</wsdl:operation>
</wsdl:portType>
- <!-- binding elements define protocols and encoding styles
-->
- <!-- to bind the operation defined in portType
-->
- <wsdl:binding name="retrieveTwoDayMSSALoadForecast_DocAttach_Binding"
type="tns:retrieveTwoDayMSSALoadForecast_DocAttach">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http" />
- <wsdl:operation name="retrieveTwoDayMSSALoadForecast_DocAttach">
  <soap:operation style="document" soapAction="http://www.caiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast_DocAttach" />
- <wsdl:input>
  <soap:body use="literal" />
</wsdl:input>
- <wsdl:output>
  <soap:header message="tns:retrieveTwoDayMSSALoadForecast_DocAttachHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true" />
  <soap:body use="literal" parts="TwoDayMSSALoadForecast_attachment" />
</wsdl:output>
- <wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal" />
</wsdl:fault>

```



```

</wsdl:operation>
</wsdl:binding>
- <wsdl:service name="retrieveTwoDayMSSALoadForecast_DocAttachService">
- <wsdl:port name="retrieveTwoDayMSSALoadForecast_DocAttachServicePort"
binding="tns:retrieveTwoDayMSSALoadForecast_DocAttach_Binding">
  <soap:address location="http://www.caiso.com/soa/2008-08-
09/retrieveTwoDayMSSALoadForecast_DocAttach" />
</wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

## 17.5 TwoDayMSSALoadForecast Request

### 17.5.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
HR	The hour of the trade day for which the data is requested (in California Prevailing Time).	integer	No
scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes

## 17.5.2 Schema (RequestTwoDayMSSALoadForecast.xsd)

```
<?xml version="1.0" encoding="UTF-8" ?>
- <!-- edited with XMLSpy v2007 sp2 (http://www.altova.com) by Dagmar Haller
(California ISO)
-->
- <xs:schema xmlns="http://www.aiso.com/soa/2008-08-
09/RequestTwoDayMSSALoadForecast.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.aiso.com/soa/2008-08-
09/RequestTwoDayMSSALoadForecast.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="RequestTwoDayMSSALoadForecast"
type="RequestTwoDayMSSALoadForecast" />
- <xs:complexType name="RequestTwoDayMSSALoadForecast">
- <xs:sequence>
  <xs:element name="tradeDateStart" type="xs:date" />
  <xs:element name="tradeDateEnd" type="xs:date" />
  <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList" />
</xs:sequence>
</xs:complexType>
- <xs:complexType name="schedulingCoordinatorList">
- <xs:sequence>
  <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"
/>
</xs:sequence>
</xs:complexType>
</xs:schema>
```

## 17.6 TwoDayMSSALoadForecast Response

### 17.6.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes

Element	Data Description	Type	Req'd
<b>Message Payload</b>			
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
MW	MW for the TradeHourData	float	No

### 17.6.2 Schema (TwoDayMSSALoadForecast.xsd)

```
<?xml version="1.0" encoding="UTF-8" ?>
- <xs:schema xmlns:m="http://www.caiso.com/soa/2008-08-09/TwoDayMSSALoadForecast.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema"
attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="http://www.caiso.com/soa/2008-08-09/TwoDayMSSALoadForecast.xsd">
  <xs:element name="TwoDayMSSALoadForecast"
type="m:TwoDayMSSALoadForecast" />
- <xs:complexType name="TwoDayMSSALoadForecast">
- <xs:sequence>
  <xs:element minOccurs="0" name="MessageHeader" type="m:MessageHeader" />
  <xs:element name="MessagePayload" type="m:MessagePayload" />
</xs:sequence>
</xs:complexType>
- <xs:complexType name="MessageHeader">
- <xs:annotation>
  <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
</xs:annotation>
- <xs:sequence>
- <xs:element name="TimeDate" type="xs:dateTime">
- <xs:annotation>
  <xs:documentation>Application level relevant time and date for when this instance of
the message was produced.</xs:documentation>
```



```
</xs:annotation>
</xs:element>
- <xs:element name="Source" type="xs:string">
- <xs:annotation>
  <xs:documentation>Source system that publishes the message. For CAISO, examples
  include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC,
  SIBR, SLIC, etc.</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
- <xs:complexType name="MessagePayload">
- <xs:sequence>
  <xs:element minOccurs="1" maxOccurs="unbounded"
  name="TwoDayMSSALoadForecastRecord"
  type="m:TwoDayMSSALoadForecastRecord" />
</xs:sequence>
</xs:complexType>
- <xs:complexType name="TwoDayMSSALoadForecastRecord">
- <xs:sequence>
- <xs:element minOccurs="1" name="schedulingCoordinator" type="xs:string">
- <xs:annotation>
  <xs:documentation>Unique identifier of the Scheduling
  Coordinator</xs:documentation>
</xs:annotation>
</xs:element>
- <xs:element minOccurs="1" name="tradeDate" type="xs:date">
- <xs:annotation>
  <xs:documentation>Date on when the trade transaction occurs within the
  market</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element minOccurs="1" maxOccurs="25" name="TradeHour"
type="m:TradeHour" />
</xs:sequence>
```



```
</xs:complexType>
- <xs:complexType name="TradeHour">
- <xs:sequence>
  <xs:element minOccurs="1" maxOccurs="unbounded" name="TradeHourData"
type="m:TwoDayMSSALdFcstTradeHourData" />
</xs:sequence>
</xs:complexType>
- <xs:complexType name="TwoDayMSSALdFcstTradeHourData">
- <xs:sequence>
- <xs:element minOccurs="1" name="HR" type="xs:integer">
- <xs:annotation>
  <xs:documentation>trade hour</xs:documentation>
</xs:annotation>
</xs:element>
  <xs:element minOccurs="1" name="MW" type="xs:float" />
</xs:sequence>
</xs:complexType>
</xs:schema>
```

### 17.6.3 Example XML File (TwoDayMSSALoadForecast.xml)

```
< TwoDayMSSALoadForecast xmlns=" http://www.caiso.com/soa/2008-08-09/TwoDayMSSALoadForecast.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=" http://www.caiso.com/soa/2008-08-09/TwoDayMSSALoadForecast.xsd http://flame1/mrtu/services/TwoDayAheadMSSALoadForecast/v20080809-1.0/TwoDayMSSALoadForecast.xsd">
  <?xml version="1.0" encoding="UTF-8"?>
  <TwoDayMSSALoadForecast xmlns="http://www.caiso.com/soa/2008-08-09/TwoDayMSSALoadForecast.xsd">
    <MessageHeader>
      <TimeDate>2009-03-25T13:59:14</TimeDate>
      <Source>CAISO</Source>
    </MessageHeader>
    <MessagePayload>
      <TwoDayMSSALoadForecastRecord>
        <schedulingCoordinator>VERN</schedulingCoordinator>
        <tradeDate>2009-03-27</tradeDate>
        <TradeHour>
```



```
<TradeHourData>
  <HR>1</HR>
  <MW>123</MW>
</TradeHourData>
<TradeHourData>
  <HR>2</HR>
  <MW>120</MW>
</TradeHourData>
<TradeHourData>
  <HR>3</HR>
  <MW>117</MW>
</TradeHourData>
<TradeHourData>
  <HR>4</HR>
  <MW>117.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>5</HR>
  <MW>123</MW>
</TradeHourData>
<TradeHourData>
  <HR>6</HR>
  <MW>133.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>7</HR>
  <MW>145</MW>
</TradeHourData>
<TradeHourData>
  <HR>8</HR>
  <MW>152</MW>
</TradeHourData>
<TradeHourData>
  <HR>9</HR>
  <MW>156</MW>
</TradeHourData>
<TradeHourData>
  <HR>10</HR>
  <MW>158</MW>
</TradeHourData>
<TradeHourData>
  <HR>11</HR>
  <MW>158.5</MW>
</TradeHourData>
```

```
<TradeHourData>
  <HR>12</HR>
  <MW>158.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>13</HR>
  <MW>157.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>14</HR>
  <MW>156</MW>
</TradeHourData>
<TradeHourData>
  <HR>15</HR>
  <MW>156</MW>
</TradeHourData>
<TradeHourData>
  <HR>16</HR>
  <MW>151</MW>
</TradeHourData>
<TradeHourData>
  <HR>17</HR>
  <MW>142</MW>
</TradeHourData>
<TradeHourData>
  <HR>18</HR>
  <MW>135.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>19</HR>
  <MW>129.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>20</HR>
  <MW>129.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>21</HR>
  <MW>128.5</MW>
</TradeHourData>
<TradeHourData>
  <HR>22</HR>
  <MW>125</MW>
</TradeHourData>
```



```
<TradeHourData>  
  <HR>23</HR>  
  <MW>123.5</MW>  
</TradeHourData>  
<TradeHourData>  
  <HR>24</HR>  
  <MW>118</MW>  
</TradeHourData>  
</TradeHour>  
</TwoDayMSSALoadForecastRecord>  
</MessagePayload>  
</TwoDayMSSALoadForecast>
```

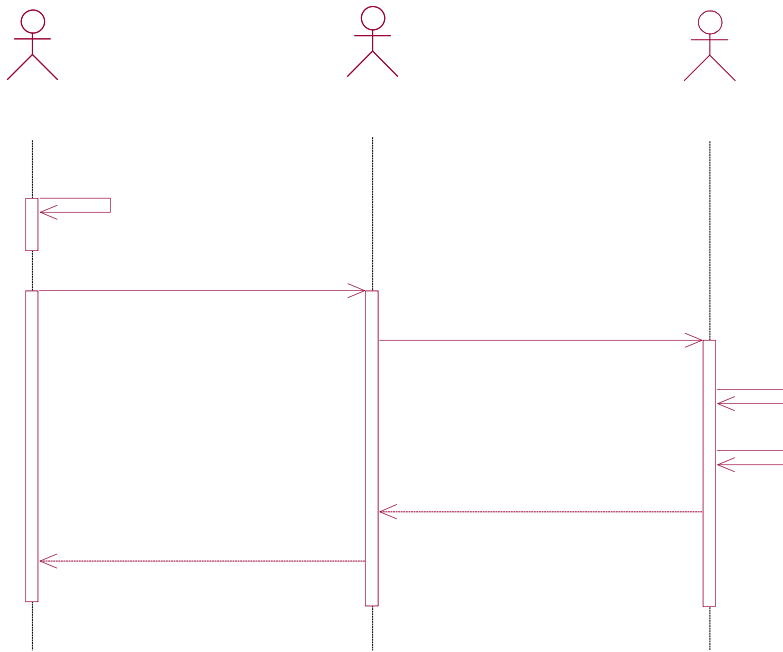
### 17.7 **Fault Return**

The fault return message is the same for all PTR services—see Section 4.6.

## 18 Retrieve Convergence Bid Awards

### 18.1 Use Model

The diagram below shows the sequence for retrieving Convergence Bid Award data.



## 18.2 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
retrieveConvergenceBidAwards	Input	RetrieveConvergenceBidAwards	retrieveConvergenceBidAwards_v20100301.wsdl	RequestConvergenceBidAwards_v20100301.xsd
	Output	RetrieveConvergenceBidAwards		ConvergenceBidAwards_v20100301.xsd
	Fault	faultReturnTypes		StandardOutput.xsd

## 18.3 WSDL (retrieveConvergenceBidAwards\_v20100301.wsdl)

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2010-03-01/retrieveConvergenceBidAwards_v20100301.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2010-03-01/retrieveConvergenceBidAwards_v20100301.wsdl"

  xmlns:typeIn="http://www.caiso.com/soa/2010-03-01/RequestConvergenceBidAwards_v20100301.xsd"
  xmlns:typeOut="http://www.caiso.com/soa/2010-03-01/ConvergenceBidAwards_v20100301.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve Convergence Bid Awards
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2010-03-01/RequestConvergenceBidAwards_v20100301.xsd"
        schemaLocation="RequestConvergenceBidAwards_v20100301.xsd" />
    </xs:schema>
  </wsdl:types>
  </xs:schema>
```

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```
<xs:import namespace="http://www.aiso.com/soa/2010-03-01/ConvergenceBidAwards_v20100301.xsd" schemaLocation="ConvergenceBidAwards_v20100301.xsd" />
</xs:schema>
<xs:schema>
  <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd" schemaLocation="StandardOutput.xsd" />
</xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveConvergenceBidAwardsRequest">
  <wsdl:part name="requestData" element="typeIn:RequestConvergenceBidAwards">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveConvergenceBidAwardsResponse">
  <wsdl:part name="ConvergenceBidAwards" element="typeOut:ConvergenceBidAwards">
    <wsdl:documentation>return Convergence Bid Awards</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn" type="typeFault:outputDataType">
  <wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveConvergenceBidAwards_v20100301">
  <wsdl:operation name="retrieveConvergenceBidAwards_v20100301">
    <wsdl:documentation>retrieve Convergence Bid Awards</wsdl:documentation>
    <wsdl:input name="requestData" message="tns:retrieveConvergenceBidAwardsRequest" />
    <wsdl:output name="ConvergenceBidAwards" message="tns:retrieveConvergenceBidAwardsResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveConvergenceBidAwards_Binding" type="tns:retrieveConvergenceBidAwards_v20100301">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveConvergenceBidAwards_v20100301">
    <soap:operation style="document" soapAction="http://www.aiso.com/soa/2010-03-01/retrieveConvergenceBidAwards_v20100301"/>
    <wsdl:input name="requestData">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="ConvergenceBidAwards">
```

```

<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveConvergenceBidAwards_v20100301Service">
<wsdl:port name="retrieveConvergenceBidAwardsServicePort"
binding="tns:retrieveConvergenceBidAwards_Binding">
<soap:address location="http://www.caiso.com/soa/2010-03-
01/retrieveConvergenceBidAwards_v20100301"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 18.4 Convergence Bid Awards Request

### 18.4.1 Element Table

Element	Data Description	Type	Req'd
tradeDateStart	The start date for the date range for which the data is requested (in California Prevailing Time).	date	Yes
tradeDateEnd	The end date for the date range for which the data is requested (in California Prevailing Time). This must be equal to the tradeDateStart element value*. <i>*NOTE: The response output of the ConvergenceBidAwards request query will provide only one trading day's worth of transactions. If the supplied tradeDateEnd is not equal to the tradeDateStart, the request query will be based on the tradeDateStart.</i>	date	Yes
schedulingCoordinatorList	The list of the unique identifier for a scheduling coordinator (SC).	string	No
PnodeList	The list of PNode or APNode ID associated with the node where convergence bidding occurred	string	No
virtualBidType	Indicates whether this is a virtual demand or supply bid. Valid values are: "VIRTUAL SUPPLY" or "VIRTUAL DEMAND"	string	No

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### 18.4.2 Schema (RequestConvergenceBidAwards\_v20100301.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Dagmar Haller (California ISO) -->

```

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```
<xs:schema xmlns="http://www.caiso.com/soa/2010-03-01/RequestConvergenceBidAwards_v20100301.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2010-03-01/RequestConvergenceBidAwards_v20100301.xsd" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:element name="RequestConvergenceBidAwards" type="RequestConvergenceBidAwards"/>
  <xs:complexType name="RequestConvergenceBidAwards">
    <xs:sequence>
      <xs:element name="tradeDateStart" type="xs:date"/>
      <xs:element name="tradeDateEnd" type="xs:date"/>
      <xs:element name="schedulingCoordinatorList" type="schedulingCoordinatorList" minOccurs="0"/>
      <xs:element name="PnodeList" type="PnodeList" minOccurs="0"/>
      <xs:element name="virtualBidType" type="DemandSupplyBidType" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="schedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="PnodeList">
    <xs:sequence>
      <xs:element name="Pnode" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="DemandSupplyBidType">
    <xs:annotation>
      <xs:documentation>For use in the Virtual Bid (Convergence Bidding).</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
      <xs:enumeration value="VIRTUAL_SUPPLY"/>
      <xs:enumeration value="VIRTUAL_DEMAND"/>
    </xs:restriction>
  </xs:simpleType>
</xs:schema>
```

### 18.4.3 Example XML File (sampleRequestConvergenceBidAwards.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<RequestConvergenceBidAwards xsi:schemaLocation="http://www.caiso.com/soa/2010-03-01/RequestConvergenceBidAwards_v20100301.xsd RequestConvergenceBidAwards_v20100301.xsd" xmlns="http://www.caiso.com/soa/2010-03-01/RequestConvergenceBidAwards_v20100301.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <tradeDateStart>2010-03-20</tradeDateStart>
  <tradeDateEnd>2010-03-20</tradeDateEnd>
  <schedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </schedulingCoordinatorList>
  <PnodeList>
    <Pnode>PNODE1</Pnode>
```

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```
</PnodeList>
<virtualBidType>VIRTUAL SUPPLY</virtualBidType>
</RequestConvergenceBidAwards>
```

## 18.5 Convergence Bid Awards Response

### 18.5.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
Pnode	The PNode or APNode ID associated with the node where convergence bidding occurred	string	Yes
isIntertie	The flag indicating whether the award is for an intertie or not. Valid Values: Yes – indicates that the award is for an intertie No – indicates that the award is not for an intertie	string	Yes
Scheduling Coordinator	The unique identifier for a scheduling coordinator (SC).	string	Yes
tradeDate	The trade day to which the current record pertains (in California Prevailing Time).	date	Yes
virtualBidType	Indicates whether this is a virtual demand or supply bid. Valid values are: "VIRTUAL SUPPLY" or "VIRTUAL DEMAND"	string	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
MW	This is the cleared convergence bid MW	float	Yes

### 18.5.2 Schema (ConvergenceBidAwards\_v20100301.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2010-03-01/ConvergenceBidAwards_v20100301.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2010-03-01/ConvergenceBidAwards_v20100301.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="ConvergenceBidAwards" type="m:ConvergenceBidAwards"/>
</xs:complexType name="ConvergenceBidAwards">
```

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```

<xs:sequence>
  <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
  <xs:element name="MessagePayload" type="m:MessagePayload"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="MessageHeader">
  <xs:annotation>
    <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="TimeDate" type="xs:dateTime">
      <xs:annotation>
        <xs:documentation>Application level relevant time and date for when this
message was produced.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Source" type="xs:string">
      <xs:annotation>
        <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MessagePayload">
  <xs:sequence>
    <xs:element name="ConvergenceBidResultsRecord" type="m:ConvergenceBidResultsRecord"
minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ConvergenceBidResultsRecord">
  <xs:sequence>
    <xs:element name="Pnode" type="xs:string"/>
    <xs:element name="isIntertie" type="m:YesNo"/>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="virtualBidType" type="m:DemandSupplyBidType"/>
    <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">

```

```

<xs:enumeration value="YES"/>
<xs:enumeration value="NO"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="DemandSupplyBidType">
<xs:annotation>
<xs:documentation>For use in the Virtual Bid (Convergence Bidding).</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
<xs:enumeration value="VIRTUAL SUPPLY"/>
<xs:enumeration value="VIRTUAL DEMAND"/>
</xs:restriction>
</xs:simpleType>
<xs:complexType name="TradeHour">
<xs:sequence>
<xs:element name="TradeHourData" type="m:CBAwardsTradeHourData"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="CBAwardsTradeHourData">
<xs:sequence>
<xs:element name="HR" type="xs:integer">
<xs:annotation>
<xs:documentation>trade hour</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="MW" type="xs:float"/>
</xs:sequence>
</xs:complexType>
</xs:schema>

```

### 18.5.3 Example XML File for Convergence Bid Awards (sampleConvergenceBidAwards.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:ConvergenceBidAwards xsi:schemaLocation="http://www.aiso.com/soa/2010-03-01/ConvergenceBidAwards_v20100301.xsd ConvergenceBidAwards_v20100301.xsd"
xmlns:m="http://www.aiso.com/soa/2010-03-01/ConvergenceBidAwards_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<m:MessageHeader>
<m:TimeDate>2010-03-24T18:55:54.000-00:00</m:TimeDate>
<m:Source>String</m:Source>
</m:MessageHeader>
<m:MessagePayload>
<m:ConvergenceBidResultsRecord>
<m:Pnode>PNODE1</m:Pnode>
<m:isIntertie>YES</m:isIntertie>
<m:schedulingCoordinator>SC01</m:schedulingCoordinator>
<m:tradeDate>2010-03-20</m:tradeDate>
<m:virtualBidType>VIRTUAL SUPPLY</m:virtualBidType>
<m:TradeHour>

```

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```
<m:TradeHourData>  
  <m:HR>1</m:HR>  
  <m:MW>99</m:MW>  
</m:TradeHourData>  
</m:TradeHour>  
</m:ConvergenceBidResultsRecord>  
</m:MessagePayload>  
</m:ConvergenceBidAwards>
```

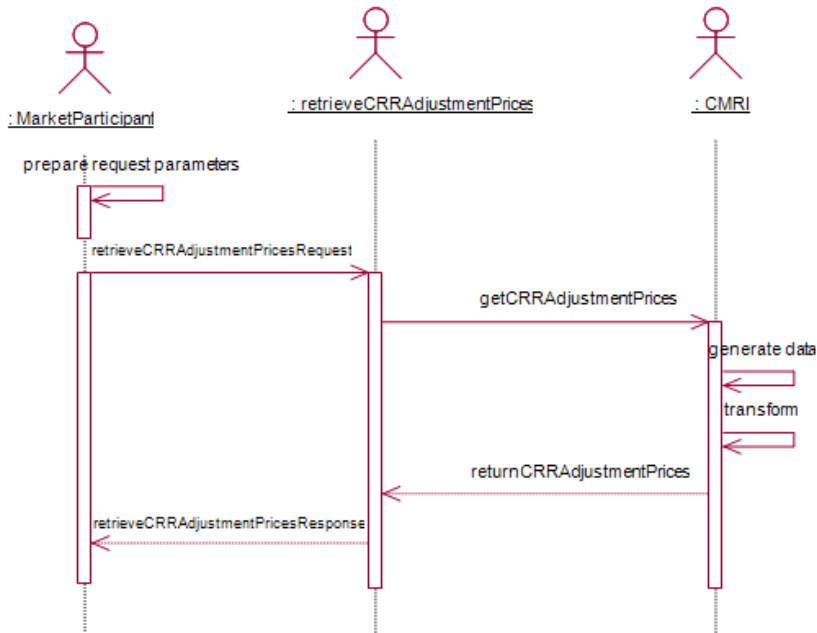
### **18.6 Fault Return**

The fault return message is the same for all PTR services—see Section 4.6.

## 19 Retrieve CRR Adjustment Prices

### 19.1 Use Model

The diagram below shows the sequence for retrieving CRR Adjustment Prices data. This is comprised of the hourly prices that CAISO uses to calculate Congestion Revenue Rights (CRR) adjustments due to convergence bidding.



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### 19.2 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
Retrieve CRR Adjustment Prices	Input	retrieveCRRAdjustmentPricesRequest	retrieveCRRAdjustmentPrices_v20100301.wsdl	RequestCRRAdjustmentDataNoHour_v20100301.xsd
	Output	retrieveCRRAdjustmentPricesResponse	CRRAdjustmentPrices_v20100301_DocAttachment.wsdl	CRRAdjustmentData_v20100301.xsd

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	Fault	faultReturnTypes	StandardOutput.xsd
--	-------	------------------	--------------------

### 19.3 WSDL (retrieveCRRAdjustmentPrices\_v20100301.wsdl) RPC Style

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```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsd="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentPrices_v20100301.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentPrices_v20100301.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentDataNoHour_v20100301.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve CRR Adjustment Prices (data for "CRR Payment Adjustment Hourly Price Data" report)
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentDataNoHour_v20100301.xsd"
        schemaLocation="RequestCRRAdjustmentDataNoHour_v20100301.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
        schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
```

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```

<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveCRRAdjustmentPricesRequest">
  <wsdl:part name="requestData" type="typeIn:RequestCRRAdjustmentDataNoHour">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentPricesHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentPricesResponse">
  <wsdl:part name="CRRAdjustmentPrices_attachment" type="xs:base64Binary">
    <wsdl:documentation>return CRR Adjustment Prices</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturntype">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveCRRAdjustmentPrices_v20100301">
  <wsdl:operation name="retrieveCRRAdjustmentPrices_v20100301">
    <wsdl:documentation>retrieve CRR Adjustment Prices</wsdl:documentation>
    <wsdl:input message="tns:retrieveCRRAdjustmentPricesRequest" />
    <wsdl:output message="tns:retrieveCRRAdjustmentPricesResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturntype" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveCRRAdjustmentPrices_Binding"
type="tns:retrieveCRRAdjustmentPrices_v20100301">
  <soap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveCRRAdjustmentPrices_v20100301">
    <soap:operation style="rpc"
soapAction="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentPrices_v20100301"/>
  <wsdl:input>
    <soap:body use="literal" namespace="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301"/>
  </wsdl:input>
  <wsdl:output>
    <mime:multipartRelated>
      <mime:part>
        <soap:body use="literal" namespace="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301"/>
      </mime:part>
    </mime:multipartRelated>
  </wsdl:output>
</wsdl:binding>

```

```

<mime:part>
  <mime:content part="CRRAdjustmentPrices_attachment"
    type="application/octetstream"/>
</mime:part>
</mime:multipartRelated>
<soap:header message="tns:retrieveCRRAdjustmentPricesHeader"
  part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
  <soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveCRRAdjustmentPrices_v20100301Service">
  <wsdl:port name="retrieveCRRAdjustmentPricesServicePort"
binding="tns:retrieveCRRAdjustmentPrices_Binding">
  <soap:address location="http://www.aiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

### **19.4 WSDL (retrieveCRRAdjustmentPrices\_v20100301\_DocAttach.wsdl)** **.NET Style**

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.aiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301_DocAttach.wsdl"
  xmlns:tns="http://www.aiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301_DocAttach.wsdl"

  xmlns:schemaInfor="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"

  xmlns:typeIn="http://www.aiso.com/soa/2010-03-
01/RequestCRRAdjustmentDataNoHour_v20100301.xsd"
  xmlns:typeHeader="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeOut="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"

```

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```

xmlns:typeFault="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd">
  <wsdl:documentation>
    A web service to retrieve CRR Adjustment Prices (data for "CRR Payment Adjustment Hourly Price
    Data" report)
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2010-03-
      01/RequestCRRAdjustmentDataNoHour_v20100301.xsd"
      schemaLocation="RequestCRRAdjustmentDataNoHour_v20100301.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
      schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
      schemaLocation="ISOAttachment.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
      schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
  <!-- a request and response case to use the data type defined in TYPE for payload -->
  <wsdl:message name="retrieveCRRAdjustmentPrices_DocAttachRequest">
    <wsdl:part name="requestData" element="typeIn:RequestCRRAdjustmentDataNoHour">
      <wsdl:documentation>send request date</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveCRRAdjustmentPrices_DocAttachHeader">
    <!-- attachment wrapper -->
    <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
      <wsdl:documentation>attachment information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="retrieveCRRAdjustmentPrices_DocAttachResponse">
    <wsdl:part name="CRRAdjustmentPrices_attachment" element="typeOut:ISOAttachment">
      <wsdl:documentation>return CRR Adjustment Prices</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>
  <wsdl:message name="faultReturn type">
    <wsdl:part name="faultReturn" element="typeFault:outputDataType">
      <wsdl:documentation>fault information</wsdl:documentation>
    </wsdl:part>
  </wsdl:message>

```

```

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveCRRAdjustmentPrices_v20100301_DocAttach">
  <wsdl:operation name="retrieveCRRAdjustmentPrices_v20100301_DocAttach">
    <wsdl:documentation>retrieve CRR Adjustment Prices</wsdl:documentation>
    <wsdl:input message="tns:retrieveCRRAdjustmentPrices_DocAttachRequest" />
    <wsdl:output message="tns:retrieveCRRAdjustmentPrices_DocAttachResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveCRRAdjustmentPrices_DocAttach_Binding"
type="tns:retrieveCRRAdjustmentPrices_v20100301_DocAttach">
  <soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveCRRAdjustmentPrices_v20100301_DocAttach">
    <soap:operation style="document"
soapAction="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301_DocAttach"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:header message="tns:retrieveCRRAdjustmentPrices_DocAttachHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
      <soap:body use="literal" parts="CRRAdjustmentPrices_attachment"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveCRRAdjustmentPrices_v20100301_DocAttachService">
  <wsdl:port name="retrieveCRRAdjustmentPrices_DocAttachServicePort"
binding="tns:retrieveCRRAdjustmentPrices_DocAttach_Binding">
    <soap:address location="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentPrices_v20100301_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 19.5 CRRAdjustmentPrices Request

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### 19.5.1 Element Table

Element	Data Description	Type	Req'd
<u>tradeDate</u>	<u>The trading date for which the data is requested (in California Prevailing Time).</u>	<u>date</u>	<u>Yes</u>
<u>Scheduling CoordinatorList</u>	<u>The list of the unique identifier for a scheduling coordinator (SC).</u>	<u>string</u>	<u>No</u>
<u>ConstraintList</u>	<u>The list of unique identifier of the transmission constraint that impacted the CRR portfolio due to convergence bidding</u>	<u>string</u>	<u>No</u>

### 19.5.2 Schema (RequestCRRAdjustmentDataNoHour v20100301.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Dagmar Haller (California ISO) -->
<xs:schema xmlns="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentDataNoHour_v20100301.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentDataNoHour_v20100301.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="RequestCRRAdjustmentDataNoHour"
type="RequestCRRAdjustmentDataNoHour"/>
  <xs:complexType name="RequestCRRAdjustmentDataNoHour">
    <xs:sequence>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="SchedulingCoordinatorList" type="SchedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="ConstraintList" type="ConstraintList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SchedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ConstraintList">
    <xs:sequence>
      <xs:element name="constraint" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

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### 19.5.3 Example XML File (RequestCRRAdjustmentPrices.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<RequestCRRAdjustmentDataNoHour xsi:schemaLocation="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentDataNoHour_v20100301.xsd
```

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```

RequestCRRAdjustmentDataNoHour_v20100301.xsd" xmlns="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentDataNoHour_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <tradeDate>2010-09-17</tradeDate>
  <SchedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </SchedulingCoordinatorList>
  <ConstraintList>
    <constraint>ConstraintABC</constraint>
  </ConstraintList>
</RequestCRRAdjustmentDataNoHour>

```

## 19.6 CRRAdjustmentPrices Response

### 19.6.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
<p>Note: The response CRRAdjustmentData_v20100301.xsd schema is used for all three following services: CRRAdjustmentPrices, CRRAdjustmentConstraints, and CRRAdjustmentFlowImpact. The data elements described below are those relevant in providing the output for the retrieveCRRAdjustmentPrices service only.</p>			
tradeDate	The market trading day on when the CRR settlement rule is applicable on	date	Yes
schedulingCoordinator	Unique identifier of the Scheduling Coordinator certified by the CAISO who is a CRR Holder entity	string	Yes
name	The unique identifier of the transmission constraint that impacted the CRR portfolio due to convergence bidding	string	Yes
CRR	The CRR unique identifier impacted by the CRR settlement rule due to convergence bidding	string	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
Price	The calculated price which is the difference between the Day-Ahead and Real-Time due to convergence bidding with impact on the CRR portfolio	float	Yes

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### 19.6.2 Schema (CRRAdjustmentData\_v20100301.xsd)

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

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```

<xs:schema xmlns:m="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2010-03-
01/CRRAdjustmentData_v20100301.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="CRRAdjustmentData" type="m:CRRAdjustmentData"/>
  <xs:complexType name="CRRAdjustmentData">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the
message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the
message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">
        <xs:annotation>
          <xs:documentation>Source system that publishes the message. For CAISO, examples
include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC,
etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="CRRPaymentAdjRecord" type="m:CRRPaymentAdjRecord" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="CRRPaymentAdjRecord">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string">
        <xs:annotation>
          <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="tradeDate" type="xs:date">
        <xs:annotation>
          <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="CBEMGroup" type="xs:string" minOccurs="0"/>
      <xs:element name="Constraint" type="m:Constraint" maxOccurs="unbounded">

```

```

</xs:annotation>
  <xs:documentation>Everything that could have a shadow price associated with and for
  which shift factors relative to nodes could be determined (ITC, MSL, BG, NG, Line,
  Xformer).</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Constraint">
  <xs:sequence>
    <xs:element name="name" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique name among objects owned by the same
        parent.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="CRRAdjHourlyDetails" type="m:CRRAdjHourlyDetails"
    maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CRRAdjHourlyDetails">
  <xs:sequence>
    <xs:element name="CRR" type="xs:string" minOccurs="0"/>
    <xs:element name="node" type="xs:string" minOccurs="0"/>
    <xs:annotation>
      <xs:documentation>Award location impacted by CRR Settlement rule</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:CRRAdjDataTradeHourData"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CRRAdjDataTradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="MW" type="xs:float" minOccurs="0"/>
    <xs:element name="price" type="xs:float" minOccurs="0"/>
    <xs:element name="HASPPHysical" type="m:YesNo" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>

```

</xs:simpleType>  
</xs:schema>

### 19.6.3 Example XML File (sampleCRRAdjustmentPrices.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:CRRAdjustmentData xsi:schemaLocation="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd CRRAdjustmentData_v20100301.xsd"
xmlns:m="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2010-09-17T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:CRRPaymentAdjRecord>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:tradeDate>2010-09-10</m:tradeDate>
      <m:Constraint>
        <m:name>ConstraintABC</m:name>
        <m:CRRAdjHourlyDetails>
          <m:CRR>123456</m:CRR>
          <m:TradeHour>
            <m:TradeHourData>
              <m:HR>1</m:HR>
              <m:price>99.99</m:price>
            </m:TradeHourData>
          </m:TradeHour>
        </m:CRRAdjHourlyDetails>
      </m:Constraint>
    </m:CRRPaymentAdjRecord>
  </m:MessagePayload>
</m:CRRAdjustmentData>
```

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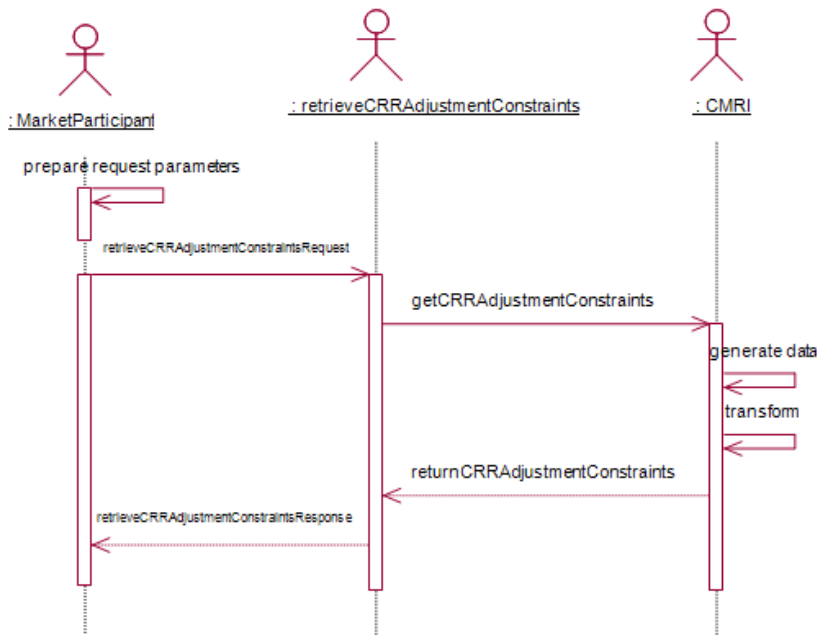
### 19.7 Fault Return

The fault return message is the same for all PTR services—see Section 4.6.

## 20 Retrieve CRR Adjustment Constraints

### 20.1 Use Model

The diagram below shows the sequence for retrieving CRR Adjustment Constraints data. This is comprised of supporting data for settlement charges imposed on scheduling coordinators, as a result of the application of the CRR settlement rule - specifically CRR flow impact on award locations for each scheduling coordinator.



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### 20.2 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
RetrieveCRRAdjustmentConstraints	Input	retrieveCRRAdjustmentConstraintsRequest	retrieveCRRAdjustmentConstraints_v20100301.wsdl	RequestCRRAdjustmentData_v20100301.xsd
	Output	retrieveCRRAdjustmentConstraintsResponse	retrieveCRRAdjustmentConstraints_v20100301_DocAttach.wsdl	CRRAdjustmentData_v20100301.xsd
	Fault	faultReturnTypes		StandardOutput.xsd



## **20.3 WSDL (retrieveCRRAdjustmentConstraints\_v20100301.wsdl) RPC Style**

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```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentConstraints_v20100301.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentConstraints_v20100301.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">
  <wsdl:documentation>
    A web service to retrieve CRR Adjustment Constraints data (data for "Award Locations Impacted By Settlement Rule" report)
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
        schemaLocation="RequestCRRAdjustmentData_v20100301.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
        schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>

  <!-- message elements define input and output parameters -->
  <!-- a request and response case to use the data type defined in TYPE for payload -->
  <wsdl:message name="retrieveCRRAdjustmentConstraintsRequest">
    <wsdl:part name="requestData" type="typeIn:RequestCRRAdjustmentData">
```

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```

<wsdl:documentation>send request date</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentConstraintsHeader">
<!-- attachment wrapper -->
<wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
<wsdl:documentation>attachment information</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentConstraintsResponse">
<wsdl:part name="CRRAdjustmentConstraints_attachment" type="xs:base64Binary">
<wsdl:documentation>return CRR Adjustment Constraints data</wsdl:documentation>
</wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn Type">
<wsdl:part name="faultReturn" element="typeFault:outputDataType">
<wsdl:documentation>fault information</wsdl:documentation>
</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveCRRAdjustmentConstraints_v20100301">
<wsdl:operation name="retrieveCRRAdjustmentConstraints_v20100301">
<wsdl:documentation>retrieve CRR Adjustment Constraints data</wsdl:documentation>
<wsdl:input message="tns:retrieveCRRAdjustmentConstraintsRequest" />
<wsdl:output message="tns:retrieveCRRAdjustmentConstraintsResponse" />
<wsdl:fault name="faultReturn" message="tns:faultReturn Type" />
</wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveCRRAdjustmentConstraints_Binding"
type="tns:retrieveCRRAdjustmentConstraints_v20100301">
<soap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
<wsdl:operation name="retrieveCRRAdjustmentConstraints_v20100301">
<soap:operation style="rpc"
soapAction="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentConstraints_v20100301"/>
<wsdl:input>
<soap:body use="literal" namespace="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentConstraints_v20100301"/>
</wsdl:input>
<wsdl:output>
<mime:multipartRelated>
<mime:part>
<soap:body use="literal" namespace="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentConstraints_v20100301"/>
</mime:part>
<mime:part>
<mime:content part="CRRAdjustmentConstraints_attachment"

```

```

        type="application/octetstream"/>
      </mime:part>
    </mime:multipartRelated>
    <soap:header message="tns:retrieveCRRAdjustmentConstraintsHeader"
      part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
  </wsdl:output>
  <wsdl:fault name="faultReturn">
    <soap:fault name="faultReturn" use="literal"/>
  </wsdl:fault>
</wsdl:operation>
</wsdl:binding>

  <wsdl:service name="retrieveCRRAdjustmentConstraints_v20100301Service">
    <wsdl:port name="retrieveCRRAdjustmentConstraintsServicePort"
      binding="tns:retrieveCRRAdjustmentConstraints_Binding">
      <soap:address location="http://www.aiso.com/soa/2010-03-
01/retrieveCRRAdjustmentConstraints_v20100301"/>
    </wsdl:port>
  </wsdl:service>
</wsdl:definitions>

```

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## **20.4 WSDL (retrieveCRRAdjustmentConstraints\_v20100301\_DocAttach.wsdl) .NET Style**

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.aiso.com/soa/2010-03-
01/retrieveCRRAdjustmentConstraints_v20100301_DocAttach.wsdl"
  xmlns:tns="http://www.aiso.com/soa/2010-03-
01/retrieveCRRAdjustmentConstraints_v20100301_DocAttach.wsdl"

  xmlns:schemaInfor="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"

  xmlns:typeIn="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
  xmlns:typeHeader="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeOut="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"

```

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```

xmlns:typeFault="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd">
<wsdl:documentation>
  A web service to retrieve CRR Adjustment Constraints data (data for "Award Locations Impacted By
  CRR Settlement Rule" report)
</wsdl:documentation>

<!-- type elements define data types used in this wsdl document using xml schema -->
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
<wsdl:types>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2010-03-
    01/RequestCRRAdjustmentData_v20100301.xsd"
    schemaLocation="RequestCRRAdjustmentData_v20100301.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
    schemaLocation="StandardAttachmentInfor.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-10-26/ISOAttachment.xsd"
    schemaLocation="ISOAttachment.xsd" />
  </xs:schema>
  <xs:schema>
    <xs:import namespace="http://www.aiso.com/soa/2006-06-13/StandardOutput.xsd"
    schemaLocation="StandardOutput.xsd" />
  </xs:schema>
</wsdl:types>

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveCRRAdjustmentConstraints_DocAttachRequest">
  <wsdl:part name="requestData" element="typeIn:RequestCRRAdjustmentData">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentConstraints_DocAttachHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentConstraints_DocAttachResponse">
  <wsdl:part name="CRRAdjustmentConstraints_attachment" element="typeOut:ISOAttachment">
    <wsdl:documentation>return CRR Adjustment Constraints data</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturn type">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

```

```

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveCRRAdjustmentConstraints_v20100301_DocAttach">
  <wsdl:operation name="retrieveCRRAdjustmentConstraints_v20100301_DocAttach">
    <wsdl:documentation>retrieve CRR Adjustment Constraints data</wsdl:documentation>
    <wsdl:input message="tns:retrieveCRRAdjustmentConstraints_DocAttachRequest" />
    <wsdl:output message="tns:retrieveCRRAdjustmentConstraints_DocAttachResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveCRRAdjustmentConstraints_DocAttach_Binding"
  type="tns:retrieveCRRAdjustmentConstraints_v20100301_DocAttach">
  <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveCRRAdjustmentConstraints_v20100301_DocAttach">
    <soap:operation style="document"
      soapAction="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentConstraints_v20100301_DocAttach"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:header message="tns:retrieveCRRAdjustmentConstraints_DocAttachHeader"
        part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
      <soap:body use="literal" parts="CRRAdjustmentConstraints_attachment"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveCRRAdjustmentConstraints_v20100301_DocAttachService">
  <wsdl:port name="retrieveCRRAdjustmentConstraints_DocAttachServicePort"
    binding="tns:retrieveCRRAdjustmentConstraints_DocAttach_Binding">
    <soap:address location="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentConstraints_v20100301_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## **20.5 CRRAdjustmentConstraints Request**

### **20.5.1 Element Table**

<u>Element</u>	<u>Data Description</u>	<u>Type</u>	<u>Req'd</u>
----------------	-------------------------	-------------	--------------

Element	Data Description	Type	Req'd
<a href="#">tradeDate</a>	<a href="#">The trading date for which the data is requested (in California Prevailing Time).</a>	<a href="#">date</a>	<a href="#">Yes</a>
<a href="#">Scheduling CoordinatorList</a>	<a href="#">The list of the unique identifier for a scheduling coordinator (SC).</a>	<a href="#">string</a>	<a href="#">No</a>
<a href="#">ConstraintList</a>	<a href="#">The list of unique identifier of the transmission constraint that impacted the CRR portfolio due to convergence bidding</a>	<a href="#">string</a>	<a href="#">No</a>
<a href="#">TradeHourList</a>	<a href="#">The list of trading hours (hour-ending) for which the data is requested</a>	<a href="#">integer</a>	<a href="#">No</a>

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## 20.5.2 Schema ([RequestCRRAdjustmentData\\_v20100301.xsd](#))

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Dagmar Haller (California ISO) -->
<xs:schema xmlns="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="RequestCRRAdjustmentData" type="RequestCRRAdjustmentData"/>
  <xs:complexType name="RequestCRRAdjustmentData">
    <xs:sequence>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="SchedulingCoordinatorList" type="SchedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="ConstraintList" type="ConstraintList" minOccurs="0"/>
      <xs:element name="TradeHourList" type="TradeHourList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SchedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ConstraintList">
    <xs:sequence>
      <xs:element name="constraint" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="TradeHourList">
    <xs:sequence>
      <xs:element name="tradeHour" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

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### 20.5.3 Example XML File (sampleRequestCRRAdjustmentConstraints.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<RequestCRRAdjustmentData xsi:schemaLocation="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd RequestCRRAdjustmentData_v20100301.xsd"
xmlns="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <tradeDate>2010-09-17</tradeDate>
  <SchedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </SchedulingCoordinatorList>
  <ConstraintList>
    <constraint>ConstraintABC</constraint>
  </ConstraintList>
  <TradeHourList>
    <tradeHour>1</tradeHour>
  </TradeHourList>
</RequestCRRAdjustmentData>
```

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## 20.6 CRR AdjustmentConstraints Response

### 20.6.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The dateTime, in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
Note: The response CRRAdjustmentData_v20100301.xsd schema is used for all three following services: CRRAdjustmentPrices, CRRAdjustmentConstraints, and CRRAdjustmentFlowImpact. The data elements described below are those relevant in providing the output for the <b>retrieveCRRAdjustmentConstraints service only.</b>			
tradeDate	The market trading day on when the CRR settlement rule is applicable on	date	Yes
schedulingCoordinator	Unique identifier of the scheduling coordinator certified by the CAISO to submit convergence bids via a convergence bidding agreement	string	Yes
name	The unique identifier of the transmission constraint that impacted the CRR portfolio due to convergence bidding	string	Yes

Element	Data Description	Type	Req'd
node	The Full Network Model node identifier associated with the transmission constraint	string	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
HASPPhysical	<p>Flag indicating either of the following:</p> <ul style="list-style-type: none"> <li>▪ YES = Denotes that the node's impact to the CRR settlement rule was due to physical bidding activity, that is reduced in the HASP market</li> <li>▪ NO = Denotes that the node's impact o the CRR settlement rule was due to convergence bidding activity</li> </ul>	string	Yes

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## 20.6.2 Schema (CRRAdjustmentData\_v20100301.xsd)

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```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="CRRAdjustmentData" type="m:CRRAdjustmentData"/>
  <xs:complexType name="CRRAdjustmentData">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">
        <xs:annotation>
          <xs:documentation>Source system that publishes the message. For CAISO, examples include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC, etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:complexType name="MessagePayload">
```

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```

<xs:sequence>
  <xs:element name="CRRPaymentAdjRecord" type="m:CRRPaymentAdjRecord" minOccurs="0"
maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="CRRPaymentAdjRecord">
  <xs:sequence>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="CBEMGroup" type="xs:string" minOccurs="0"/>
    <xs:element name="Constraint" type="m:Constraint" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Everything that could have a shadow price associated with and for
which shift factors relative to nodes could be determined (ITC, MSL, BG, NG, Line,
Xformer).</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="Constraint">
  <xs:sequence>
    <xs:element name="name" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique name among objects owned by the same
parent.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="CRRAdjHourlyDetails" type="m:CRRAdjHourlyDetails"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CRRAdjHourlyDetails">
  <xs:sequence>
    <xs:element name="CRR" type="xs:string" minOccurs="0"/>
    <xs:element name="node" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Award location impacted by CRR Settlement rule</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>

```

```

</xs:element name="TradeHourData" type="m:CRRAdjDataTradeHourData"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="CRRAdjDataTradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="MW" type="xs:float" minOccurs="0"/>
    <xs:element name="price" type="xs:float" minOccurs="0"/>
    <xs:element name="HASPPHysical" type="m:YesNo" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 20.6.3 Example XML File (sampleCRRAdjustmentConstraints.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:CRRAdjustmentData xsi:schemaLocation="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd CRRAdjustmentData_v20100301.xsd"
xmlns:m="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2010-09-17T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:CRRPaymentAdjRecord>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:tradeDate>2010-09-10</m:tradeDate>
      <m:Constraint>
        <m:name>ConstraintABC</m:name>
        <m:CRRAdjHourlyDetails>
          <m:node>Node123</m:node>
          <m:TradeHour>
            <m:TradeHourData>
              <m:HR>1</m:HR>
              <m:HASPPHysical>YES</m:HASPPHysical>
            </m:TradeHourData>
          </m:TradeHour>
        </m:CRRAdjHourlyDetails>
      </m:Constraint>
    </m:CRRPaymentAdjRecord>
  </m:MessagePayload>

```

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</m:CRRAdjustmentData>

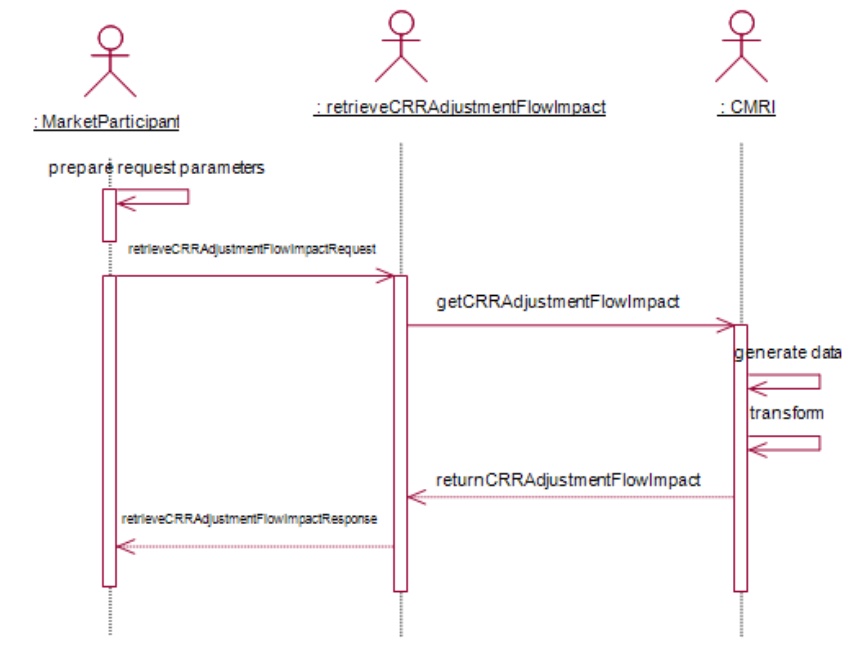
## **20.7 Fault Return**

The fault return message is the same for all PTR services—see Section 4.6.

## 21 Retrieve CRR Adjustment Flow Impact

### 21.1 Use Model

The diagram below shows the sequence for retrieving CRR Adjustment Flow Impact details data. This is comprised of supporting data for settlement charges imposed on scheduling coordinators, as a result of the application of the CRR settlement rule – specifically CRR flow impact aggregated by the parent company, where the parent company is a CB Entity group name that coincides with a CRR Holder.



### 21.2 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
RetrieveCRRAdjustmentFlowImpact	Input	retrieveCRRAdjustmentFlowImpactRequest	retrieveCRRAdjustmentFlowImpact_v20100301.wsdl	RequestCRRAdjustmentData_v20100301.xsd
	Output	retrieveCRRAdjustmentFlowImpactResponse	retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach.wsdl	CRRAdjustmentData_v20100301.xsd

	Fault	faultReturnTypes	StandardOutput.xsd
--	-------	------------------	--------------------

### 21.3 WSDL (retrieveCRRAdjustmentFlowImpact\_v20100301.wsdl) RPC Style

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```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:ws-i="http://ws-i.org/schemas/conformanceClaim/"

  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

  targetNamespace="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentFlowImpact_v20100301.wsdl"
  xmlns:tns="http://www.caiso.com/soa/2010-03-01/retrieveCRRAdjustmentFlowImpact_v20100301.wsdl"

  xmlns:schemaInfor="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"

  xmlns:typeIn="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
  xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
  xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">

  <wsdl:documentation>
    A web service to retrieve CRR Adjustment Flow Impact data (data for "Total CRR Flow Impacted by Settlement Rule" report)
  </wsdl:documentation>

  <!-- type elements define data types used in this wsdl document using xml schema -->
  <!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->
  <wsdl:types>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
        schemaLocation="RequestCRRAdjustmentData_v20100301.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"
        schemaLocation="StandardAttachmentInfor.xsd" />
    </xs:schema>
    <xs:schema>
      <xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"
        schemaLocation="StandardOutput.xsd" />
    </xs:schema>
  </wsdl:types>
```

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```

<!-- message elements define input and output parameters -->
<!-- a request and response case to use the data type defined in TYPE for payload -->
<wsdl:message name="retrieveCRRAdjustmentFlowImpactRequest">
  <wsdl:part name="requestData" type="typeIn:RequestCRRAdjustmentData">
    <wsdl:documentation>send request date</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentFlowImpactHeader">
  <!-- attachment wrapper -->
  <wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">
    <wsdl:documentation>attachment information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="retrieveCRRAdjustmentFlowImpactResponse">
  <wsdl:part name="CRRAdjustmentFlowImpact_attachment" type="xs:base64Binary">
    <wsdl:documentation>return CRR Adjustment Flow Impact data</wsdl:documentation>
  </wsdl:part>
</wsdl:message>
<wsdl:message name="faultReturntype">
  <wsdl:part name="faultReturn" element="typeFault:outputDataType">
    <wsdl:documentation>fault information</wsdl:documentation>
  </wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveCRRAdjustmentFlowImpact_v20100301">
  <wsdl:operation name="retrieveCRRAdjustmentFlowImpact_v20100301">
    <wsdl:documentation>retrieve CRR Adjustment Flow Impact </wsdl:documentation>
    <wsdl:input message="tns:retrieveCRRAdjustmentFlowImpactRequest" />
    <wsdl:output message="tns:retrieveCRRAdjustmentFlowImpactResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturntype" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveCRRAdjustmentFlowImpact_Binding"
type="tns:retrieveCRRAdjustmentFlowImpact_v20100301">
  <soap:binding style="rpc"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveCRRAdjustmentFlowImpact_v20100301">
    <soap:operation style="rpc"
soapAction="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentFlowImpact_v20100301"/>
  <wsdl:input>
    <soap:body use="literal" namespace="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentFlowImpact_v20100301"/>
  </wsdl:input>
  <wsdl:output>
    <mime:multipartRelated>
      <mime:part>

```

```

<soap:body use="literal" namespace="http://www.aiso.com/soa/2010-03-01/retrieveCRRAdjustmentFlowImpact_v20100301"/>
</mime:part>
<mime:part>
<mime:content part="CRRAdjustmentFlowImpact_attachment"
type="application/octetstream"/>
</mime:part>
</mime:multipartRelated>
<soap:header message="tns:retrieveCRRAdjustmentFlowImpactHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
</wsdl:output>
<wsdl:fault name="faultReturn">
<soap:fault name="faultReturn" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveCRRAdjustmentFlowImpact_v20100301Service">
<wsdl:port name="retrieveCRRAdjustmentFlowImpactServicePort"
binding="tns:retrieveCRRAdjustmentFlowImpact_Binding">
<soap:address location="http://www.aiso.com/soa/2010-03-01/retrieveCRRAdjustmentFlowImpact_v20100301"/>
</wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## **21.4 WSDL (retrieveCRRAdjustmentFlowImpact\_v20100301\_DocAttach.wsdl) .NET Style**

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:wsa="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"

xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"

targetNamespace="http://www.aiso.com/soa/2010-03-01/retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach.wsdl"
xmlns:tns="http://www.aiso.com/soa/2010-03-01/retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach.wsdl"

xmlns:schemaInfor="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"

```

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```
xmlns:typeIn="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"  
xmlns:typeHeader="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"  
xmlns:typeOut="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"  
xmlns:typeFault="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd">  
  
<wsdl:documentation>  
  A web service to retrieve CRR Adjustment Flow Impact data (data for "Total CRR Flow Impacted By  
  CRR Settlement Rule" report)  
</wsdl:documentation>  
  
<!-- type elements define data types used in this wsdl document using xml schema -->  
<!-- note the namespaces defined matched up with the typeIn and typeOut defined above -->  
<wsdl:types>  
<xs:schema>  
<xs:import namespace="http://www.caiso.com/soa/2010-03-  
01/RequestCRRAdjustmentData_v20100301.xsd"  
schemaLocation="RequestCRRAdjustmentData_v20100301.xsd" />  
</xs:schema>  
<xs:schema>  
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardAttachmentInfor.xsd"  
schemaLocation="StandardAttachmentInfor.xsd" />  
</xs:schema>  
<xs:schema>  
<xs:import namespace="http://www.caiso.com/soa/2006-10-26/ISOAttachment.xsd"  
schemaLocation="ISOAttachment.xsd" />  
</xs:schema>  
<xs:schema>  
<xs:import namespace="http://www.caiso.com/soa/2006-06-13/StandardOutput.xsd"  
schemaLocation="StandardOutput.xsd" />  
</xs:schema>  
</wsdl:types>  
  
<!-- message elements define input and output parameters -->  
<!-- a request and response case to use the data type defined in TYPE for payload -->  
<wsdl:message name="retrieveCRRAdjustmentFlowImpact_DocAttachRequest">  
<wsdl:part name="requestData" element="typeIn:RequestCRRAdjustmentData">  
<wsdl:documentation>send request date</wsdl:documentation>  
</wsdl:part>  
</wsdl:message>  
<wsdl:message name="retrieveCRRAdjustmentFlowImpact_DocAttachHeader">  
<!-- attachment wrapper -->  
<wsdl:part name="standardAttachmentInfor" element="typeHeader:standardAttachmentInfor">  
<wsdl:documentation>attachment information</wsdl:documentation>  
</wsdl:part>  
</wsdl:message>  
<wsdl:message name="retrieveCRRAdjustmentFlowImpact_DocAttachResponse">  
<wsdl:part name="CRRAdjustmentFlowImpact_attachment" element="typeOut:ISOAttachment">  
<wsdl:documentation>return CRR Adjustment Flow Impact data</wsdl:documentation>  
</wsdl:part>  
</wsdl:message>  
<wsdl:message name="faultReturn Type">  
<wsdl:part name="faultReturn" element="typeFault:outputDataType">  
<wsdl:documentation>fault information</wsdl:documentation>
```



```

</wsdl:part>
</wsdl:message>

<!-- portType elements define the abstract interface of a web service -->
<!-- to use the message type defined in message above -->
<wsdl:portType name="retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach">
  <wsdl:operation name="retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach">
    <wsdl:documentation>retrieve CRR Adjustment Flow Impact data</wsdl:documentation>
    <wsdl:input message="tns:retrieveCRRAdjustmentFlowImpact_DocAttachRequest" />
    <wsdl:output message="tns:retrieveCRRAdjustmentFlowImpact_DocAttachResponse" />
    <wsdl:fault name="faultReturn" message="tns:faultReturn" />
  </wsdl:operation>
</wsdl:portType>

<!-- binding elements define protocols and encoding styles -->
<!-- to bind the operation defined in portType -->
<wsdl:binding name="retrieveCRRAdjustmentFlowImpact_DocAttach_Binding"
type="tns:retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach">
  <soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach">
    <soap:operation style="document"
soapAction="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:header message="tns:retrieveCRRAdjustmentFlowImpact_DocAttachHeader"
part="standardAttachmentInfor" use="literal" wsdl:required="true"/>
      <soap:body use="literal" parts="CRRAdjustmentFlowImpact_attachment"/>
    </wsdl:output>
    <wsdl:fault name="faultReturn">
      <soap:fault name="faultReturn" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>

<wsdl:service name="retrieveCRRAdjustmentFlowImpact_v20100301_DocAttachService">
  <wsdl:port name="retrieveCRRAdjustmentFlowImpact_DocAttachServicePort"
binding="tns:retrieveCRRAdjustmentFlowImpact_DocAttach_Binding">
    <soap:address location="http://www.caiso.com/soa/2010-03-
01/retrieveCRRAdjustmentFlowImpact_v20100301_DocAttach"/>
  </wsdl:port>
</wsdl:service>

</wsdl:definitions>

```

## 21.5 CRR Adjustment Flow Impact Request

### 21.5.1 Element Table

Element	Data Description	Type	Req'd
<u>tradeDate</u>	The trading date for which the data is requested (in California Prevailing Time).	<u>date</u>	<u>Yes</u>
<u>Scheduling CoordinatorList</u>	The list of the unique identifier for a scheduling coordinator (SC).	<u>string</u>	<u>No</u>
<u>ConstraintList</u>	The list of unique identifier of the transmission constraint that impacted the CRR portfolio due to convergence bidding	<u>string</u>	<u>No</u>
<u>TradeHourList</u>	The list of trading hours (hour-ending) for which the data is requested	<u>integer</u>	<u>No</u>

### 21.5.2 Schema (RequestCRRAdjustmentData\_v20100301.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Dagmar Haller (California ISO) -->
<xs:schema xmlns="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="RequestCRRAdjustmentData" type="RequestCRRAdjustmentData"/>
  <xs:complexType name="RequestCRRAdjustmentData">
    <xs:sequence>
      <xs:element name="tradeDate" type="xs:date"/>
      <xs:element name="SchedulingCoordinatorList" type="SchedulingCoordinatorList"
minOccurs="0"/>
      <xs:element name="ConstraintList" type="ConstraintList" minOccurs="0"/>
      <xs:element name="TradeHourList" type="TradeHourList" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SchedulingCoordinatorList">
    <xs:sequence>
      <xs:element name="schedulingCoordinator" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ConstraintList">
    <xs:sequence>
      <xs:element name="constraint" type="xs:string" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="TradeHourList">
    <xs:sequence>
      <xs:element name="tradeHour" type="xs:integer" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>

```

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### 21.5.3 Example XML File (sampleRequestCRRAdjustmentFlowImpact.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<RequestCRRAdjustmentData xsi:schemaLocation="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd RequestCRRAdjustmentData_v20100301.xsd"
xmlns="http://www.aiso.com/soa/2010-03-01/RequestCRRAdjustmentData_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <tradeDate>2010-09-17</tradeDate>
  <SchedulingCoordinatorList>
    <schedulingCoordinator>SC01</schedulingCoordinator>
  </SchedulingCoordinatorList>
  <ConstraintList>
    <constraint>ConstraintABC</constraint>
  </ConstraintList>
  <TradeHourList>
    <tradeHour>1</tradeHour>
  </TradeHourList>
</RequestCRRAdjustmentData>

```

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## 21.6 CRRAdjustmentFlowImpact Response

### 21.6.1 Element Table

Element	Data Description	Type	Req'd
<b>Message Header</b>			
TimeDate	The date <sup>Time</sup> , in California Prevailing Time, when the payload is published.	dateTime	Yes
Source	The source of published data. The value for this payload is CAISO.	string	Yes
<b>Message Payload</b>			
<p>Note: The response CRRAdjustmentData_v20100301.xsd schema is used for all three following services: CRRAdjustmentPrices, CRRAdjustmentConstraints, and CRRAdjustmentFlowImpact. The data elements described below are those relevant in providing the output for the <b>retrieveCRRAdjustmentFlowImpact service only</b>.</p>			
tradeDate	The market trading day on when the CRR settlement rule is applicable on	date	Yes
schedulingCoordinator	Unique identifier of the scheduling coordinator certified by the CAISO to submit convergence bids via a convergence bidding agreement	string	Yes

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Element	Data Description	Type	Req'd
CBEMGroup	The convergence bidding entity group name that coincides with a CRR Holder Name	string	Yes
name	The unique identifier of the transmission constraint that impacted the CRR portfolio due to convergence bidding	string	Yes
HR	The hour of the trade day to which the current record pertains (in California Prevailing Time).	integer	Yes
MW	The total hourly amount of flow (MW) impacted by the CRR settlement rule	float	Yes

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### 21.6.2 Schema (CRRAdjustmentData v20100301.xsd)

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:m="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.caiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="CRRAdjustmentData" type="m:CRRAdjustmentData"/>
  <xs:complexType name="CRRAdjustmentData">
    <xs:sequence>
      <xs:element name="MessageHeader" type="m:MessageHeader" minOccurs="0"/>
      <xs:element name="MessagePayload" type="m:MessagePayload"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessageHeader">
    <xs:annotation>
      <xs:documentation>Message header containing descriptive information about the message.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="TimeDate" type="xs:dateTime">
        <xs:annotation>
          <xs:documentation>Application level relevant time and date for when this instance of the message was produced.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Source" type="xs:string">
        <xs:annotation>
          <xs:documentation>Source system that publishes the message. For CAISO, examples include ADS, ALFS, CAP, CRR, EMS, ETCC, FNM, IFM, MF, PI, RLC, RTM, SaMC, SIBR, SLIC, etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MessagePayload">
    <xs:sequence>
      <xs:element name="CRRPaymentAdjRecord" type="m:CRRPaymentAdjRecord" minOccurs="0"
maxOccurs="unbounded"/>

```

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```

</xs:sequence>
</xs:complexType>
<xs:complexType name="CRRPaymentAdjRecord">
  <xs:sequence>
    <xs:element name="schedulingCoordinator" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique identifier of the Scheduling Coordinator</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="tradeDate" type="xs:date">
      <xs:annotation>
        <xs:documentation>Date on when the trade transaction occurs within the
market</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="CBEMGroup" type="xs:string" minOccurs="0"/>
    <xs:element name="Constraint" type="m:Constraint" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Everything that could have a shadow price associated with and for
which shift factors relative to nodes could be determined (ITC, MSL, BG, NG, Line,
Xformer).</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="Constraint">
  <xs:sequence>
    <xs:element name="name" type="xs:string">
      <xs:annotation>
        <xs:documentation>Unique name among objects owned by the same
parent.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="CRRAdjHourlyDetails" type="m:CRRAdjHourlyDetails"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CRRAdjHourlyDetails">
  <xs:sequence>
    <xs:element name="CRR" type="xs:string" minOccurs="0"/>
    <xs:element name="node" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Award location impacted by CRR Settlement rule</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="TradeHour" type="m:TradeHour" maxOccurs="25"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TradeHour">
  <xs:sequence>
    <xs:element name="TradeHourData" type="m:CRRAdjDataTradeHourData"/>
  </xs:sequence>
</xs:complexType>

```

```

<xs:complexType name="CRRAdjDataTradeHourData">
  <xs:sequence>
    <xs:element name="HR" type="xs:integer">
      <xs:annotation>
        <xs:documentation>trade hour</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="MW" type="xs:float" minOccurs="0"/>
    <xs:element name="price" type="xs:float" minOccurs="0"/>
    <xs:element name="HASPPHysical" type="m:YesNo" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="YesNo">
  <xs:restriction base="xs:string">
    <xs:enumeration value="YES"/>
    <xs:enumeration value="NO"/>
  </xs:restriction>
</xs:simpleType>
</xs:schema>

```

### 21.6.3 Example XML File (sampleCRRAdjustmentFlowImpact.xml)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2009 sp1 (http://www.altova.com)-->
<m:CRRAdjustmentData xsi:schemaLocation="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd CRRAdjustmentData_v20100301.xsd"
xmlns:m="http://www.aiso.com/soa/2010-03-01/CRRAdjustmentData_v20100301.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <m:MessageHeader>
    <m:TimeDate>2010-09-17T18:55:54.000-00:00</m:TimeDate>
    <m:Source>CAISO</m:Source>
  </m:MessageHeader>
  <m:MessagePayload>
    <m:CRRPaymentAdjRecord>
      <m:schedulingCoordinator>SC01</m:schedulingCoordinator>
      <m:tradeDate>2010-09-10</m:tradeDate>
      <m:CBEMGroup>CompanyX</m:CBEMGroup>
      <m:Constraint>
        <m:name>ConstraintABC</m:name>
        <m:CRRAdjHourlyDetails>
          <m:TradeHour>
            <m:TradeHourData>
              <m:HR>1</m:HR>
              <m:MW>99.99</m:MW>
            </m:TradeHourData>
          </m:TradeHour>
        </m:CRRAdjHourlyDetails>
      </m:Constraint>
    </m:CRRPaymentAdjRecord>
  </m:MessagePayload>
</m:CRRAdjustmentData>

```

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## **21.7 Fault Return**

The fault return message is the same for all PTR services—see Section 4.6.

## 1822 Appendix – 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, you can either enter a dateTime in Universal Time Coordinate (UTC) time by adding a "Z" behind the time, for example:

```
<startdate>2002-05-30T09:30:10Z</startdate>
```

or you can specify an offset from the UTC time by adding a positive or negative time behind the time, for example:

```
<startdate>2002-05-30T09:30:10-06:00</startdate>
```

or

```
<startdate>2002-05-30T09:30:10+06:00</startdate>
```





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