 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <del>0</del> <u>1</u>
OASIS Technical Specification		Date Created (4.0.0):	09/23/2013


# Technical Specification

---

**OASIS**

Document Version: 7.4.~~0~~10

Current Version Date: ~~7/6/2023~~12/6/2023


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

## Location of Document


<https://developer.caiso.com/>

## Revision History


Date	Version	Description
<u>12/6/2023</u>	<u>7.4.1</u>	<u>AUP Implementation Project:</u> <ul style="list-style-type: none"> <li>Added 'Acceptable Use Policy' (Section 5)</li> </ul>
6/19/2023	7.4.0	<p>Maximum Import Capability (MIC) Enhancements</p> <ul style="list-style-type: none"> <li>New Report "Available Import Capability Data" <ul style="list-style-type: none"> <li>AVAIL_IMP_CAP_GRP</li> <li>Added AVAIL_IMP_CAP.xsd</li> </ul> </li> <li>New Report "Import Capability used in RA Plan Data" <ul style="list-style-type: none"> <li>ANNUAL_IMP_CAP_USED_RA_PLAN_GRP</li> <li>MONTHLY_IMP_CAP_USED_RA_PLAN_GRP</li> <li>Added IMP_CAP_USED_RA_PLAN.xsd</li> </ul> </li> </ul> <p>Production Enhancement</p> <ul style="list-style-type: none"> <li>Added CISO and EIM BAA's mapping documents for Full Network Model Mapping Data</li> </ul> <p>WA WEIM GHG Enhancements</p> <ul style="list-style-type: none"> <li>Introduced the version 2 for PRC_GHG_ALLOWANCE report to include the STATE attribute</li> <li>Updated the OASISReport_v2.xsd to include the STATE attribute</li> </ul> <p>Energy Storage Enhancements</p> <ul style="list-style-type: none"> <li>Introduced new data values for "Constraint Type" and "Reason" elements for Operator-Initiated Commitment Report</li> </ul>
5/22/2023	7.3.1	<p>Production Enhancement</p> <ul style="list-style-type: none"> <li>Introducing version 12 group zip reports LAM_LMP_GRP HASP_PRC_AS_GRP RUC_LMP_GRP</li> </ul>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		<ul style="list-style-type: none"> <li>Introducing group zip to EIM Transfer By Tie, EIM Transfer Limits By Tie reports  RTD_ENE_EIM_TRANSFER_LIMITS_TIE_GRP  RTPD_ENE_EIM_TRANSFER_LIMITS_TIE_GRP  RTD_ENE_EIM_TRANSFER_TIE_GRP  RTPD_ENE_EIM_TRANSFER_TIE_GRP</li> </ul>
3/29/2023	7.3.0	Summer 2023 Release <ul style="list-style-type: none"> <li>Updated OASISReport XSD and incremented version to 15 <ul style="list-style-type: none"> <li>Added items to enumeration OASISDataItems  INSUFFICIENCY_AMOUNT  INSUFFICIENCY_PERCENTAGE  REQUIREMENT_AMOUNT</li> </ul> </li> <li>RSEE 2 Project <ul style="list-style-type: none"> <li>Added Market Bid Caps report (MKT_BID_CAPS_GRP)</li> <li>Added MKT_BID_CAPS.xsd for API Market Bid Caps report xml</li> <li>Added elements INSUFFICIENCY_AMOUNT and INSUFFICIENCY_PERCENTAGE to API report WEIM_RSE_CAPACITY_TEST and updated report version to 15 (OASISReport_v15.xsd)</li> <li>Added elements INSUFFICIENCY_AMOUNT, INSUFFICIENCY_PERCENTAGE and REQUIREMENT_AMOUNT to API report NE_EIM_FLEX_RAMP_INPUT and updated report version to 15 (OASISReport_v15.xsd)</li> </ul> </li> </ul> Production Enhancement <ul style="list-style-type: none"> <li>Introduced group zip api for ENE_FLEX_RAMP_DC report, version 15 with the following group zip name  RTD_ENE_FLEX_RAMP_DC_GRP  RTPD_ENE_FLEX_RAMP_DC_GRP</li> </ul>
3/7/2023	7.2.9	Post Fall 2022 Release <ul style="list-style-type: none"> <li>Adding Direction to Flexible Ramp Constraint Nodal Prices report</li> </ul>
1/10/2023	7.2.8	Post Fall 2022 Release

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		<ul style="list-style-type: none"> <li>Split RTD_FLEX_RAMP_NODAL_PRC_GRP and RTPD_FLEX_RAMP_NODAL_PRC_GRP reports into hourly file.</li> <li>New Constraints Name are added to Flexible Ramping Constraint Shadow Prices and Flexible Ramping Scheduling Constraint Shadow Prices reports.</li> </ul>
11/28/2022	7.2.7	Fall 2022 Release <ul style="list-style-type: none"> <li>Updated OASISReport_v14.xsd</li> <li>Added new report 'Flexible Ramping Scheduling Point/Tie Nodal Prices' and group ids are RTD_FLEX_RAMP_SPTIE_NODAL_PRC_GRP and RTPD_FLEX_RAMP_SPTIE_NODAL_PRC_GRP</li> <li>Flex Ramp Requirements report is deprecated</li> </ul>
11/2/2022	7.2.6	Adding URL example for DAM_FLEX_RAMP_GRP, RTD_FLEX_RAMP_GRP, RTPD_FLEX_RAMP_GRP
10/12/2022	7.2.5	Updated report name from System Ramping Nomogram Results to Flexible Ramping Constraint Results
10/10/2022	7.2.4	Fall 2022 Release <ul style="list-style-type: none"> <li>Element table is updated for Fall 2022 reports               <ol style="list-style-type: none"> <li>Flex Ramp Requirement Threshold</li> <li>Flex Ramp Requirement Input Polynomials</li> <li>Flex Ramp Requirements Input Uncertain Histogram</li> <li>Flexible Ramp Test Result Groups</li> <li>Flexible Ramping Forecasts</li> <li>Flexible Ramping Nodal Prices</li> <li>Flexible Ramping Constraint Shadow Prices</li> <li>Flexible Ramping Scheduling Constraint Shadow Prices</li> <li>Aggregate Capability Constraint Shadow Prices</li> </ol> </li> </ul>
9/23/2022	7.2.3	Fall 2022 Release <ul style="list-style-type: none"> <li>Element table is updated for FLEX_RAMP_CNSTR_SHDW_PRC and FLEX_RAMP_SCH_CNSTR_SHDW_PRC reports</li> </ul>
9/7/2022	7.2.2	Fall 2022 Release <ul style="list-style-type: none"> <li>OASISReport_v14.xsd is updated</li> </ul>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		<ul style="list-style-type: none"> <li>Element Table is updated for Report Flex Ramp Requirement Input-Polynomials</li> </ul> <p>Added a note to Day Ahead Wind and Solar Forecast to indicate OASIS will publish forecast data for next seven trade days in advance.</p>
8/26/2022	7.2.1	<p>Fall 2022 Release</p> <ul style="list-style-type: none"> <li>OASISReport_v14.xsd is updated</li> <li>Report ACC_SHDW_PRC_GRP is splitted into DAM_ACC_SHDW_PRC_GRP, RTD_ACC_SHDW_PRC_GRP and RTPD_ACC_SHDW_PRC_GRP</li> <li>Flexible Ramp Surplus Demand Curve V14 is removed from Fall 2022 Release</li> <li>Group Report Definition is updated for the new reports</li> <li>Elements Table is updated for the following reports               <ol style="list-style-type: none"> <li>ACC Shadow Prices</li> <li>Flex Ramp Surplus Demand Curves (Reverted)</li> <li>Flex Ramp Requirement Input Polynomials</li> </ol> </li> </ul> <p>Flex Ramp Requirement Input Threshold</p>
7/14/2022	7.2.0	<p>Fall 2022 Release</p> <p>Updated OASISReport XSD and incremented version to 14 that includes the following changes.</p> <p>DATA</p> <p>     _ UOM</p> <p>     _ ...</p> <p>FRP Deliverability</p> <ol style="list-style-type: none"> <li>New Reports:           <ul style="list-style-type: none"> <li>FLEX_RAMP_TEST_RESULT_GROUP</li> <li>FLEX_RAMP_CNSTR_SHDW_PRC</li> <li>FLEX_RAMP_FCST</li> <li>FLEX_RAMP_NODAL_PRC</li> <li>FLEX_RAMP_REQ_INP_POLYNOMIALS</li> <li>FLEX_RAMP_REQ_INP_HSG</li> <li>FLEX_RAMP_REQ_THRESH</li> </ul> </li> <li>New Items under OASISDataItems</li> </ol>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		Hybrid 2B 1. New Report: ACC_SHDW_PRC New Items under OASISDataItems
6/20/2022	7.1.5	Independent 2022 Release Project RSEE Phase 1 <ul style="list-style-type: none"> <li>Updated OASISReport_v13.xsd, added following elements under OASISDataItems              FLEX_RAMP_REQ_MW              CREDIT              NET_IMPORT_CAPABILITY              NET_EXPORT_CAPABILITY              DIVERSITY_BENEFIT_UC</li> <li>Added new elements to report              ENE_EIM_FLEX_RAMP_INPUT to match with previous version v6              FLEX_RAMP_REQ_MW              CREDIT              NET_IMPORT_CAPABILITY              NET_EXPORT_CAPABILITY              DIVERSITY_BENEFIT_UC</li> </ul>
6/3/2022	7.1.4	Independent 2022 Release Project RSEE Phase 1 <ul style="list-style-type: none"> <li>Fixing example URLs for ENE_EIM_FLEX_RAMP_INPUT V13</li> <li>Section 'Group Report Service Versions' is fixed for ENE_EIM_FLEX_RAMP_INPUT_GRP</li> <li>Added RAMP_CAP to ENE_EIM_FLEX_RAMP_INPUT V13 report</li> </ul>
5/20/2022	7.1.3	Independent 2022 Release <ul style="list-style-type: none"> <li>Replaced WEIM_RSE_FLEX_RAMP_TEST V13 with ENE_EIM_FLEX_RAMP_INPUT V13</li> <li>Added group zip to ENE_EIM_FLEX_RAMP_INPUT V13</li> <li>Updated OASISReport_v13.xsd</li> </ul>


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		<div>1. Removed report name WEIM_RSE_FLEX_RAMP_TEST</div> <div>2. Removed element TEST_TIME</div>
4/28/2022	7.1.2	<div>Independent 2022 Release</div> <div><ul style="list-style-type: none"><li>Added CURVE_DIRECTION to OASISDataItems in OASISReport_v13.xsd</li><li>Moved ENE_LOAD_ADJUSTMENT report to 'System Demand' from 'Energy'</li><li>Renaming report ENE_LOAD_ADJUSTMENT to LOAD_ADJUSTMENT</li><li>Updated Element Table for 'WEIM RSE Capacity Test' and 'WEIM RSE Flexible Ramping Test'</li><li>Added Single Zip to WEIM_RSE_FLEX_RAMP_TEST and WEIM_RSE_CAPACITY_TEST reports</li><li>Removed TEST_TIME from WEIM_RSE_FLEX_RAMP_TEST and WEIM_RSE_CAPACITY_TEST reports</li><li>Fixed example URL for LOAD_ADJUSTMENT and ENE_SCH_REDUCTION in 'OASIS API URL 7.1.2 Examples' document</li></ul></div>
4/7/2022	7.1.1	<div>Independent 2022 Release</div> <div><ul style="list-style-type: none"><li>OASISReport_v13.xsd: Made DATA_ITEM under REPORT_DATA as optional.</li><li>New Item under OASISDataItems: TRANSACTION_TYPE</li><li>Introducing SingleZip ENE_LOAD_ADJUSTMENT</li><li>Removed OPR_DATE from SCHEDULE REDUCTION API Report</li><li>Load Adjustment and Schedule Reduction XML reports use BAA_GRP_ID instead of BAA_ID</li></ul></div>
03/22/2022	7.1.0	<div>Independent 2022 Release</div> <div>Updated OASISReport XSD and incremented version to 13 that includes the following changes.</div> <div>Added new XSD Element type DATA</div> <div>DATA</div>


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		<div>  → DATA_ITEM: OASISDataItems   → VALUE: string </div> <b>Transmission Service and Market Scheduling</b> <ol style="list-style-type: none"> <li>3. New Reports: ENE_SCH_REDUCTION, ENE_LOAD_ADJUSTMENT</li> <li>4. New Items under OASISDataItems</li> </ol> <b>Resource Sufficiency Evaluation</b> <ol style="list-style-type: none"> <li>1. New Reports: WEIM_RSE_CAPACITY_TEST, WEIM_RSE_FLEX_RAMP_TEST</li> <li>2. New Element: TEST_TIME: dateTime</li> </ol> New Items under OASISDataItems
06/03/2021	7.0.0	Fall 2021 Release <u>Energy storage and distributed energy resources phase 4</u> <ul style="list-style-type: none"> <li>• Added new service version for Public bids to introduce new elements.</li> </ul> <u>Intertie shadow pricing resolution</u> <ul style="list-style-type: none"> <li>• Added new service version for Intertie Constraint Shadow Prices, Interval Intertie Constraint Shadow Prices, Contingency Dispatch Intertie Constraint Shadow Prices and MPM Intertie Constraint Shadow Prices reports to introduce new element.</li> <li>• Added new service version for below services as there are impacts to Group services due to Intertie Constraint Shadow Prices &amp; MPM Intertie Constraint Shadow Prices services. However, there are no element changes to the artifacts. <ul style="list-style-type: none"> <li>- Locational Marginal Prices</li> <li>- AS Clearing Prices</li> <li>- Nomogram/Branch Shadow Prices</li> <li>- MPM Intertie Constraint Competitive Paths</li> <li>- MPM Nomogram/Branch Shadow Prices</li> <li>- MPM Nomogram/Branch Competitive Paths</li> </ul> </li> </ul>
05/17/2021	6.1.2	Summer 2021 Release




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		<ul style="list-style-type: none"> <li>Updated Section 4.1.4.2 for new Group Report Definitions</li> </ul>
05/06/2021	6.1.1	Summer 2021 Release <ul style="list-style-type: none"> <li>Removed Single Report Service for ENE_SCH_BY_TIE</li> <li>Added section 4.1.3.5 - Group Report download behavior from OASIS User Interface</li> <li>Updated Fault Return Codes</li> </ul>
04/15/2021	6.1.0	Summer 2021 Release <u>Resource adequacy enhancements track 1</u> <ul style="list-style-type: none"> <li>Added new service ENE_UND_SPLY_INF_EC</li> </ul>
04/08/2021	6.0.0	Summer 2021 Release <u>FERC order 831</u> <ul style="list-style-type: none"> <li>Added new services PRC_HRLY_ENE_SHAPING_FCTR and ATL_CNSTR_RLXN_THRESHOLD</li> </ul> <u>Summer 2021 Readiness</u> <ul style="list-style-type: none"> <li>Added new service ENE_SCH_BY_TIE</li> </ul>
03/05/2021	5.1.17	To support Independent 2021 – Full Network Model Mapping Data <ul style="list-style-type: none"> <li>Corrected BAA Type parameter references to BAA Group</li> <li>Corrected BAA Group values</li> <li>Corrected ATL_FNM_MAPPING_DATA_GRP URL parameter baatype to baa_grp_id in Examples document</li> </ul>
02/11/2021	5.1.16	To support Independent 2021 – Full Network Model Mapping Data <ul style="list-style-type: none"> <li>Added new service ATL_FNM_MAPPING_DATA</li> <li>Updated OASISMaster_v5 XSD</li> </ul>
01/14/2021	5.1.15	To support Independent 2021 – CIRA Enhancements Added below services, <ul style="list-style-type: none"> <li>ATL_RES_ADQ_NET_QUAL_CAP – Net Qualifying Capacities</li> <li>PUB_CPM_DESIGNATION – CPM Designations</li> </ul>
06/19/2020	5.1.14	Republished OASISReport_v11.xsd with corrected Version value.
05/29/2020	5.1.13	2020 Fall Release – Excess Behind the Meter Production Added service ENE_EBTMP_PERF_DATA

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
04/03/2020	5.1.12	Updated PRC_CURR_HUB_LMP URL. Updated OASISMaster_v4 XSD to fix the errors in XSD definition.
12/24/2019	5.1.11	2019 Independent Release – CRR Transparency Enhancements Updated CRR_AGG_REV_ADJ service, <ul style="list-style-type: none"> <li>Added DIRECTION</li> <li>Added IFM_NET_FLOW_MW</li> <li>Added CLAWBACK_REV</li> <li>Added CIR_SCH_REV</li> </ul> Updated OASISMaster_v4 XSD to fix the errors in XSD definition.
10/23/2019	5.1.10	Updated PRC_RTM_FLOWGATE URL
07/18/2019	5.1.9	2019 Independent Release – EIM 2019 <ul style="list-style-type: none"> <li>Added new service for Transmission Loss (ENE_TRANS_LOSS)</li> </ul>
02/15/2019	5.1.8	2019 Independent Release (target March 2019 / EIM Resource Sufficiency Enhancements Project) <ul style="list-style-type: none"> <li>Updated ENE_EIM_TRANSFER_LIMITS report description to add limit type = IMPORT or EXPORT</li> </ul> Other <ul style="list-style-type: none"> <li>Updated PRC_DAM_SCH_CNSTR &amp; PRC_RTM_SCH_CNSTR</li> </ul>
02/14/2019	5.1.7	2019 Independent Release <ul style="list-style-type: none"> <li>Added enddatetime to PRC_DAM_SCH_CNSTR</li> </ul>
12/18/2018	5.1.6	2019 Independent Release – FERC 844 <ul style="list-style-type: none"> <li>Added new service for Resource-Specific Uplift (ENE_RES_UPL)</li> <li>Added new service for Zonal Uplift (ENE_ZNL_UPL)</li> <li>Added new service for Operator-Initiated Commitment (ENE_OIC)</li> <li>Added new service Day-Ahead Schedule Constraint Prices (PRC_DAM_SCH_CNSTR)</li> <li>Added notes under Transmission section regarding Transmission Interface ID</li> </ul>
09/06/2018	5.1.5	Fall 2018 Release – Revision 1

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		<ul style="list-style-type: none"> <li>Updated CRR Public Bid service to add Hedge_type</li> <li>Updated ENE_BAA_MKT_EVENTS single report sample url string</li> <li>Added a new service for CRR Aggregated Revenue Adjustment</li> </ul>
06/25/2018	5.1.4	Fall 2018 Release <ul style="list-style-type: none"> <li>Updated CRR Public Bid service to add transaction type.</li> <li>Added new service for BAA Market Events</li> </ul>
01/31/2018	5.1.3	Updated ENE_FLEX_RAMP_INPUT Service <ul style="list-style-type: none"> <li>Added DATA_ITEM element</li> <li>Removed MKT_TYPE element</li> </ul>
10/27/2017	5.1.2	Updated Hourly Real-Time LAP service <ul style="list-style-type: none"> <li>Corrected group zip file name under Group Report Definitions section.</li> <li>Corrected energy type code from SMEC to MCE</li> </ul> Updated Versioning and Namespace domain reference section <ul style="list-style-type: none"> <li>Added OASISMaster_v4.xsd</li> </ul>
06/22/2017	5.1.1	Fall 2017 Release <ul style="list-style-type: none"> <li>Control Area Generating Capability List -Renamed element GENERATING_UNIT_NAME to GEN_UNIT_NAME</li> </ul> Updated ENE_FLEX_RAMP_INPUT Service <ul style="list-style-type: none"> <li>Added TEST_INDICATOR element</li> <li>Added RAMP_TYPE element</li> <li>Added FLEX_RAMP_REQ_MW element</li> <li>Removed CHANGE_IN_LOAD_DEMAND element</li> <li>Removed UC_COMPONENT element</li> </ul>
04/28/2017	5.1.0	Fall 2017 Release <ul style="list-style-type: none"> <li>Added new service for Control Area Generating Capability List</li> </ul>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		<p>Updated CSP_OFFER_SET Service</p> <ul style="list-style-type: none"> <li>Service name changed from CSP_OFFER_SET to PUB_CSP_OFFER_SET</li> <li>Removed SCHEDULINGCOORDINATOR element</li> <li>Added notes to provide additional details</li> <li>CSP_OFFER_SET API sample URLs are updated.</li> </ul> <p>Updated ENE_FLEX_RAMP_INPUT Service</p> <ul style="list-style-type: none"> <li>Service name changed from ENE_FLEX_RAMP_INPUT to ENE_EIM_FLEX_RAMP_INPUT</li> <li>ENE_FLEX_RAMP_INPUT API sample URLs are updated.</li> </ul>
03/31/2017	5.0.0	<p>Fall 2017 Release</p> <ul style="list-style-type: none"> <li>Added new service CSP_OFFER_SET for Competitive Solicitation Process Offer Set.</li> <li>Added new service ENE_FLEX_RAMP_INPUT for Flexible Ramp Requirements Input data.</li> <li>Added new service PRC_RTM_LAP for Hourly RTM LAP prices</li> </ul> <p>Pre Fall - 2017 Release document clean up</p> <ul style="list-style-type: none"> <li>Corrected ENE_MPM API sample URL to fix the incorrect version</li> <li>Corrected typo in PRC_MPM_DEFAULT_CMP service data element COMPETITIVE_FLAG</li> </ul>
02/10/2017	4.3.5	<p>Updated the following MPM Services ( Spring 2017)</p> <ul style="list-style-type: none"> <li>Updated PRC_MPM_RTM_REF_BUS to add support for RTD LMPM.</li> <li>Updated PRC_MPM_RTM_NOMOGRAM_CMP to add support for RTD LMPM.</li> <li>Updated PRC_MPM_CNSTR_CMP to add support for RTD LMPM.</li> </ul>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
		Added example API URLs for the following Services <ul style="list-style-type: none"> <li>• PRC_INTVL_LMP for version 3</li> <li>• PRC_SPTIE_LMP for version 5</li> <li>• PRC_HASP_LMP for version 3</li> <li>• PRC_RTPD_LMP for version 3</li> <li>• PRC_SPTIE_LMP for version 5</li> <li>• DAM_SPTIE_LMP_GRP for version 5</li> </ul>
01/20/2016	4.3.4	Updated the following MPM Services ( Spring 2017) <ul style="list-style-type: none"> <li>• Updated PRC_MPM_RTM_LMP service to remove the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_NOMOGRAM to remove the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_NOMOGRAM_CMP to remove the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_FLOWGATE to remove the support for RTD LMPM</li> <li>• Updated PRC_MPM_CNSTR_CMP to remove the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_REF_BUS to remove the support for RTD LMPM</li> <li>• MPM Intertie Constraint Competitive Paths for RTD</li> </ul>
12/02/2016	4.3.3	Independent 2016 release Introduced API services for below reports: <ul style="list-style-type: none"> <li>• Price Correction Messages – ATL_PRC_CORR_MSG</li> <li>• Scheduling Point Definition – ATL_SP</li> <li>• BAA and Tie Definition – ATL_BAA_TIE</li> <li>• Scheduling Point and Tie Definition – ATL_SP_TIE</li> </ul>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		<ul style="list-style-type: none"> <li>Intertie Constraint and Scheduling Point Mapping – ATL_ITC_SP</li> <li>Intertie Scheduling Limit and Tie Mapping – ATL_ISL_TIE</li> <li>Wind And Solar Summary – ENE_WIND_SOLAR_SUMMARY</li> <li>EIM Transfer Limits By Tie – ENE_EIM_TRANSFER_LIMITS_TIE</li> <li>MPM Default Competitive Path Assesment List – PRC_MPM_DEFAULT_CMP</li> </ul> <p>Updates to LMP Price API's (split into individual price component files)</p> <ul style="list-style-type: none"> <li>PRC_INTVL_LMP</li> <li>PRC_RTPD_LMP</li> <li>PRC_HASP_LMP</li> <li>PRC_SPTIE_LMP (Group Names: RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP)</li> </ul> <p>Updates to TRNS_CURR_USAGE API (limit to current and future trade days only)</p>
08/19/2016	4.3.2	Fall 2016 Release additional changes <ul style="list-style-type: none"> <li>Added new ENE_HRLY_BASE_LOSS report under Energy section</li> </ul>
06/02/2016	4.3.1	Fall 2016 Release additional changes <ul style="list-style-type: none"> <li>Added new SLD_SF_EVAL_DMD_FCST report under System Demand section</li> <li>Added new ENE_EIM_TRANSFER_TIE report under Energy section</li> <li>Added 'RAMP_TYPE' element for the ENE_AGGR_FLEX_RAMP report</li> <li>Updated the SLD_ADV_FCST report description</li> </ul>
04/07/2016	4.3.0	Fall 2016 Release changes New services


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		<ul style="list-style-type: none"> <li>• service PRC_RTM_SCH_CNSTR (Scheduling Constraint Shadow Prices)</li> <li>• service SLD_ADV_FCST (Advisory CAISO Demand Forecast)</li> <li>• service ENE_HRLY_BASE_NSI (EIM BAA Hourly Base NSI)</li> <li>• service ENE_UNCERTAINTY_MV (Uncertainty Movement by Category)</li> <li>• service ENE_FLEX_RAMP_REQT (Flexible Ramp Requirements)</li> <li>• service ENE_AGGR_FLEX_RAMP (Flex Ramp Aggr Awards)</li> <li>• service ENE_FLEX_RAMP_DC (Flex Ramp Surplus Demand Curves)</li> </ul> <p>Update to existing services</p> <ul style="list-style-type: none"> <li>• Updated PRC_SPTIE_LMP service to include LMP_ENE_PRC, LMP_LOSS_PRC AND LMP_GHG_PRC elements</li> <li>• Updated PRC_CD_SPTIE_LMP service to include LMP_ENE_PRC, LMP_LOSS_PRC AND LMP_GHG_PRC elements</li> <li>• Updated PRC_MPM_RTM_LMP service to extend the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_NOMOGRAM to extend the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_NOMOGRAM_CMP to extend the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_FLOWGATE to extend the support for RTD LMPM</li> <li>• Updated PRC_MPM_CNSTR_CMP to extend the support for RTD LMPM</li> <li>• Updated PRC_MPM_RTM_REF_BUS to extend the support for RTD LMPM</li> <li>• Updated PUB_BID to include GHG market product</li> </ul>


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		Other document corrections <ul style="list-style-type: none"> <li>• csv format to “6” under section 3.1.3</li> <li>• Maximum download to only one hour for PRC_RTPD_LMP</li> </ul>
03/30/2015	4.2.7	<ul style="list-style-type: none"> <li>• Corrected the PRC_DS_REF sample single zip URLs</li> <li>• Updated Section 11 Long/Short Day section to add notes about HE25 and HE03</li> </ul>
03/12/2015	4.2.6	<ul style="list-style-type: none"> <li>• Updated occurrences of “Spring 2015” to “Independent 2015” release in the document</li> </ul>
02/18/2015	4.2.5	<ul style="list-style-type: none"> <li>• Updated CB Public Bids to add new Flowgate field (PUB_CB_BID)</li> <li>• Update CB Reference Prices to add new TIE_NAME field (PRC_DS_REF)</li> <li>• Add new report ATL_CBNODE</li> </ul>
12/19/2014	4.2.4	<ul style="list-style-type: none"> <li>• Removed the HASP market sample URLs for the new report PRC_SPTIE_LMP</li> <li>• Corrected the version # for the group report URLs: DAM_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP – should be version 3</li> </ul>
12/04/2014	4.2.3	Add new reports for the January 2015 release: Major version=3; Minor version=20150101 <ul style="list-style-type: none"> <li>• PRC_SPTIE_LMP - Scheduling Point Tie Combination Locational Marginal Prices (LMP)</li> <li>• PRC_CD_SPTIE_LMP - Contingency Dispatch Scheduling Point Tie Combination Locational Marginal Prices (LMP)</li> </ul> Per Fall Release 2014 EIM, added version 2 sample URLs for the following reports: PRC_INTVL_LMP, PRC_CURR_LMP, PRC_HASP_LMP, PRC_RTPD_LMP, PRC_MPM_RTM_LMP; where version=2 includes the GHG LMP component in the output




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Date	Version	Description
08/12/2014	4.2.2	<ul style="list-style-type: none"> <li>Removed newly added Constraint type element from the following reports to roll back to previous version v1 PRC_CNSTR,PRC_RTM_FLOWGATE, PRC_CD_RTM_FLOWGATE, PRC_MPM_CNSTR, PRC_MPM_CNSTR_CMP, PRC_MPM_RTM_FLOWGATE</li> <li>Updated the URLs to add enddatetime element to the following reports PRC_FLEX_RAMP</li> <li>Added sample URLs for market_run_id =ALL for the following reports  ENE_EIM_TRANSFER_LIMITS  ENE_EIM_TRANSFER  ENE_EIM_DYN_NSI</li> <li>Removed non-existent report PRC_FLEX_RAMP_CURR from the document.</li> </ul>
06/30/2014	4.2.1	PRC_HASP_LMP correction to include GHG LMP component in the output.
03/18/2014	4.2.0	<p>Changes for Fall 2014/EIM release</p> <p>Added new reports:</p> <ul style="list-style-type: none"> <li>PRC_EIM_GHG – EIM GHG shadow price</li> <li>ENE_EIM_TRANSFER_LIMITS – EIM Transfer limits</li> <li>ENE_EIM_TRANSFER –EIM Transfer</li> <li>ENE_EIM_DYN_NSI – EIM BAA Dynamic NSI</li> <li>ENE_BASE_NSI – BAA Base NSI</li> </ul> <p>Updated reports:</p> <ul style="list-style-type: none"> <li>PRC_FLEX_RAMP_CURR and PRC_FLEX_RAMP for new baa_grp_id attribute</li> </ul>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		<ul style="list-style-type: none"> <li>• PRC_CNSTR, PRC_RTM_FLOWGATE, PRC_CD_RTM_FLOWGATE, PRC_MPM_CNSTR, PRC_MPM_CNSTR_CMP, PRC_MPM_RTM_FLOWGATE to include new Constraint Type (Physical, Scheduling)</li> <li>• PRC_INTVL_LMP, PRC_CURR_LMP, PRC_HASP_LMP, PRC_RTPD_LMP, PRC_MPM_RTM_LMP to include GHG LMP component in the output</li> <li>• ENE_EA updated for two new energy types for Base Schedule and EIM manual dispatch.</li> <li>• ENE_MPM for new baa_id attribute</li> </ul> <p>OasisReport.xsd version will be moving from v1 to v2 for the new/changed reports.</p>
03/12/2014	4.1.3	Added additional report query parameters for TRNS_USAGE and TRNS_CURR_USAGE
03/04/2014	4.1.2	Renamed query parameter for SLD_FCST to be execution_type instead of exec_type for RTM market_run_id
01/22/2014	4.1.1	<p>Merge FERC764 tech spec changes on top of latest GMT release tech spec</p> <p>Updated current Transmission usage, Demand forecast, Renewable forecast sections for 15-min interval data.</p>
12/15/2013	4.0.3	<p>PRC_LMP URL typo correction.</p> <p>Update for PRC_FLEX_RAMP and PRC_FLEX_RAMP_CURR.</p> <p>Updated files in groups HASP_MPM_SD_PRC_GRP, RTPD_MPM_SD_PRC_GRP, DAM_MPM_LMP_GRP</p>
11/26/2013	4.0.2	<p>Removed deprecated group CRR1_GRP and corrected report names available under RTM1_GRP and HASP1_GRP</p> <p>Removed alternate URL for CURR_LMP_GRP. StartDateTime and version parameters are now mandatory for all reports.</p>
10/24/2013	4.0.1	Minor corrections and updates
09/23/2013	4.0.0	Initial release of GMT 2013 services to Market Participants. Pre-GMT tech specs and it's version history is at


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Date	Version	Description
		<a href="http://www.caiso.com/Documents/InterfaceSpecifications-OASISv3_12_0.pdf">http://www.caiso.com/Documents/InterfaceSpecifications-OASISv3_12_0.pdf</a>


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

## TABLE OF CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>22</b>
1.1	Purpose.....	22
1.2	Related Documents .....	23
1.3	Reference Documents .....	23
<b>2</b>	<b>Document Release Notes .....</b>	<b>24</b>
2.1	Version 7.4.0 .....	24
<b>3</b>	<b>Consolidated List of Supported Artifacts.....</b>	<b>24</b>
<b>4</b>	<b>Services.....</b>	<b>34</b>
4.1	Service Description: .....	34
4.1.1	Operation Details .....	34
4.1.2	Certificate Roles Requirement.....	35
4.1.3	Use Model.....	35
4.1.4	Element Table.....	44
<b>5</b>	<b>Acceptable Use Policy .....</b>	<b>121</b>
5.1	Rate Limit.....	121
5.2	Acceptable Use Policy .....	121
5.2.1	AUP Key .....	121
5.2.2	Error Response.....	122
<b>6</b>	<b>Fault Return Codes .....</b>	<b>123</b>
<del>1</del>	<del>Introduction.....</del>	<del>21</del>
<del>1.1</del>	<del>Purpose.....</del>	<del>21</del>
<del>1.2</del>	<del>Related Documents .....</del>	<del>22</del>
<del>1.3</del>	<del>Reference Documents .....</del>	<del>22</del>
<del>2</del>	<del>Document Release Notes .....</del>	<del>23</del>
<del>2.1</del>	<del>Version 7.0.0.....</del>	<del>23</del>
<del>3</del>	<del>Consolidated List of Supported Artifacts.....</del>	<del>23</del>
<del>4</del>	<del>Services.....</del>	<del>33</del>
<del>4.1</del>	<del>Service Description: .....</del>	<del>33</del>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

<del>4.1.1</del>	<del>Operation Details .....</del>	<del>33</del>
<del>4.1.2</del>	<del>Certificate Roles Requirement.....</del>	<del>34</del>
<del>4.1.3</del>	<del>Use Model.....</del>	<del>34</del>
<del>4.1.4</del>	<del>Element Table.....</del>	<del>43</del>
<b>5</b>	<b>Fault Return Codes .....</b>	<b>121</b>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

# 1 Introduction

## 1.1 Purpose

The purpose of this document is to capture the information a developer would need to complete interface development. This document establishes a basis for initiation and development of the services.

The technical specifications capture the service information, element description, formatting conditions of the data that is essential for the development of interfaces.

This document explains the functionality of the Open Access Same-Time Information System (OASIS) API. In this document the following are described:

- ❖ Background of OASIS.
- ❖ URL Parameter definitions for requesting OASIS data.
- ❖ Naming Convention for Returned OASIS files.
- ❖ Schema (XSD) for returned OASIS XML data.

### BACKGROUND

The California Independent System Operator's (CAISO) Open Access Same-time information System (OASIS) provides energy market and power grid information to the public and market participants, through reports with real time updates. This information includes the following:


- ❖ System load requirements
- ❖ Market Price information
- ❖ Transmission availability
- ❖ System demand conditions

The data is categorized into three groups:

Category	Description
<b>OASIS Data</b>	This is the CAISO operational and market data.
<b>Public Bids</b>	This is the Public Bid data published after 90 days.
<b>Atlas Data</b>	This is the reference data supporting OASIS Data.

Its own XSD Schema, described in this document, supports each category.

To automate the download of the OASIS report data in XML, the information in this document describes the OASIS XML format and the download procedures, including URL examples associated with the XML data files.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

#### TIME HORIZONS FOR CAISO PUBLIC DATA POSTINGS

- **GMT version services for ISO Market**

The URL for the GMT version of the OASIS API web services is <http://oasis.caiso.com/oasisapi>


## 1.2 Related Documents

For more information on current or past project initiative releases that impacted the technical specification, please refer to the release planning page at <http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx>

## 1.3 Reference Documents

Please refer to the following specifications and documents for help with developing the interface.

Document Name	Document Link	Document Details
B2B Security Specification	<a href="https://developer.caiso.com/Documents/SO%20B2B%20Security%20Specification.pdf">https://developer.caiso.com/Documents/SO%20B2B%20Security%20Specification.pdf</a>	B2B Security Standards Specification
Acceptable dateTime Format	<a href="https://developer.caiso.com/Documents/SO%20B2B%20Security%20Specification.pdf">https://developer.caiso.com/Documents/SO%20B2B%20Security%20Specification.pdf</a>	Acceptable formats for specifying the dateTime data type for submit and request services
Application Access Endpoints, Technical documents & Sample files	<a href="https://developer.caiso.com/Pages/application.aspx?app=OASIS">https://developer.caiso.com/Pages/application.aspx?app=OASIS</a>	Developers are encouraged to test the interface against the market simulation environment (MAP Stage). Please refer to the developer site for Map stage URLs, Production URLs, technical specification, Service Artifacts, Sample Files etc.
User/Certificate Role Provisioning	<a href="https://developer.caiso.com/pages/AIM.aspx">https://developer.caiso.com/pages/AIM.aspx</a>	AIM is an application that supports provisioning of the roles necessary for the certificate to interface with the ISO's applications.
Acceptable Use Policy	<a href="https://developer.caiso.com/Documents/TechnicalSpecifications-AcceptableUsePolicyImplementation.pdf">https://developer.caiso.com/Documents/TechnicalSpecifications-AcceptableUsePolicyImplementation.pdf</a>	This document explains the technical specifications for the Acceptable Use Policy (AUP) Implementation.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

## 2 Document Release Notes

### 2.1 Version 7.4.0

This document release version affects the following system data interface specifications:

Project	New or Update	Service	Schema	Version #	
				Major	Minor
Maximum Import Capability (MIC) Enhancements	New	AVAIL_IMP_CAP	AVAIL_IMP_CAP_v1.xsd	1	N/A
Maximum Import Capability (MIC) Enhancements	New	IMP_CAP_USED_RA_PLAN	IMP_CAP_USED_RA_PLAN_v1.xsd	1	N/A
WA WEIM GHG Enhancements	Update	PRC_GHG_ALLOWANCE	OASISReport_v2.xsd	2	

## 3 Consolidated List of Supported Artifacts


This section shows all the supported service versions for this application:

**Note:** OASIS will support only the versions listed here. Other versions will be decommissioned effective 2020 Fall Release Activation.


### Single Report Service Versions:

Service Name	Major Version	Minor Version
<b>PRICES</b>		
PRC_LMP	v1	N/A
	v12	N/A
PRC_INTVL_LMP	v2	N/A
	v3	N/A
PRC_HASP_LMP	v2	N/A
	v3	N/A




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Service Name	Major Version	Minor Version
PRC_RTPD_LMP	v2	N/A
	v3	N/A
PRC_AS	v1	N/A
	v12	N/A
PRC_INTVL_AS	v1	N/A
PRC_CNSTR	v1	N/A
	v12	N/A
PRC_FUEL	v1	N/A
PRC_CURR_LMP	v1	N/A
	v2	N/A
PRC_CURR_HUB_LMP	v1	N/A
PRC_NOMOGRAM	v1	N/A
	v12	N/A
PRC_RTM_NOMOGRAM	v1	N/A
PRC_RTM_FLOWGATE	v1	N/A
	v12	N/A
PRC_DS_REF	v1	N/A
	v3	N/A
CB_NODAL_GRP_CNSTR_PRC	v1	N/A
PRC_FLEX_RAMP	v1	N/A
	v2	N/A
PRC_CD_INTVL_LMP	v1	N/A
PRC_CD_SPTIE_LMP	v3	N/A
	v4	N/A
PRC_CD_RTM_FLOWGATE	v1	N/A
	v12	N/A
PRC_CD_RTM_NOMOGRAM	v1	N/A
<b>TRANSMISSION</b>		
TRNS_CURR_USAGE	v1	N/A
TRNS_ATC	v1	N/A
TRNS_OUTAGE	v1	N/A
TRNS_USAGE	v1	N/A
PRC_MPM_LMP	v1	N/A
PRC_MPM_RTM_LMP	v1	N/A
	v2	N/A
PRC_MPM_NOMOGRAM	v1	N/A
	v12	N/A
PRC_MPM_RTM_NOMOGRAM	v1	N/A
	v12	N/A
PRC_MPM_NOMOGRAM_CMP	v1	N/A
	v12	N/A
PRC_MPM_RTM_NOMOGRAM_CMP	v1	N/A

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Service Name	Major Version	Minor Version
	v12	N/A
PRC_MPM_CNSTR	v1	N/A
	v12	N/A
PRC_MPM_RTM_FLOWGATE	v1	N/A
	v12	N/A
PRC_MPM_CNSTR_CMP	v1	N/A
	v12	N/A
PRC_MPM_REF_BUS	v1	N/A
PRC_MPM_RTM_REF_BUS	v1	N/A
PRC_GHG_ALLOWANCE	v1	N/A
	v2	N/A
PRC_EIM_GHG	v2	N/A
PRC_SPTIE_LMP	v3	N/A
	v5	N/A
PRC_RTM_SCH_CNSTR	v4	N/A
PRC_DAM_SCH_CNSTR	v8	N/A
PRC_MPM_DEFAULT_CMP	v5	N/A
PRC_RTM_LAP	v6	N/A
<b>SYSTEM DEMAND</b>		
SLD_FCST_PEAK	v1	N/A
SLD_FCST	v1	N/A
SLD_REN_FCST	v1	N/A
SLD_ADV_FCST	v4	N/A
SLD_SF_EVAL_DMD_FCST	v4	N/A
LOAD_ADJUSTMENT	v13	N/A
<b>ENERGY</b>		
ENE_SLRS	v1	N/A
ENE_EA	v1	N/A
	v2	N/A
ENE_MPM	v1	N/A
	v2	N/A
CMMT_RMR	v1	N/A
ENE_DISP	v1	N/A
ENE_LOSS	v1	N/A
CMMT_RA_MLC	v1	N/A
ENE_CB_AWARDS	v1	N/A
ENE_CB_CLR_AWARDS	v1	N/A
ENE_CB_MKT_SUM	v1	N/A
CB_NODAL_LIMITS	v1	N/A
ENE_CD_SLRS	v1	N/A
AGGR_OUTAGE_SCH	v1	N/A
ENE_EIM_TRANSFER_LIMITS	v2	N/A

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Service Name	Major Version	Minor Version
ENE_EIM_TRANSFER	v2	N/A
ENE_EIM_DYN_NSI	v2	N/A
ENE_BASE_NSI	v2	N/A
ENE_HRLY_BASE_NSI	v2	N/A
	v4	N/A
ENE_HRLY_BASE_LOSS	v2	N/A
	v4	N/A
ENE_UNCERTAINTY_MV	v4	N/A
ENE_FLEX_RAMP_REQT	v4	N/A
ENE_AGGR_FLEX_RAMP	v4	N/A
ENE_FLEX_RAMP_DC	v4	N/A
	v15	N/A
ENE_EIM_TRANSFER_TIE	v4	N/A
ENE_EIM_TRANSFER_LIMITS_TIE	v5	N/A
ENE_WIND_SOLAR_SUMMARY	v5	N/A
ENE_EIM_FLEX_RAMP_INPUT	v6	N/A
ENE_BAA_MKT_EVENTS	v7	N/A
ENE_TRANS_LOSS	v9	N/A
ENE_EBTMP_PERF_DATA	v11	N/A
ENE_UND_SPLY_INF_EC	v12	N/A
ENE_SCH_REDUCTION	v13	N/A
ENE_EIM_FLEX_RAMP_INPUT	v13	N/A
	v15	N/A
WEIM_RSE_CAPACITY_TEST	v13	N/A
	v15	N/A
<b>ANCILLARY</b>		
AS_REQ	v1	N/A
AS_RESULTS	v1	N/A
AS_OP_RSRV	v1	N/A
AS_MILEAGE_CALC	v1	N/A
<b>CRR</b>		
CRR_CLEARING	v1	N/A
CRR_INVENTORY	v1	N/A
CRR_AGG_REV_ADJ	v7	N/A
	v10	N/A
<b>PUBLICBIDS</b>		
PUB_BID	v1 (Will be decommissioned upon enabling v3)	N/A
	v2	N/A
	v3	N/A
PUB_CB_BID	v1	N/A

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Service Name	Major Version	Minor Version
	v2	N/A
PUB_CRR_BID	v1	N/A
	v2	N/A
<b>RESOURCE ADEQUACY</b>		
PUB_CSP_OFFER_SET	v1	N/A
PUB_CPM_DESIGNATION	v1	N/A
AVAIL_IMP_CAP	v1	N/A
IMP_CAP_USED_RA_PLAN	v1	N/A
<b>ATLAS</b>		
ATL_PNODE	v1	N/A
ATL_APNODE	v1	N/A
ATL_LDF	v1	N/A
ATL_LAP	v1	N/A
ATL_RESOURCE	v1	N/A
ATL_HUB	v1	N/A
ATL_PNODE_MAP	v1	N/A
ATL_AS_REGION_MAP	v1	N/A
ATL_RUC_ZONE_MAP	v1	N/A
ATL_TAC_AREA	v1	N/A
ATL_TIEPOINT	v1	N/A
ATL_TI	v1	N/A
ATL_PUB	v1	N/A
ATL_PUB_SCHED	v1	N/A
ATL_OSM	v1	N/A
ATL_PEAK_ON_OFF	v1	N/A
ATL_CBNODE	v2	N/A
ATL_PRC_CORR_MSG	v3	N/A
ATL_SP	v3	N/A
ATL_BAA_TIE	v3	N/A
ATL_SP_TIE	v3	N/A
ATL_ITC_SP	v3	N/A
ATL_ISL_TIE	v3	N/A
ATL_GEN_CAP_LST	v4	N/A
ATL_RES_ADQ_NET_QUAL_CAP	v5	N/A
ATL_CNSTR_RLXN_THRESHOLD	v5	N/A

**Group Report Service Versions:**


Service Name	Major Version	Minor Version
DAM_LMP_GRP	v1	N/A

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Service Name	Major Version	Minor Version
	v12	N/A
DAM_SPTIE_LMP_GRP	v3	N/A
	v5	N/A
RUC_LMP_GRP	v1	N/A
	v12	N/A
HASP_LMP_GRP	v1	N/A
	v3	N/A
RTPD_LMP_GRP	v1	N/A
	v3	N/A
RTPD_SPTIE_LMP_GRP	v3	N/A
	v5	N/A
RTM_LMP_GRP	v1	N/A
	v3	N/A
RTD_SPTIE_LMP_GRP	v3	N/A
	v5	N/A
DAM_PRC_AS_GRP	v1	N/A
HASP_PRC_AS_GRP	v1	N/A
	v12	N/A
RTM_PRC_AS_GRP	v1	N/A
DAM_TRNS_GRP	v1	N/A
HASP_TRNS_GRP	v1	N/A
RTPD_TRNS_GRP	v1	N/A
DAM1_GRP	v1	N/A
RTM1_GRP	v1	N/A
RTPD_FCST_GRP	v1	N/A
HASP1_GRP	v1	N/A
POST1_GRP	v1	N/A
DAM_AS_GRP	v1	N/A
HASP_AS_GRP	v1	N/A
RTM_AS_GRP	v1	N/A
PUB_DAM_GRP	v1 (Will be decommissioned upon enabling v3)	N/A
	v2	N/A
	v3	N/A
PUB_RTM_GRP	v1 (Will be decommissioned upon enabling v3)	N/A
	v2	N/A
	v3	N/A
CURR_LMP_GRP	v1	N/A
DAM_SD_PRC_GRP	v1	N/A


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Service Name	Major Version	Minor Version
	v12	N/A
HASP_SD_PRC_GRP	v1	N/A
	v12	N/A
RTM_SD_PRC_GRP	v1	N/A
	v12	N/A
PUB_CB_DAM_GRP	v1	N/A
CB_REF_PRC_GRP	v1	N/A
	v3	N/A
CB_CLR_DAM_GRP	v1	N/A
CB_NODAL_LMT_GRP	v1	N/A
DAM_FLEX_RAMP_GRP	v1	N/A
	v2	N/A
RTPD_FLEX_RAMP_GRP	v1	N/A
	v2	N/A
RTD_FLEX_RAMP_GRP	v1	N/A
	v2	N/A
DAM_MPM_LMP_GRP	v1	N/A
HASP_MPM_LMP_GRP	v1	N/A
RTPD_MPM_LMP_GRP	v1	N/A
DAM_MPM_SD_PRC_GRP	v1	N/A
	v12	N/A
HASP_MPM_SD_PRC_GRP	v1	N/A
	v12	N/A
RTPD_MPM_SD_PRC_GRP	v1	N/A
	v12	N/A
PUB_CRR_BID_SEASONAL_GRP	v1	N/A
	v2	N/A
PUB_CRR_BID_MTHLY_GRP	v1	N/A
	v2	N/A
AGGR_OUTAGE_SCH_GRP	v1	N/A
PUB_CSP_OFFER_SET_ANNUAL_GRP	v1	N/A
PUB_CSP_OFFER_SET_MONTHLY_GRP	v1	N/A
PUB_CSP_OFFER_SET_INTRAMONTHLY_GRP	v1	N/A
MKT_BID_CAPS_GRP	v1	N/A
RTD_ENE_EIM_TRANSFER_TIE_GRP	v4	N/A
RTPDENE_EIM_TRANSFER_TIE_GRP	v4	N/A
RTD_ENE_EIM_TRANSFER_LIMITS_TIE_GRP	v5	N/A
RTPD_ENE_EIM_TRANSFER_LIMITS_TIE_GRP	v5	N/A
RTM_LAP_GRP	v6	N/A
CRR_AGG_REV_ADJ_GRP	v7	N/A
	v10	N/A
ENE_RES_UPL_GRP	v8	N/A

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Service Name	Major Version	Minor Version
ENE_ZNL_UPL_GRP	v8	N/A
ENE_OIC_GRP	v8	N/A
ENE_EBTMP_PERF_DATA_GRP	v11	N/A
ATL_RES_ADQ_NET_QUAL_CAP_GRP	v5	N/A
ATL_FNM_MAPPING_DATA_GRP	v5	N/A
PRC_HRLY_ENE_SHAPING_FCTR_GRP	v12	N/A
ENE_SCH_BY_TIE_GRP	v12	N/A
RUC_SCH_REDUCTION_GRP	v13	N/A
HASP_SCH_REDUCTION_GRP	v13	N/A
RUC_LOAD_ADJUSTMENT_GRP	v13	N/A
HASP_LOAD_ADJUSTMENT_GRP	v13	N/A
RTD_LOAD_ADJUSTMENT_GRP	v13	N/A
RTPD_LOAD_ADJUSTMENT_GRP	v13	N/A
WEIM_RSE_CAPACITY_TEST_GRP	v13	N/A
ENE_EIM_FLEX_RAMP_INPUT_GRP	v13	N/A
RTD_FLEX_RAMP_NODAL_PRC_GRP	v14	N/A
RTPD_FLEX_RAMP_NODAL_PRC_GRP	v14	N/A
RTD_FLEX_RAMP_SPTIE_NODAL_PRC_GRP	v14	N/A
RTPD_FLEX_RAMP_SPTIE_NODAL_PRC_GRP	v14	N/A
RTD_FLEX_RAMP_CNSTR_SHDW_PRC_GRP	v14	N/A
RTPD_FLEX_RAMP_CNSTR_SHDW_PRC_GRP	v14	N/A
RTD_FLEX_RAMP_SCH_CNSTR_SHDW_PRC_GRP	v14	N/A
RTPD_FLEX_RAMP_SCH_CNSTR_SHDW_PRC_GRP	v14	N/A
DAM_ACC_SHDW_PRC_GRP	v14	N/A
RTD_ACC_SHDW_PRC_GRP	v14	N/A
RTPD_ACC_SHDW_PRC_GRP	v14	N/A
RTD_FLEX_RAMP_REQ_INP_HSG_GRP	v14	N/A
RTPD_FLEX_RAMP_REQ_INP_HSG_GRP	v14	N/A
RTD_FLEX_RAMP_REQ_INP_POLYNOMIALS_GRP	v14	N/A
RTPD_FLEX_RAMP_REQ_INP_POLYNOMIALS_GRP	v14	N/A
RTD_FLEX_RAMP_REQ_THRESH_GRP	v14	N/A
RTPD_FLEX_RAMP_REQ_THRESH_GRP	v14	N/A
RTD_FLEX_RAMP_TEST_RESULT_GROUP_GRP	v14	N/A
RTPD_FLEX_RAMP_TEST_RESULT_GROUP_GRP	v14	N/A
RTD_FLEX_RAMP_FCST_GRP	v14	N/A
RTD_FLEX_RAMP_FCST_GRP	v14	N/A
RTD_ENE_FLEX_RAMP_DC_GRP	v15	N/A
RTPD_ENE_FLEX_RAMP_DC_GRP	v15	N/A

### Versioning and Namespace domain reference


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

With the GMT release, the namespace domain is changing from the environment specific URL to use [www.caiso.com/soa/\\*xsd](http://www.caiso.com/soa/*xsd). So for the January 2015 release, the namespaces for the various reports are:


XSD	Category	Description
<b>OASISReport_&lt;version&gt;.xsd</b>	<b>OASIS Data</b>	This is the primary schema by which OASIS returns operational and market data.
<b>OASISBid_&lt;version&gt;.xsd</b>	<b>Public Bids</b>	OASIS returns Public Bid data by this schema. This schema is a derivative of the bid schema used by market participants to submit bids and schedules.
<b>OASISCBBid_&lt;version&gt;.xsd</b>	<b>Public CB Bids</b>	OASIS returns CB Public Bid data by this schema. This schema is a derivative of the CB bid schema used by market participants to submit CB bids.
<b>OASISMaster_&lt;version&gt;.xsd</b>	<b>Atlas Data</b>	This schema is tailored to the Atlas / Reference data portion of OASIS.
<b>OASISCRRPublicBid_&lt;version&gt;.xsd</b>	<b>CRR Bid Data</b>	OASIS returns CRR Bid data by this schema. This schema is a derivative of the CRR bid schema.
<b>OASISCSPOfferSet_&lt;version&gt;.xsd</b>	<b>CSP Offer Set</b>	OASIS returns CSP offer Set data by this schema. This schema is derivative of the CSPOfferSet schema.

Name Space	Major Version	Minor Version
<a href="http://www.caiso.com/soa/OASISBid_v1.xsd">http://www.caiso.com/soa/OASISBid_v1.xsd</a>	1	20131201
<a href="http://www.caiso.com/soa/OASISCBBid_v1.xsd">http://www.caiso.com/soa/OASISCBBid_v1.xsd</a>	1	20131201
<a href="http://www.caiso.com/soa/OASISCRRPublicBid_v1.xsd">http://www.caiso.com/soa/OASISCRRPublicBid_v1.xsd</a>	1	20131201
<a href="http://www.caiso.com/soa/OASISCRRPublicBid_v1.xsd">http://www.caiso.com/soa/OASISCRRPublicBid_v1.xsd</a>	2	20181001
<a href="http://www.caiso.com/soa/OASISMaster_v1.xsd">http://www.caiso.com/soa/OASISMaster_v1.xsd</a>	1	20131201
<a href="http://www.caiso.com/soa/OASISReport_v1.xsd">http://www.caiso.com/soa/OASISReport_v1.xsd</a>	1	20140401



 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Name Space	Major Version	Minor Version
<a href="http://www.caiso.com/soa/MKT_BID_CAPS_v1.xsd">http://www.caiso.com/soa/MKT_BID_CAPS_v1.xsd</a>	1	20230401
<a href="http://www.caiso.com/soa/OASISReport_v2.xsd">http://www.caiso.com/soa/OASISReport_v2.xsd</a>	2	20141001
<a href="http://www.caiso.com/soa/OASISReport_v3.xsd">http://www.caiso.com/soa/OASISReport_v3.xsd</a>	3	20150101
<a href="http://www.caiso.com/soa/OASISReport_v4.xsd">http://www.caiso.com/soa/OASISReport_v4.xsd</a>	4	20161001
<a href="http://www.caiso.com/soa/OASISMaster_v2.xsd">http://www.caiso.com/soa/OASISMaster_v2.xsd</a>	2	20161001
<a href="http://www.caiso.com/soa/OASISReport_v5.xsd">http://www.caiso.com/soa/OASISReport_v5.xsd</a>	5	20161201
<a href="http://www.caiso.com/soa/OASISReport_v6.xsd">http://www.caiso.com/soa/OASISReport_v6.xsd</a>	6	20171001
<a href="http://www.caiso.com/soa/OASISReport_v7.xsd">http://www.caiso.com/soa/OASISReport_v7.xsd</a>	7	20181001
<a href="http://www.caiso.com/soa/OASISReport_v8.xsd">http://www.caiso.com/soa/OASISReport_v8.xsd</a>	8	20190101
<a href="http://www.caiso.com/soa/OASISReport_v9.xsd">http://www.caiso.com/soa/OASISReport_v9.xsd</a>	9	20190101
<a href="http://www.caiso.com/soa/OASISReport_v10.xsd">http://www.caiso.com/soa/OASISReport_v10.xsd</a>	10	20191001
<a href="http://www.caiso.com/soa/OASISMaster_v3.xsd">http://www.caiso.com/soa/OASISMaster_v3.xsd</a>	3	20161201
<a href="http://www.caiso.com/soa/OASISCSPOfferSet_v1.xsd">http://www.caiso.com/soa/OASISCSPOfferSet_v1.xsd</a>	1	20171001
<a href="http://www.caiso.com/soa/OASISMaster_v4.xsd">http://www.caiso.com/soa/OASISMaster_v4.xsd</a>	4	20171001
<a href="http://www.caiso.com/soa/OASISReport_v11.xsd">http://www.caiso.com/soa/OASISReport_v11.xsd</a>	11	20201001
<a href="http://www.caiso.com/soa/OASISMaster_v5.xsd">http://www.caiso.com/soa/OASISMaster_v5.xsd</a>	5	20210401
<a href="http://www.caiso.com/soa/OASISCPMDesignation_v1.xsd">http://www.caiso.com/soa/OASISCPMDesignation_v1.xsd</a>	1	20201001
<a href="http://www.caiso.com/soa/OASISReport_v12.xsd">http://www.caiso.com/soa/OASISReport_v12.xsd</a>	12	20210401
<a href="http://www.caiso.com/soa/OASISReport_v13.xsd">http://www.caiso.com/soa/OASISReport_v13.xsd</a>	13	20220301
<a href="http://www.caiso.com/soa/OASISReport_v14.xsd">http://www.caiso.com/soa/OASISReport_v14.xsd</a>	14	20221001
<a href="http://www.caiso.com/soa/AVAIL_IMP_CAP_v1.xsd">http://www.caiso.com/soa/AVAIL_IMP_CAP_v1.xsd</a>	1	20231001
<a href="http://www.caiso.com/soa/IMP_CAP_USED_RA_PLAN_v1.xsd">http://www.caiso.com/soa/IMP_CAP_USED_RA_PLAN_v1.xsd</a>	1	20231001

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


## 4 Services

### 4.1 Service Description:

CAISO's OASIS is redesigned to adapt to the changes in the markets and grid operations initiated by the New ISO Market program. However, the technology of the new OASIS for downloading data is quite similar to the existing OASIS. The process of obtaining data from OASIS by automation using its API can be described as queries implemented through URL Servlet requests. It can be defined as sending URL requests with parameters to the OASIS web servers, from the Users web client.

#### 4.1.1 Operation Details

Operation	Message Types	Message	WSDL	XSD
http://<oasiswebsite>/<context-path>/SingleZip	Input	queryname startdatetime enddatetime market_run_id version varParameters (variable Parameters are defined for each Report and its specific Filter options)	N/A	OASISReport_v<version>.xsd
	Output	Zip (Compressed file) Xml or csv		
	Fault	The XML API will throw errors based on the situation and those are described in Fault table		
http://<oasiswebsite>/oasisapi/GroupZip	Input	groupid startdatetime enddatetime version	N/A	OASISReport_v<version>.xsd

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

	Output	Zip (Compressed file) Xml or csv		
	Fault	The XML API will throw errors based on the situation and those are described in Fault table		

### 4.1.2 Certificate Roles Requirement

This section should provide a matrix for the different roles that can access this particular service.

Certificate Role Name	AIM Display Role Name	Role Details
N/A	N/A	N/A

### 4.1.3 Use Model

By observing the Publication and Revisions Log and Publication Schedule reports, users can submit the requests more efficiently. We strongly recommend first to find out whether the data is already published to the OASIS database. Once the required data is published then submit the requests for the required reports. This way the user can eliminate unnecessary requests for the required data.

#### 4.1.3.1 API URL for single reports


Single report request will be using the servlet called SingleZip. The return of XML in CIM format will be based on XSDs specified above. The data content will be based on the type parameters will be passed to the SingleZip request. To illustrate the URL and its parameters, we show the pattern that would return an XML file based on the Schemas.

**URL?queryname=<A>&startdatetime=<D>&enddatetime=<D>&market\_run\_id=<A>&version=<A>&varParameters**

Where:

**URL = http://oasiswebsite/context-path/SingleZip**

For production : oasiswebsite = oasis.caiso.com  
context-path = oasisapi

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

<p>For mapstage : oasiswebsite = oasis.caiso.com context-path = oasisapi</p> <p>Mandatory Parameters:</p> <p><b>startdatetime</b> = valid operating start datetime in GMT (yyyymmddThh24:miZ)</p> <p><b>enddatetime</b> = valid operating end datetime in GMT (yyyymmddThh24:miZ) <i>which is equal or greater than &lt;startdate&gt;</i></p> <p><b>queryname</b> = valid reportname, <i>refer to the XML Query Name in the document</i></p> <p><b>market_run_id</b> = valid market type</p> <p><b>version</b> = API version (1 for the GMT 2013 release)</p> <p>Variable Parameters:</p> <p><b>varParameters</b> <i>variable Parameters are defined for each Report and its specific Filter options</i></p>
--

#### 4.1.3.1.1 Example URL for the ISO Market *Simulation* Environment


To illustrate the use of the URL and its parameters, we show an example based on the pattern above: This string indicates the proper path to query data that exists in our Market Simulation Environment.

```
http://oasismap.caiso.com/oasisapi/SingleZip?queryname=AS_REQ&
startdatetime=20130919T07:00-0000&enddatetime=20130920T07:00-
0000&market_run_id=DAM&version=1&as_type=ALL&as_region=ALL
```

#### 4.1.3.1.2 Example URL for the ISO Market Production Environment

To illustrate the use of the URL and its parameters, we show an example based on the pattern above. This string indicates the proper path to query the data for Trading Days beginning with the deployment of the New ISO Market:

```
http://oasis.caiso.com/oasisapi/SingleZip?queryname=AS_REQ&
startdatetime=20130919T07:00-0000&enddatetime=20130920T07:00-
0000&market_run_id=DAM&version=v1&as_type=ALL&version=1&as_region=ALL
```

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

#### 4.1.3.2 API URL for Group Reports

The XML's embedded in the Zip file will be based on the group type. The data content will be for entire day that the user is going to be requested at a given time you can only request for single day.

To illustrate the URL and its parameters, we show the pattern that would return an XML files based on the Schemas.

**URL?**`groupid=<A>&startdatetime=<D>&enddatetime=<D>&version=<A>`

Where:

**URL** = `http://<oasiswebsite>/oasisapi/GroupZip`

For Production : <oasiswebsite> is oasis.caiso.com

For MAPStage : <oasiswebsite> is oasismap.caiso.com

Mandatory Parameters:

**groupid** = valid groupid

**startdatetime** = valid operating start datetime with timezone offset (yyyyMMddThh24:miZ)

**enddatetime** = valid operating end datetime with timezone offset (yyyyMMddThh24:miZ)

(Only applicable for HASP,RTM groups)

**version** = API version (1 for the GMT 2013 release)

##### 4.1.3.2.1 Example URL for Group Zip reports


To illustrate the use of the URL and its parameters, we show an example based on the pattern above:

**Example 1:**

`http://oasis.caiso.com/oasisapi/GroupZip?groupid=DAM_LMP_GRP&startdatetime=20130919T07:00-0000&version=1`

**Example 2:**

`http://oasis.caiso.com/oasisapi/GroupZip?groupid=HASP_LMP_GRP&startdatetime=20130919T07:00-0000&enddatetime=20130919T08:00-0000&version=1`

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

#### 4.1.3.3 Returned XML File

For every request sent to the OASIS web server, the web server will return a “zip” compressed file. In case of single report or group zip functionality, the user then unzips the file to extract the actual XML file/ files, for further processing by any business or report generation application.

##### 4.1.3.3.1 File Names for single and group

The returned files will use the following naming convention for single zip:

**startdate\_enddate\_Report Name\_MktRunID\_Stamp#\_Version.Zip**

Within this zip file, the XML file will use the following naming convention:

**startdate\_enddate\_Report Name\_MktRunID\_Stamp#\_Version.XML**

The returned files will use the following naming convention for group zip:

**startdate\_startDate\_GroupID\_N\_xml\_Version.Zip**

Within this zip file, the XML file will use the following naming convention:

**startdate\_startdate\_Report Name\_MktRunID\_Version.XML**

XML Examples:

20131115\_20131115\_ENE\_CB\_AWARDS\_GRP\_N\_N\_v1\_xml.zip

20131115\_20131115\_ENE\_CB\_AWARDS\_N\_v1.xml

20131115\_20131115\_CURR\_LMP\_GRP\_10\_N\_v1\_xml.zip

20131115\_20131115\_PRC\_CURR\_LMP\_RTM\_10\_v1.xml

20131104\_20131105\_AS\_REQ\_RTM\_20131115\_09\_44\_44\_v1\_xml.zip

20131104\_20131105\_AS\_REQ\_RTM\_20131115\_09\_44\_44\_v1.xml


**CSV Examples:**

20131115\_20131115\_CURR\_LMP\_GRP\_10\_N\_v1\_xml.zip

20131115\_20131115\_PRC\_CURR\_LMP\_RTM\_10\_v1.xml

20131013\_20131013\_CB\_NODAL\_LMT\_GRP\_N\_N\_v1\_csv.zip

20131013\_20131013\_CB\_NODAL\_LIMITS\_N\_v1.csv

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

20131104\_20131105\_AS\_REQ\_RTM\_20131115\_09\_44\_44\_v1\_csv.zip

20131104\_20131105\_AS\_REQ\_RTM\_20131115\_09\_44\_44\_v1.csv

#### 4.1.3.3.2 XML Format

The structure of the XML (eXtensible Markup Language) format file is based on standard CAISO CIM XML. It is generated by using Servlet call to the common reporting web services framework and using XSLT the xml files will be translated to CIM XML based on xml schemas. The CIM XML is zipped and sent to the requesting users as response, similar to the OASIS operation today.

OASIS will continue to comply with FERC interface requirements and associated implementation standards as it does today. The CAISO believes the use of XML provides information that is more valuable to the end user, and reduces overall development costs as changes occur in the future.

To learn more about the reporting interface and download functionality, please browse through our on-line **OASIS HELP**. Additional support can be obtained by contacting us through the **OASIS Support link**.

#### 4.1.3.3.3 XML Schemas


Three XML schemas are developed to conform to the CIM XML standard support data delivery from the OASIS application. Each XML file, when downloaded, will point to the most current version of the Schema.

With the GMT 2013 release, all services will start with v1 and future releases will support the current and previous schemas.

#### 4.1.3.3.4 CSV Format

Please note that with the GMT 2013 release version, the CSV format will now return the data elements in the top down format similar to XML in terms of overall layout. There will be the header and the fields will be separated with a comma, but the pivot feature where the hours go across like in the UI is now going away.

The element in the URL resultformat=6 will extract the data in CSV format. If resultformat element is not in the URL string, the default format will be XML.


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

The CSV format with the pivot hours across will continue to be supported in the pre-GMT 2013 OASIS web services.


For certain CSV reports that were pivoted across in pre-GMT services, an additional column called “group” will be added as the last column in the GMT version of the CSV reports. Here is the list of the impacted reports:

- ACC\_SHDW\_PRC
- AGGR\_OUTAGE\_SCH
- AS\_MILEAGE\_CALC
- AS\_MILEAGE
- AS\_REQ
- AS\_RESULTS
- ATL\_LDF
- ATL\_PEAK\_ON\_OFF
- CB\_NODAL\_LIMITS
- CMMT\_RA\_MLC
- CMMT\_RMR
- CRR\_AGG\_REV\_ADJ
- ENE\_CB\_AWARDS
- ENE\_CB\_CLR\_AWARDS
- ENE\_CB\_MKT\_SUM
- ENE\_DISP
- ENE\_EA
- ENE\_EIM\_FLEX\_RAMP\_INPUT
- ENE\_FLEX\_RAMP\_DC
- ENE\_LOSS
- ENE\_MPM




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

- ENE\_SCH\_REDUCTION
- ENE\_SLRS
- ENE\_OIC
- ENE\_RES\_UPL
- ENE\_ZNL\_UPL
- ENE\_TRANS\_LOSS
- FLEX\_RAMP\_CNSTR\_SHDW\_PRC
- FLEX\_RAMP\_FCST
- FLEX\_RAMP\_NODAL\_PRC
- FLEX\_RAMP\_SPTIE\_NODAL\_PRC
- FLEX\_RAMP\_REQ\_INP\_HSG
- FLEX\_RAMP\_REQ\_INP\_POLYNOMIALS
- FLEX\_RAMP\_REQ\_THRESH
- FLEX\_RAMP\_SCH\_CNSTR\_SHDW\_PRC
- FLEX\_RAMP\_TEST\_RESULT\_GROUP
- LOAD\_ADJUSTMENT
- PRC\_AS
- PRC\_CD\_INTVL\_LMP
- PRC\_CD\_RTM\_FLOWGATE
- PRC\_CD\_RTM\_NOMOGRAM
- PRC\_CNSTR
- PRC\_CURR\_HUB\_LMP
- PRC\_FLEX\_RAMP
- PRC\_FUEL
- PRC\_GHG\_ALLOWANCE

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

- PRC\_HASP\_LMP
- PRC\_INTVL\_AS
- PRC\_INTVL\_LMP
- PRC\_LMP
- PRC\_MPM\_CNSTR\_CMP
- PRC\_MPM\_CNSTR
- PRC\_MPM\_LMP
- PRC\_MPM\_NOMOGRAM\_CMP
- PRC\_MPM\_NOMOGRAM
- PRC\_MPM\_REF\_BUS
- PRC\_MPM\_RTM\_FLOWGATE\_CMP
- PRC\_MPM\_RTM\_FLOWGATE
- PRC\_MPM\_RTM\_LMP
- PRC\_MPM\_RTM\_NOMOGRAM\_CMP
- PRC\_MPM\_RTM\_NOMOGRAM
- PRC\_MPM\_RTM\_REF\_BUS
- PRC\_NOMOGRAM
- PRC\_RTM\_FLOWGATE
- PRC\_RTM\_NOMOGRAM
- PUB\_CURR\_LMP
- SLD\_FCST
- SLD\_REN\_FCST
- TRNS\_ATC
- TRNS\_CURR\_USAGE
- TRNS\_USAGE

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

- WEIM\_RSE\_CAPACITY\_TEST

#### 4.1.3.4 Long day and short day request examples

Here are the example URL's for long day and short day with the GMT version of the OASIS API services:

##### Short day

[http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE\\_CB\\_CLR\\_AWARDS&startdatetime=20130310T08:00-0000&enddatetime=20130311T07:00-0000&version=1](http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE_CB_CLR_AWARDS&startdatetime=20130310T08:00-0000&enddatetime=20130311T07:00-0000&version=1)

HE03 is skipped

##### Long day

[http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE\\_CB\\_CLR\\_AWARDS&startdatetime=20131103T07:00-0000&enddatetime=20131104T08:00-0000&version=1](http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE_CB_CLR_AWARDS&startdatetime=20131103T07:00-0000&enddatetime=20131104T08:00-0000&version=1)

HE25 is the repeating hour

#### 4.1.3.5 Group Report download behavior from OASIS User Interface


When a user tries to download CSV or XML from the User Interface, system will trigger either Single Report or Group Report service based on the request parameter. If the user action triggers Group Report service, system will return data for maximum of one day or one hour based on startdatetime parameter and Group service report type.

#### 4.1.3.6 GoupZip Forward

Single Zip request is forwarded to Group Zip when all non-required parameters are skipped/empty or have value **ALL**

Example,

[http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE\\_SCH\\_REDUCTION&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13&market\\_run\\_id=RUC&TIE\\_NAME=PV&ti\\_direction=E](http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE_SCH_REDUCTION&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13&market_run_id=RUC&TIE_NAME=PV&ti_direction=E)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

In this example, TIE\_NAME and ti\_direction are non-required parameters. If they are skipped or have value ALL, the request would be forwarded to GroupZip

[http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE\\_SCH\\_REDUCTION&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13&market\\_run\\_id=RUC&TIE\\_NAME=ALL&ti\\_direction=ALL](http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE_SCH_REDUCTION&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13&market_run_id=RUC&TIE_NAME=ALL&ti_direction=ALL)

or

[http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE\\_SCH\\_REDUCTION&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13&market\\_run\\_id=RUC](http://oasis.caiso.com/oasisapi/SingleZip?queryname=ENE_SCH_REDUCTION&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13&market_run_id=RUC)

GoupZip,


[http://oasis.caiso.com/oasisapi/GroupZip?groupid=RUC\\_ENE\\_SCH\\_REDUCTION\\_GRP&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13](http://oasis.caiso.com/oasisapi/GroupZip?groupid=RUC_ENE_SCH_REDUCTION_GRP&startdatetime=20220919T07:00-0000&enddatetime=20220919T08:00-0000&version=13)

## 4.1.4 Element Table


### 4.1.4.1 Reports and Xml Data Items

This section contains an overview listing of the individual types of result sets returned from OASIS, corresponding to the online OASIS reports.


Report/ResultSet	XML Name	XML Data Items	Description
<b>PRICES</b>			
<b>Locational Marginal Prices (LMP)</b> Hourly Locational Marginal Prices for all PNodes and APNodes in \$/MWh. For the DAM, posts the LMP, plus the Congestion, Loss and Energy Components that make up the LMP. For the RUC, only the LMP will be posted. Oasis will include separate XML file for each price component within the same zip file. This is existing functionality.	PRC_LMP	LMP_CONG_PRC LMP_ENE_PRC LMP_LOSS_PRC LMP_PRC	LMP - Congestion Component; LMP - Energy Component; LMP - Losses Component; LMP for each Pnode and APnode;
<b>Scheduling Point Tie Combination Locational Marginal Prices (LMP)</b> <b>Scheduling Point Tie Combination Locational Marginal Prices (LMP)</b> Locational Marginal Prices for market DAM, RTPD/FMM, and RTD in \$/MWh.	PRC_SPTIE_LMP	LMP_CONG_PRC LMP_PRC LMP_ENE_PRC	LMP - Congestion Component; LMP for each node tie combination; LMP - Energy Component;

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<p>Oasis will include separate XML file for each price component within the same zip file. This is current behavior for DAM. This behavior will be extended for other realtime markets in version 5.</p>		LMP_LOSS_PRC	LMP - Losses Component
		LMP_GHG_PRC	LMP – GHG Component
<p><b>HASP Locational Marginal Prices (LMP)</b></p> <p>Posts hourly, the 4 15-minute Locational Marginal Prices in \$/MWh, for the HASP hour. Posts the LMP, plus the Congestion, Loss and Energy Components that make up the LMP. Posts the HASP <i>Binding</i> LMP for PNodes and APNodes relevant to Hourly Pre-Dispatched Resources. Posts the HASP <i>Advisory</i> LMP for PNodes and APNodes relevant to the Non-Hourly Pre-Dispatch Resources.</p> <p>For HASP, SC's should always utilize the CMRI posted price as the valid price for shadow-settlement purposes.</p> <p>Oasis will include separate XML file for each price component within the same zip file. This is current behavior for DAM. This behavior will be extended for other realtime markets in version 3.</p>	PRC_HASP_LMP	LMP_CONG_PRC LMP_ENE_PRC LMP_LOSS_PRC LMP_PRC  LMP_GHG_PRC	LMP - Congestion Component; LMP - Energy Component; LMP - Losses Component; LMP for each Pnode and APnode GHG price for EIM pnode and apnode
<p><b>RTPD Locational Marginal Prices (LMP)</b></p> <p>15-minute Locational Marginal Prices for all PNodes and APNodes in \$/MWh.</p> <p>Oasis will include separate XML file for each price component within the same zip file. This is current behavior for DAM. This behavior will be extended for other realtime markets in version 3.</p>	PRC_RTPD_LMP	LMP_CONG_PRC LMP_ENE_PRC LMP_LOSS_PRC LMP_PRC  LMP_GHG_PRC	LMP - Congestion Component; LMP - Energy Component; LMP - Losses Component; LMP for each Pnode and APnode GHG price for EIM pnode and apnode
<p><b>Interval Locational Marginal Prices (LMP)</b></p> <p>Five-minute Locational Marginal Prices for all PNodes and all APNodes in \$/MWh, for each five-minute interval RTM. Posts the LMP, plus the Congestion, Loss and Energy Components that makes up the LMP.</p> <p>Node on the report will include Pnodes and APnodes in ISO, EIM and non-EIM external networks</p>	PRC_INTVL_LMP	LMP_CONG_PRC LMP_ENE_PRC LMP_LOSS_PRC LMP_PRC  LMP_GHG_PRC	LMP - Congestion Component; LMP - Energy Component; LMP - Losses Component; LMP for each Pnode and APnode; GHG price for EIM pnode and apnode

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
Oasis will include separate XML file for each price component within the same zip file. This is current behavior for DAM. This behavior will be extended for other realtime markets in version 3.			
<a href="#">AS Clearing Prices</a> Ancillary Services Regional Shadow Prices for all Ancillary Service types at each AS Region and Sub-Regional Partition. Posted hourly in \$/MW for the DAM and HASP. The <a href="#">AS Clearing Prices</a> Data is downloadable to XML and CSV only for a single day at a time.	PRC_AS	NS_CLR_PRC RD_CLR_PRC  RU_CLR_PRC SP_CLR_PRC  RMD_CLR_PRC  RMU_CLR_PRC	NonSpin Cleared Price; Regulation Down Cleared Price; Regulation Up Cleared Price; Spin Cleared Price;  Regulation Mileage Down Cleared Price.  Regulation Mileage Up Cleared Price
<a href="#">Interval AS Clearing Prices</a> Ancillary Services Regional Shadow Prices for all Ancillary Service types at each AS Region and Sub-Regional Partition. Posts in \$/MW. Posts 15-Minute price relevant to the next 15 minute binding interval for RTM on a fifteen minute basis.	PRC_INTVL_AS	NS_CLR_PRC RD_CLR_PRC  RU_CLR_PRC SP_CLR_PRC  RMD_CLR_PRC  RMU_CLR_PRC	NonSpin Cleared Price; RegulationDown Cleared Price; RegulationUp Cleared Price; Spin Cleared Price;  Regulation Mileage Down Cleared Price.  Regulation Mileage Up Cleared Price.
<a href="#">Intertie Constraint Shadow Prices</a> Posts the hourly constraint pricing at Transmission Interfaces and Intertie Constraints, for each Market Process (DAM,HASP) in \$/MWh, and the 15-Minute Shadow Price in \$/MWh for the RTM. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.  Transmission ID includes both ISO and EIM ITC ID	PRC_CNSTR	SHADOW_PRC   REASON  LIMIT_TYPE	Shadow price by Transmission Interface and Intertie Constraint   Will indicate either "Base Case" or specific Contingency ID.  Constraint Limit Type EA - Limit involving Energy and AS AS - Limit involving only AS
<a href="#">Fuel Prices</a>	PRC_FUEL	FUEL_PRC	Daily Gas Price.


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
For each Gas Flow Day, lists the gas price in \$/mmBtu by fuel region.			
<b>Current Locational Marginal Price</b> This report is available for download only. Lists Five min Locational Marginal Prices for all Generator PNodes and all APNodes for the current interval. (Returns the most recently posted interval only) Use SingleZip function if specific nodes are required; use GroupZip for downloading if all nodes are required. Node on the report will include Pnodes and APnodes in ISO, EIM and non-EIM external networks	PRC_CURR_LMP	LMP_CONG_PRC LMP_ENE_PRC LMP_LOSS_PRC LMP_PRC  LMP_GHG_PRC	LMP - Congestion Component; LMP - Energy Component; LMP - Losses Component; LMP for each Pnode and APnode; GHG price for EIM pnode and apnode
<b>Nomogram/Branch Shadow Prices</b> Posts the hourly constraint pricing at each Nomogram and Branch, for each Market Process (DAM, HASP) in \$/MWh, and the 15-Minute Shadow Price in \$/MWh for the RTPD in RTM. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_NOMOGRAM	SHADOW_PRC  <m:REASON>	Shadow price by Nomogram or Branch.  Will indicate either "Base Case" or specific Contingency ID.
<b>Interval Nomogram/Branch Shadow Prices</b> Posts the 5 minute constraint pricing at each Nomogram and Branch, for each Market Process (RTM) in \$/MWh. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_RTM_NOMOGRAM	SHADOW_PRC  <m:REASON>	Shadow price by Nomogram or Branch.  Will indicate either "Base Case" or specific Contingency ID.
<b>Interval Intertie Constraint Shadow Prices</b> Posts the 5 minute constraint pricing at Transmission Interfaces and Intertie Constraints in \$/MWh Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_RTM_FLOWGATE	SHADOW_PRC  REASON  LIMIT_TYPE	Shadow price by Transmission Interface and Intertie Constraint  Will indicate either "Base Case" or specific Contingency ID.  Constraint Limit Type


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
			EA - Limit involving Energy and AS  AS - Limit involving only AS
<b>Scheduling Constraint Shadow Prices</b> Posts Day-Ahead hourly scheduling constraint shadow prices in \$/MWh	PRC_DAM_SCH_CNSTR	SHADOW_PRC  CNSTR_TYPE	Shadow price by Scheduling Constraint  Some of the possible values are  BAA TRANSFER UPPER LIMIT  ETSR UPPER LIMIT  ETSR LOWER LIMIT  BAA TRANSFER LOWER LIMIT BAA TRANSFER UPPER LIMIT  BAA TRANSFER DISTRIBUTION  BAA POWER BALANCE  BAA TRANSFER LOWER LIMIT ETSR TRANSMISSION COST
<b>Scheduling Constraint Shadow Prices</b> Posts the 15 minute and 5 minute scheduling constraint shadow prices in \$/MWh	PRC_RTM_SCH_CNSTR	SHADOW_PRC  CNSTR_TYPE	Shadow price by Scheduling Constraint  Some of the possible values are




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
			BAA TRANSFER UPPER LIMIT  ETSR UPPER LIMIT  ETSR LOWER LIMIT  BAA TRANSFER LOWER LIMIT BAA TRANSFER UPPER LIMIT  BAA TRANSFER DISTRIBUTION  BAA POWER BALANCE  BAA TRANSFER LOWER LIMIT  ETSR TRANSMISSION COST
<b>Reference Prices</b> Quarterly Reference prices associated with each node based on historical data, posted for Convergence Bidding purposes.	PRC_DS_REF	SPLY_PRC  DMD_PRC	Supply Component  Demand Component
<b>Nodal Group Constraints</b> This report displays the upper and lower MW limits, cleared MW value and associated hourly shadow prices for any binding Nodal Group Constraint. Additionally, the list of Eligible Pnodes included in the Nodal Group Constraint is displayed. This report is triggered with the publication of the Day-Ahead results.	CB_NODAL_GRP_CNSTR_PRC	SHADOW_PRC  CLEARED_MW MAXIMUM_LIMIT MINIMUM_LIMIT	Shadow price by Nodal Constraint Group Cleared Price Maximum Limit of the Price Minimum Limit of the Price
<b>Flexible Ramping Constraint Results</b> (Former name: System Ramping Nomogram Results)	PRC_FLEX_RAM P	MKT_RUN_START_TIME  MKT_TYPE  RAMP_UP_CAP_REQ	Indicates the start time of the market run in pacific Time format  An identifier which specifies the market run type (DAM.RTPD& RTD)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		RAMP_UP_SHADOW_PRC  RAMP_DOWN_CAP_REQ  RAMP_DOWN_SHADOW_PRC  BAA_GRP_ID	Upward raming capacity nomogram results  Shadow price of the upward ramping nomogram results  Downward ramping capacity nomogram results.  Shadow price of the downward nomogram results.  EIM Area group ids (ISO, PACE, PACW, ISO_PACW, ISO_PACE, PACE_PACW,ISO_PACW_PACE)
Contingency Dispatch Locational Marginal Prices  Similar to the Interval Locational Marginal Prices (LMP) report, but for Real Time Contingency Dispatch (RTCD) runs. Posts the ten-minute Locational Marginal Prices for PNodes and APNodes in \$/MWh, for each ten-minute interval RTCD.	PRC_CD_INTVL_LMP	LMP_CONG_PRC  LMP_ENE_PRC  LMP_LOSS_PRC	LMP Marginal Cost of Congestion for ten-minute Contingency Dispatch.  LMP Marginal Cost of Energy for ten-minute Contingency Dispatch.  LMP Marginal Cost of Losses for ten-minute Contingency Dispatch.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<b>Contingency Dispatch Scheduling Point Tie Combination Locational Marginal Prices</b>  This is for Real Time Contingency Dispatch (RTCD) runs. Posts the ten-minute Locational Marginal Prices for node tie in \$/MWh, for each ten-minute interval RTCD.	PRC_CD_SPTIE_LMP	LMP_CONG_PRC  LMP_PRC  LMP_ENE_PRC  LMP_LOSS_PRC  LMP_GHG_PRC	LMP - Congestion Component;  LMP for each node tie combination;  LMP - Energy Component;  LMP - Losses Component  LMP – GHG Component
<b>Contingency Dispatch Intertie Constraint Shadow Prices</b>  Similar to the Interval Intertie Constraint Shadow Prices report, but for Real Time Contingency Dispatch (RTCD) runs. Posts the 10-Minute constraint pricing at Transmission Interfaces and Intertie Constraints in \$/MWh, for the RTCD run in the RTM. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_CD_RTM_FLOWGATE	SHADOW_PRC  REASON  LIMIT_TYPE	Shadow price by Transmission Interface and Intertie Constraint for ten-minute Contingency Dispatch.  Will indicate either “Base Case” or specific Contingency ID.  Constraint Limit Type  EA - Limit involving Energy and AS  AS - Limit involving only AS
<b>Contingency Dispatch Nomogram/Branch Shadow Prices</b>  Similar to the Interval Nomogram/Branch Shadow Prices report, but for Real Time Contingency Dispatch (RTCD) runs. Posts the 10-Minute constraint pricing at each Nomogram and Branch in \$/MWh, for the RTCD run in the RTM. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_CD_RTM_NOMOGRAM	SHADOW_PRC  REASON	Shadow price by Nomogram or Branch for ten-minute Contingency Dispatch.  Will indicate either “Base Case” or specific Contingency ID.
MPM DA Locational Marginal Prices (LMP):	PRC_MPM_LMP	LMP_PRC	LMP for each nodes

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
Hourly Locational Marginal Prices from the Day-Ahead MPM run for all PNodes and APNodes in \$/MWh. Posts the LMP, plus the Competitive Congestion, Non-Competitive Congestion, Loss and Energy Components that make up the LMP.		LMP_CONG_CC_PRC LMP_CONG_NC_PRC LMP_ENE_PRC LMP_LOSS_PRC	LMP - Competitive Congestion Component LMP- Non-Competitive Congestion Component LMP - Energy Component LMP - Losses Component
MPM RT Locational Marginal Prices (LMP):  Posts hourly, the 4 15-minute Locational Marginal Prices from the HASP MPM run for all PNodes and APNodes in \$/MWh. OR Posts every 15 minutes, the 15-minute Locational Marginal Prices from the RTPD MPM run for all PNodes and APNodes in \$/MWh.  Posts the LMP, plus the Competitive Congestion, Non-Competitive Congestion, Loss and Energy Components that make up the LMP.	PRC_MPM_RTM_LMP	LMP_PRC LMP_CONG_CC_PRC LMP_CONG_NC_PRC LMP_ENE_PRC LMP_LOSS_PRC LMP_GHG_PRC	LMP for each nodes LMP - Competitive Congestion Component LMP- Non-Competitive Congestion Component LMP - Energy Component LMP - Losses Component LMP - GHG Component
MPM Nomogram/Branch Shadow Prices (DAM):  Posts the hourly constraint pricing at each binding Nomogram and Branch, for Day Ahead MPM run in \$/MWh. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_MPM_NOMOGRAM	SHADOW_PRC  <m:REASON>	Shadow price by Nomogram or Branch.  Will indicate either "Base Case" or specific Contingency ID.
MPM Nomogram/Branch Shadow Prices (RTM):  Posts hourly, 4 15-minute interval constraint pricing at each binding Nomogram and Branch, for HASP MPM run in \$/MWh OR	PRC_MPM_RTM_NOMOGRAM	SHADOW_PRC  <m:REASON>	Shadow price by Nomogram or Branch.  Will indicate either "Base Case" or specific Contingency ID.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<p>Posts every 15 minutes, 15-minute interval constraint pricing at each binding Nomogram and Branch, for RTPD MPM run in \$/MWh.</p> <p>Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.</p>			
<p>MPM Nomogram/Branch Competitive Paths (DAM):</p> <p>Posts the hourly results of the dynamic competitiveness constraint for the Day-Ahead MPM run, for nomograms and flowgates. Posts a flag indicating whether each binding constraint was competitive or not</p>	PRC_MPM_NOMOGRAM_CM P	MPM_CMP_STATUS_FLG	Competitive Path indicator (Y/N)
<p>MPM Nomogram/Branch Competitive Paths (RTM):</p> <p>Posts the hourly 4 15-minute interval results of the dynamic competitiveness constraint for the HASP MPM run for nomograms and flowgates. Posts a flag indicating whether each binding constraint was competitive or not.</p> <p>OR</p> <p>Posts every 15 minutes, the 15-minute interval results of the dynamic competitiveness constraint for the RTPD MPM run for nomograms and flowgates. Posts a flag indicating whether each binding constraint was competitive or not.</p> <p>OR</p> <p>Posts every 5 minutes, the 5-minute interval results of the dynamic competitiveness constraint for the RTD MPM run for nomograms and flowgates. Posts a flag indicating whether each binding constraint was competitive or not.</p>	PRC_MPM_RTM_NOMOGRAM_CM P	MPM_CMP_STATUS_FLG	Competitive Path indicator (Y/N)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
<b>MPM Intertie Constraint Shadow Prices (DAM):</b>  Posts the hourly constraint pricing at Transmission Interfaces and Intertie Constraints, for Day Ahead market MPM run in \$/MWh. Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency.	PRC_MPM_CNSTR	SHADOW_PRC  REASON  LIMIT_TYPE	Shadow price by Transmission Interface and Intertie Constraint  Will indicate either "Base Case" or specific Contingency ID.  Constraint Limit Type  EA - Limit involving Energy and AS  AS - Limit involving only AS
<b>MPM Intertie Constraint Shadow Prices (RTM):</b>  Posts the hourly, the 4 15-minute interval constraint pricing at Transmission Interfaces and Intertie Constraints, for HASP market MPM run in \$/MWh. OR Posts every 15 minutes, the 15-minute interval constraint pricing at Transmission Interfaces and Intertie Constraints, for RTPD market MPM run in \$/MWh  Report will also include an indication of whether the Constraints were binding because of the base operating conditions or contingencies, and if caused by a Contingency, the identity of the specific Contingency	PRC_MPM_RTM_FLOWGATE	SHADOW_PRC  REASON	Shadow price by Transmission Interface and Intertie Constraint  Will indicate either "Base Case" or specific Contingency ID.
<b>MPM Intertie Constraint Competitive Paths (DAM):</b> OR For HASP MPM run, posted hourly the 4 15 minute interval results. OR For RTPD MPM run, posted every 15 minutes, the 15 minute interval results OR For RTD MPM run, posted every 5 minutes, the 5 minute interval results.	PRC_MPM_CNSTR_CMP	MPM_CMP_STATUS_FLG	Competitive Path indicator (Y/N)  )


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
Posts the results of the dynamic competitiveness constraint for the market MPM run, for interchanges, market scheduling limits, and branch groups. Posts a flag indicating whether each binding constraint was competitive or not.			
MPM Reference Bus (DAM) :  Posts the reference bus used in the MPM run. Posted hourly for the Day-Ahead market.  Note, the IFM, RUC, and regular HASP runs use a distributed reference bus.	PRC_MPM_REF_BUS	REFERENCE_BUS_ID	Reference Bus Name
MPM Reference Bus (RTM) :  Posts the reference bus used in the MPM run. Posted hourly, the 4 15-minute interval for the HASP market.  OR Posted every 15 minutes, the 15-minute interval data for the RTPD market.  OR  Posted every 5 minutes, the 5-minute interval data for the RTD market.   Note, the IFM, RUC, and regular HASP runs use a distributed reference bus.	PRC_MPM_RTM_REF_BUS	REFERENCE_BUS_ID	Reference Bus Name
Greenhouse Gas Allowance Price  For each real-time trade date, posts the index price for the state California and Washington Carbon Allowance and for day-ahead bids, use the index price from the previous day's index price	PRC_GHG_ALLO_WANCE	OPR_DATE  STATE  GHG_ALLOWANCE_PRC	The operating date.  State for which this price belongs to (CA or WA)  Greenhouse gas allowance price index value  Note: STATE will be populated in version 2 and no changes to version 1 API.
EIM GHG Shadow Prices	PRC_EIM_GHG	INTERVAL_START_GMT INTERVAL_END_GMT	Interval Start time (GMT) Interval End time (GMT)


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
GHG shadow price of the net imbalance energy export		MKT_TYPE PRC_SHADOW	RTPD and RTD EIM GHG Shadow price
MPM Default Competitive Path Assessment List	PRC_MPM_DEFAULT_CMP	DATA_ITEM OPR_DATE CONSTRAINT_GROUP_NAME COMPETITIVE_FLAG	PRC_MPM_DEFAULT_CMP  Opr Date Constraint Group Name Competitive Flag (Y or N)
Hourly RTM LAP prices  The Hourly Real-Time LAP Price for each Custom and Default Load Aggregation Point (DLAP).  The Hourly Real-Time LAP price data is downloadable to XML and CSV only, for a single day at a time.  Hourly Real-Time LAP price includes Total (LMP), Energy (MCE), Congestion (MCC) and Loss (MCL) price components.  Oasis will include separate XML file for each price component within the same zip file.	PRC_RTM_LAP	LMP_CONG_PRC  LMP_ENE_PRC  LMP_LOSS_PRC  LMP_PRC  LMP_GHG_PRC	Hourly Real Time Market LAP Marginal Cost of Congestion (MCC) for Apnode  Hourly Real Time Market LAP System Marginal Energy Cost (MCE) for Apnode  Hourly Real Time Market LAP Marginal Cost of Losses (MCL) for Apnode  Hourly Real Time Market LAP total (LMP) Price for Apnode  Hourly Real Time Market LAP LMP - GHG Component
Hourly Energy Price Shaping Factor	PRC_HRLY_ENE_SHAPING_FCTR	DATA_ITEM  VALUE  MKT_TYPE  INTERVAL_START_GMT  INTERVAL_END_GMT	HRLY_ENE_PRC_SHAPING_FCTR  Hourly Energy Price Shaping Factor  An identifier which specifies the market run type (DAM,RTM)  Interval Start Date Time (GMT)  Interval End Date Time (GMT)
Aggregate Capability Constraint Shadow Prices	ACC_SHDW_PRC	DATA_ITEM	SHADOW_PRC




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		MKT_TYPE	DAM or RTD or RTPD
		INTERVAL_START_GMT	Interval Start Time(GMT)
		INTERVAL_END_GMT	Interval End Time(GMT)
		VALUE	Shadow Price Value
		DIRECTION	UP/DOWN
		DATA	DATA_ITEM:CONSTRAINT_NAME VALUE: Constraints name
Flexible Ramping Constraint Shadow Prices	FLEX_RAMP_CNSTR_SHDW_PRC	DIRECTION	(Import / Export) (I/E)
		MKT_TYPE	RTD or RTPD
		INTERVAL_START_GMT	Interval Start Time (GMT)
		INTERVAL_END_GMT	Interval End Time (GMT)
		RAMP_TYPE	UP / DOWN
		DATA	DATA_ITEM:SHADOW_PRC VALUE: UOM: US\$
		DATA	DATA_ITEM:CONSTRAINT_NAME VALUE: Constraints name
Flexible Ramping Scheduling Constraint Shadow Prices	FLEX_RAMP_SC_H_CNSTR_SHDW_PRC	DIRECTION	(Import / Export) (I/E)
		MKT_TYPE	RTD or RTPD
		INTERVAL_START_GMT	Interval Start Time (GMT)
		INTERVAL_END_GMT	Interval End Time (GMT)
		CNSTR_TYPE	Constraint Type
		RAMP_TYPE	UP / DOWN
		DATA	

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		DATA	DATA_ITEM: SHADOW_PRC VALUE: UOM: US\$  DATA_ITEM:CONSTRAINT_NAME VALUE: Constraints name
Flexible Ramping Nodal Prices	FLEX_RAMP_NODAL_PRC	MKT_TYPE  INTERVAL_START_GMT  INTERVAL_END_GMT  RAMP_TYPE  DATA  DATA	RTD or RTPD  Interval Start Time (GMT)  Interval End Time (GMT)  UP or DOWN  DATA_ITEM:NODE_ID VALUE: UOM:NODE  DATA_ITEM:NODAL_PRICE VALUE: UOM: US\$
Flexible Ramping Scheduling Point/Tie Nodal Prices	FLEX_RAMP_SCHED_PT_TIE_NODAL_PRC	MKT_TYPE  INTERVAL_START_GMT  INTERVAL_END_GMT  TIE_NAME  RAMP_TYPE  DATA  DATA	RTD or RTPD  Interval Start Time (GMT)  Interval End Time (GMT)  Tie Id  UP or DOWN  DATA_ITEM:NODE_ID VALUE: UOM:NODE  DATA_ITEM:NODAL_PRICE VALUE: UOM: US\$
TRANSMISSION			

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<b>Current Transmission Usage</b> Consolidated report for Current transmission capacity and usage per Transmission Interface. Starts with 7-days ahead and is updated continuously as outages occur. AS, Energy and ETC/TOR utilization values are updated in conjunction with the publication of the DAM and RTM market results.  Note: This API will updated to return only the current trade date and/or future trade date. It will return an error if used for historical trade date.  Note: Report displays data at ITC/ISL level (Transmission Interface ID). After new ETCC activation date, data in the Transmission Interface ID column will no longer display historic mapping to Branch Groups. Data will still display "/" character. Mapping of intertie constraints and scheduling limits to ties and scheduling points can be found in the Atlas Reference reports: Scheduling Point and Tie Definition, Intertie Constraint and Scheduling Point Mapping, and Intertie Scheduling Limit and Tie Mapping.	TRNS_CURR_USAGE	ATC_MW AS_IMPORT_MW  ENE_IMPORT_MW  CBM_MW OTC_MW  TTC_MW  CONSTRAINT_MW USEAGE_MW  TRM_MW TRM_UF_MW TRM_FTO_MW TRM_SPI_MW  MKT_XFER_CAP_MW	Current Hourly/15-min ATC; Current Hourly/15-min Tagged AS from Imports;  Current Hourly/15-min Tagged Net Energy from Imports / Exports;  Current Hourly/15-min CBM; Current Hourly/15-min OTC; This refers to the "Hourly TTC" value  Current Hourly/15-min TTC; This refers to the "Seasonal TTC" value  Current Hourly Constraint; Current Hourly Unused TR Capacity  Total TRM  Unscheduled Flow  Forced Topology outages  Simultaneous Path Interaction  Market Transfer Capability
<b>Market Available Transmission Capacity</b> Available Transmission Capacity per Transmission Interface for DAM, HASP, RTPD. ATC = OTC (TTC-CBM-Constraint)-AS From Imports-Net Energy flow from Imports/Exports-Unscheduled Transmission Rights capacity.	TRNS_ATC	ATC_MW	DAM Hourly or HASP 15-minute or RTPD 15-minute ATC

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<p>Note: Report displays data at ITC/ISL level (Transmission Interface ID). After new ETCC activation date, data in the Transmission Interface ID column will no longer display historic mapping to Branch Groups. Data will still display "/" character. Mapping of intertie constraints and scheduling limits to ties and scheduling points can be found in the Atlas Reference reports: Scheduling Point and Tie Definition, Intertie Constraint and Scheduling Point Mapping, and Intertie Scheduling Limit and Tie Mapping.</p>			
<p><a href="#">Transmission Outages</a></p> <p>List planned and actual Transmission Outage events per Transmission Interface and direction. Updated with every outage event.</p> <p>Note: Report displays data at ITC/ISL level (Transmission Interface ID). After new ETCC activation date data in the Transmission Interface ID column will no longer display historic mapping to Branch Groups. Data will still display "/" character. Mapping of intertie constraints and scheduling limits to ties and scheduling points can be found in the Atlas Reference reports: Scheduling Point and Tie Definition, Intertie Constraint and Scheduling Point Mapping, and Intertie Scheduling Limit and Tie Mapping.</p>	TRNS_OUTAGE	OUTAGE_LIMIT_MW	Curtailed Line Rating for each Transmission Interface MW.
<p><a href="#">Transmission Interface Usage</a></p> <p>Consolidated report for transmission capacity, usage, ETC/TOR utilization and schedules resulting from CAISO market operations for DAM,HASP or RTPD by Transmission Interface.</p>	TRNS_USAGE	ATC_MW  AS_IMPORT_MW  ENE_IMPORT_MW  CBM_MW	DAM Hourly or HASP 15-minute or RTPD 15-minute ATC;  DAM Hourly or HASP 15-minute or RTPD 15-minute DAM Hourly or HASP 15-minute Tagged AS from Imports;  DAM Hourly or HASP 15-minute or RTPD 15-minute Tagged Net Energy from Imports / Exports;  DAM Hourly or HASP 15-minute or RTPD 15-minute CBM;

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<p>Note: Report displays data at ITC/ISL level (Transmission Interface ID). After new ETCC activation date, data in the Transmission Interface ID column will no longer display historic mapping to Branch Groups. Data will still display "/" character. Mapping of intertie constraints and scheduling limits to ties and scheduling points can be found in the Atlas Reference reports: Scheduling Point and Tie Definition, Intertie Constraint and Scheduling Point Mapping, and Intertie Scheduling Limit and Tie Mapping.</p>		OTC_MW	DAM Hourly or HASP 15-minute or RTPD 15-minute OTC; For Fall Release 2012, data item name will not be changed, yet going forward will refer to the "Hourly TTC" value
		TTC_MW	DAM Hourly or HASP Hourly or RTPD 15-minute TTC; For Fall Release 2012, data item name will not be changed, yet going forward will refer to the "Seasonal TTC" value
		CONSTRAINT_MW	DAM Hourly or HASP 15-minute or RTPD 15-minute Constraint;
		USEAGE_MW	DAM Hourly or HASP 15-minute or RTPD 15-minute Unused TR Capacity
		TRM_MW	Total TRM
		TRM_UF_MW	Unscheduled Flow
		TRM_FTO_MW	Forced Topology outages
		TRM_SPI_MW	Simultaneous Path Interaction
<b>SYSTEM DEMAND</b>			
<b>CAISO Peak Demand Forecast</b> Peak Demand Forecast per CAISO control area total. Posting begins at 7 days before Trading Day. Also posts Peak Demand Forecast by TAC Area.	SLD_FCST_PEAK	SYS_PEAK_MW	The forecast peak demand in MW for the Forecast Day.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
<b>CAISO Demand Forecast</b> Daily posting for the 2-DA,7-DA hourly forecast, DAM hourly forecast by TAC area.  Hourly posting for the hourly Actual Demand by TAC area.  15-minute posting for the RTPD markets by TAC area.  RTM 5-Minute Load Forecast is posted every five minutes, for the next 11 intervals. The postings occur every 5-minutes for a rolling 11 interval period.	SLD_FCST	SYS_FCST_DA_MW  SYS_FCST_2DA_MW  SYS_FCST_7DA_MW  SYS_FCST_ACT_MW  SYS_FCST_15MIN_MW  SYS_FCST_5MIN_MW	The forecast MW demand for each hour of the Operating Day, posted in the morning the day before the Operating Day, before the markets run;  The forecast MW demand for each hour of the Operating Day, posted two days before the Operating day;  The forecast MW demand for each hour of the Operating Day, posted seven days before the Operating day;  The actual demand measurement by Hourly basis  The forecast MW demand for 15 minute intervals  The VSTLF forecast MW demand used for the Operating Interval, for use in RTID
<b>Advisory CAISO Demand Forecast</b>  RTPD 15-minute advisory Load Forecast is posted every 15 minutes.  RTM 5-Minute advisory Load Forecast is posted every five minutes.	SLD_ADV_FCST	SYS_ADV_FCST_MW	The "first" advisory interval forecast MW demand for 15 or 5 minute intervals
Wind and Solar Forecast	SLD_REN_FCST	RENEW_FCST_DA_MW RENEW_FCST_HASP_MW RENEW_FCST_ACT_MW RENEW_FCST_5MIN_MW RENEW_FCST_15MIN_MW	The forecast MW value for each hour of the Operating Day, posted in the morning the day before the each markets run


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
<p>Forecast and actual wind and solar generation by hour. Aggregated by trading hub (NP15, ZP26, and SP15). Day-Ahead forecast is posted daily in advance of the Day-Ahead Market, Hour-Ahead forecast is posted in advance of each HASP market. RTPD forecast is posted in advance of each RTPD market run by 15-minute intervals. RTD forecast is posted in advance of each RTD run by 5-minute intervals. Actual production is posted the day after the operating day. Note: to ensure a high level of accuracy only Eligible Intermittent Resources (EIR), including those that participate in the Participating Intermittent Resource program (PIRP) are included in the report</p> <p>Note: Day-Ahead forecast is posted daily in advance for next 7 trade dates</p>		<p>TRADING_HUB</p> <p>RENEWABLE_TYPE</p>	<p>The trading hub name. Valid values are NP15,SP15,ZP26 and ALL</p> <p>Renewable Type include one of the following</p> <ul style="list-style-type: none"> <li>- "Wind" (Include: Wind PIRP &amp; EIR resources).</li> <li>- "Solar" (Include: Solar PIRP &amp; EIR resources).</li> </ul>
<p>Sufficiency Evaluation Demand Forecast</p> <p>Unbiased hourly and 15-minute load forecast.</p> <p>Provides a 7-day publication period data availability.</p>	SLD_SF_EVAL_D MD_FCST	<p>BAA_ID</p> <p>GRANULARITY</p> <p>FCST_PUBLICATION_GMT</p> <p>INTERVAL_START_GMT</p> <p>FCST_MW</p>	<p>Balancing Authority Area Identifier</p> <p>Corresponds to the HOURLY or 15MIN level forecast</p> <p>Timestamp on when the forecast is published for the upcoming horizon, GMT</p> <p>Start time of the interval, GMT</p> <p>Forecast in MW unit</p>
Load Adjustment	LOAD_ADJUSTMENT	<p>BAA_GRP_ID</p> <p>MKT_TYPE</p> <p>INTERVAL_START_GMT</p> <p>INTERVAL_END_GMT</p> <p>DATA</p> <p>REASON</p>	<p>BAA Group Id</p> <p>Market Type</p> <p>Start Date Time (GMT)</p> <p>End Date Time (GMT)</p> <p>Adjustment</p> <p>DATA_TIEM:LOAD_ADJUSTMENT VALUE: Adjustment Value</p> <p>Adjustment Reason</p>
ENERGY			


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
<b>System Load and Resource Schedules</b>  Balanced System Load, Generation, Import and Export per TAC Area, and for CAISO total. Posts results for DAM, RUC Capacity, HASP and 5-Minute RTM, as indicated below:  <b>DAM</b> Load, Generation, Import and Export Schedules per TAC Area and CAISO total for each Operating Hour, in MW.  <b>RUC</b> Capacity from Generation and Imports for each TAC Area and CAISO total for each Operating Hour, in MW  Hour-Ahead Scheduling Process ( <b>HASP</b> ) Import and Export per TAC Area and CAISO total, in MW.  5 minute <b>RTM</b> Generation, Import and Export per TAC Area and CAISO total, in MW.	ENE_SLRS	ISO_TOT_GEN_MW  ISO_TOT_LOAD_MW  ISO_TOT_IMP_MW  ISO_TOT_EXP_MW  TOT_GEN_MW  TOT_LOAD_MW  TOT_IMP_MW  TOT_GEN_MW	ISO Total MW cleared as Generation in DAM, RUC, HASP, RTM.  ISO Total MW cleared as Demand in DAM, HASP, RTM.  ISO Total MW cleared as imports in DAM, RUC, HASP, RTM.  ISO Total MW cleared as Exports in DAM, HASP, RTM.  Total MW cleared as Generation in DAM, RUC, HASP, RTM, by TAC Area.  ISO Total MW cleared as Demand in DAM, HASP, RTM, by TAC Area.  ISO Total MW cleared as imports in DAM, RUC, HASP, RTM, by TAC Area.  ISO Total MW cleared as Exports in DAM, HASP, RTM, by TAC Area.
<b>Expected Energy</b>  After-the-Fact Energy Accounting, per Energy Type. Posted daily at T+1, in MWh for ISO total.  Please refer to the table in the BPM for Market Operations, Appendix C.4 for the complete list of valid Expected Energy Types.	ENE_EA	DASE_MWH DSSE_MWH DABE_MWH OE_MWH HASE_MWH  SRE_MWH RED_MWH EDE_MWH RMRE_MWH MSSLE_MWH RE_MWH MLE_MWH SE_MWH RTSSE_MWH DMLE_MWH PE_MWH	DA Scheduled Energy DA Self-Scheduled Energy DA Bid Award Energy Optimal Energy HourAhead Scheduled Energy Standard Ramping Energy Ramping Energy Deviation Exceptional Dispatch Energy RMR Energy MSS Load Following Energy Residual Energy Minimum Load Energy SLIC Energy RT Self Scheduled Energy




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		TEE_MWH BASE_MWH MDE_MWH	DA Minimum Load Energy Pumping Energy Total Expected Energy Base Schedule Energy EIM Manual Dispatch Energy
<b>Market Power Mitigation Status</b> Mitigation Indicator showing whether any bids were replaced by Reference Curves. Value will be "Y" or "N".	ENE_MPM	MPM_STATUS_FLG  BAA_ID	Indicator whether mitigation occurred in that Operating Interval  One of more EIM BAA ID
<b>RMR</b> Pre-Dispatched and MPM Determined RMR capacity (MW) summed for all resources, for the DAM and RTM market processes.	CMMT_RMR	DISPATCH_MW  TOT_AVAIL_MW  DETER_MW	The RMR capacity dispatched ahead of the Market.  Total RMR capacity available to the market in that hour. RMR capacity determined by MPM before market run.
<b>Exceptional Dispatch</b> Summary of Exceptional Dispatch Data. Posted daily at T+1, in MWh by TAC area and Instruction Type.  Please refer to the table in the BPM for Market Operations, Appendix C.4 for the complete list of valid Exceptional Dispatch Instruction Types.	ENE_DISP	EXPT_DIS_PRC EXPT_DIS_MWH	Exceptional Dispatch Price. Exceptional Dispatch MW
<b>Marginal Losses</b> CAISO Total Marginal Loss costs (\$) and Total System losses (MWh). Posted hourly for the DAM and HASP.	ENE_LOSS	TOT_LOSS_PRC  TOT_LOSS_MW	Total costs incurred due to Losses in this hour/interval. Total MWh lost
<b>Resource Adequacy and Minimum Load</b> Commitment data for each market. All data for all markets posted daily at T+1. All commitment data is related to ISO committed resources.	CMMT_RA_MLC	RA_CAP_COMM_MW  MIN_LD_MW  RA_MLC_PRC  MIN_LD_MLC_PRC  TOT_STRT_CST_PRC  RA_STRT_PRC  RA_COMM_UNITS_CNT	RA Capacity Committed  Minimum Load  RA Minimum Load Cost (MLC)  Minimum Load cost  Total Start Up Cost  RA Start-Up Cost

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		TOT_COMM_UNITS_CNT	RA Number of Units Committed
		TOT_COMM_CAP_MW	Total Number of Units Committed
			Total Capacity Committed
<b>Convergence Bidding Aggregate Awards</b> Posts Day Ahead CAISO aggregate Virtual Bidding Awards for Energy for Supply & Demand Publishes with the Day Ahead Market results	ENE_CB_AWARDS	ISO_TOT_SPLY_MW	Supply Component
		ISO_TOT_DMD_MW	Demand Component
<b>Net Cleared Convergence Bidding Awards</b> Posts Net Cleared MW for Virtual Bids for every Virtual Bidding Node per Trade Hour within a Trading Day including Trading Hubs and default LAPs.  This report will post after all Real Time markets have closed for the associated Trading Day.  Posts Convergence Bidding Supply Awards, Less Convergence Bidding Demand Awards per node. Under this convention, positive net cleared virtual quantities will indicate net Virtual Supply, whereas negative net cleared virtual quantities will indicate net Virtual Demand at a given node.  A value of null Net Cleared Virtual quantities at a given node will indicate no virtual bids submitted at that node while a value of zero will indicate virtual supply and demand Awards netted to zero.	ENE_CB_CLR_AWARDS	ENE_CB_CLR_MW	Cleared MW
<b>Day Ahead Market Summary</b> Summary of the Day Ahead market showing physical and virtual breakdowns of energy submitted, dollars submitted, energy cleared and dollars cleared as well as the totals.	ENE_CB_MKT_SUM	DMD_SLF_ENE_SUB_MW  DMD_SLF_ENE_CLR_MW	Sum of demand self schedule energy bids submitted for all internal resources for a specific trade date in the day ahead market

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
Posts after the completion of the DAM Market publication.		DMD_SLF_CLR_CST	Sum of demand self schedule energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market Sum of dollars associated with demand self schedule energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		DMD_ENE_SUB_MW	Sum of demand economic energy bids submitted for all internal resources for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation
		DMD_ENE_SUB_CST	Sum of dollars associated with demand economic energy submitted for all internal resources for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation
		DMD_ENE_CLR_MW	Sum of demand economic energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		DMD_ENE_CLR_CST	Sum of dollars associated with demand economic energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		DMD_VIR_ENE_SUB_MW	Sum of demand economic energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		DMD_VIR_SUB_CST	Sum of demand convergence bidding (virtual) energy bids submitted for all internal resources for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation
		DMD_VIR_ENE_CLR_MW	Sum of dollars associated with demand convergence bidding (virtual) energy submitted for all internal resources for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation
		DMD_VIR_CLR_CST	Sum of demand convergence bidding (virtual) energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		DMD_TOT_ENE_SUB_MW	Sum of dollars associated with demand convergence bidding (virtual) energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		DMD_TOT_SUB_CST	Sum of demand self schedule energy bids submitted, demand economic energy bids submitted, demand virtual bids submitted for all internal resources (and nodes) for a specific trade date in the day ahead market
		DMD_TOT_ENE_CLR_MW	
		DMD_TOT_CLR_CST	

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		SPLY_ENE_SUB_MW	Sum of dollars associated with demand self schedule energy bids submitted, demand economic energy bids submitted, demand virtual bids submitted for all internal resources (and nodes) for a specific trade date in the day ahead market
		SPLY_ENE_SUB_CST	Sum of demand self schedule energy bids awarded (cleared) , demand economic energy bids awarded (cleared), demand virtual bids awarded (cleared) for all internal resources (and nodes) for a specific trade date in the day ahead market
		SPLY_ENE_CLR_MW	Sum of dollars associated with demand self schedule energy bids awarded (cleared) , demand economic energy bids awarded (cleared), demand virtual bids awarded (cleared) for all internal resources (and nodes) for a specific trade date in the day ahead market
		SPLY_ENE_CLR_CST	Sum of supply physical energy bids submitted for all internal resources for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation.
		SPLY_SLF_ENE_SUB_MW	Sum of dollars associated with supply physical energy submitted for all internal resources for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation.
		SPLY_SLF_ENE_CLR_MW	

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		SPLY_SLF_CLR_CST	Sum of supply physical energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		SPLY_VIR_ENE_SUB_MW	Sum of dollars associated with supply physical energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		SPLY_VIR_SUB_CST	Sum of supply self schedule energy bids submitted for all internal resources for a specific trade date in the day ahead market
		SPLY_VIR_ENE_CLR_MW	Sum of supply self schedule energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		SPLY_VIR_CLR_CST	Sum of dollars associated with supply self schedule energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		SPLY_TOT_ENE_SUB_MW	Sum of supply convergence bidding (virtual) energy bids submitted for all internal resources for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation.
		SPLY_TOT_SUB_CST	


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		SPLY_TOT_ENE_CLR_MW	Sum of dollars associated with supply convergence bidding (virtual) energy submitted for all internal resources for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation.
		SPLY_TOT_CLR_CST	Sum of supply convergence bidding (virtual) energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		EXP_SLF_ENE_SUB_MW	Sum of dollars associated with supply convergence bidding (virtual) energy bids awarded (cleared) for all internal resources for a specific trade date in the day ahead market
		EXP_SLF_ENE_CLR_MW	Sum of supply economic energy bids submitted, supply virtual bids submitted for all internal resources (and nodes) for a specific trade date in the day ahead market.
		EXP_SLF_CLR_CST	Sum of dollars associated with supply economic energy bids submitted, supply virtual bids submitted for all internal resources (and nodes) for a specific trade date in the day ahead market
		EXP_ENE_SUB_MW	Sum of supply economic energy bids awarded (cleared), supply virtual bids awarded (cleared) for all internal resources (and nodes) for a specific trade date in the day ahead market
		EXP_ENE_SUB_CST	


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		EXP_ENE_CLR_MW	Sum of dollars associated with supply economic energy bids awarded (cleared), supply virtual bids awarded (cleared) for all internal resources (and nodes) for a specific trade date in the day ahead market
		EXP_ENE_CLR_CST	Sum of Exports self schedule energy bids submitted for a specific trade date in the day ahead market
		EXP_VIR_ENE_SUB_MW	N/A
		EXP_VIR_SUB_CST	Sum of Exports self schedule energy bids awarded (cleared) for a specific trade date in the day ahead market
		EXP_VIR_ENE_CLR_MW	Sum of dollars associated with Exports self schedule energy bids awarded (cleared) for a specific trade date in the day ahead market
		EXP_VIR_CLR_CST	Sum of Exports economic energy bids submitted for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation
		EXP_TOT_ENE_SUB_MW	Sum of dollars associated with Exports economic energy submitted for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation
		EXP_TOT_SUB_CST	Sum of Exports economic energy bids awarded (cleared) for a specific trade date in the day ahead market




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		EXP_TOT_ENE_CLR_MW	Sum of dollars associated with Exports economic energy bids awarded (cleared) for a specific trade date in the day ahead market
		EXP_TOT_CLR_CST	Sum of Exports convergence bidding (virtual) energy bids submitted for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation
		IMP_SLF_ENE_SUB_MW	Sum of dollars associated with Exports convergence bidding (virtual) energy submitted for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation
		IMP_SLF_ENE_CLR_MW	Sum of Exports convergence bidding (virtual) energy bids awarded (cleared) for a specific trade date in the day ahead market
		IMP_SLF_CLR_CST	Sum of dollars associated with Exports convergence bidding (virtual) energy bids awarded (cleared) for a specific trade date in the day ahead market
		IMP_ENE_SUB_MW	Sum of Exports self schedule energy bids submitted, Exports economic energy bids submitted, Exports virtual bids submitted (and nodes) for a specific trade date in the day ahead market
		IMP_ENE_SUB_CST	

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		IMP_ENE_CLR_MW	Sum of dollars associated with Exports self schedule energy bids submitted, Exports economic energy bids submitted, Exports virtual bids submitted (and nodes) for a specific trade date in the day ahead market
		IMP_ENE_CLR_CST	Sum of Exports self schedule energy bids awarded (cleared) , Exports economic energy bids awarded (cleared), Exports virtual bids awarded (cleared) (and nodes) for a specific trade date in the day ahead market
		IMP_VIR_ENE_SUB_MW	Sum of dollars associated with Exports self schedule energy bids awarded (cleared) , Exports economic energy bids awarded (cleared), Exports virtual bids awarded (cleared) (and nodes) for a specific trade date in the day ahead market
		IMP_VIR_SUB_CST	Sum of Imports self schedule energy bids submitted for a specific trade date in the day ahead market
		IMP_VIR_ENE_CLR_MW	Sum of Imports self schedule energy bids submitted for a specific trade date in the day ahead market
		IMP_VIR_CLR_CST	Sum of Imports self schedule energy bids submitted for a specific trade date in the day ahead market
		IMP_TOT_ENE_SUB_MW	Sum of Imports self schedule energy bids awarded (cleared) for a specific trade date in the day ahead market
		IMP_TOT_SUB_CST	Sum of dollars associated Sum of Imports self schedule energy bids submitted for a specific trade date in the day ahead market. All the MW values in each price curve
		IMP_TOT_ENE_CLR_MW	

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		IMP_TOT_CLR_CST	<p>Sum of Imports physical energy bids submitted for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation.</p> <p>Sum of dollars associated with Imports physical energy submitted for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation.</p> <p>Sum of Imports physical energy bids awarded (cleared) for a specific trade date in the day ahead market</p> <p>Sum of dollars associated with Imports physical energy bids awarded (cleared) for a specific trade date in the day ahead market</p> <p>Sum of Imports convergence bidding (virtual) energy bids submitted for a specific trade date in the day ahead market. All the MW values in each price curve will be included in this calculation.</p> <p>Sum of dollars associated with Imports convergence bidding (virtual) energy submitted for a specific trade date in the day ahead market. All the MW/price pair values in each price curve will be included in this calculation.</p>

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
			<p>Sum of Imports convergence bidding (virtual) energy bids awarded (cleared) for a specific trade date in the day ahead market</p> <p>Sum of dollars associated with Imports convergence bidding (virtual) energy bids awarded (cleared) for a specific trade date in the day ahead market</p> <p>Sum of Imports economic energy bids submitted, Imports virtual bids submitted (and nodes) for a specific trade date in the day ahead market</p> <p>Sum of dollars associated with Imports economic energy bids submitted, Imports virtual bids submitted (and nodes) for a specific trade date in the day ahead market</p> <p>Sum of Imports economic energy bids awarded (cleared), Imports virtual bids awarded (cleared) (and nodes) for a specific trade date in the day ahead market</p> <p>Sum of dollars associated with Imports economic energy bids awarded (cleared), Imports virtual bids awarded (cleared) (and nodes) for a specific trade date in the day ahead market</p>
<a href="#">Convergence Bidding Nodal MW Limits</a> This report displays the MW limits used by the ISO in formulating nodal MW constraints in conjunction with convergence bidding. An upper and lower limit is defined for each Eligible Pnode other than an Eligible Pnode established for an Intertie. This report is triggered with the publication of the Day-Ahead results.	CB_NODAL_LIMITS	CB_NODAL_LIMITS  PHYSICAL_TYPE	Upper or lower limit (MW)  'Supply' or 'Demand'

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<b>Contingency Dispatch Resource Schedules</b>  Similar to the System Load and Resource Schedules report, but for Real Time Contingency Dispatch (RTCD) runs. RTM Generation, Import and Export per TAC Area and CAISO total, in MW for all 10-minute RTCD runs.	ENE_CD_SLRS	ISO_TOT_GEN_MW  ISO_TOT_IMP_MW  ISO_TOT_EXP_MW  TOT_GEN_MW  TOT_IMP_MW  TOT_EXP_MW	ISO Total MW cleared as Generation for all 10-Minute Contingency Dispatch run.  ISO Total MW cleared as imports for all 10-Minute Contingency Dispatch run.  ISO Total MW cleared Exports for all 10-Minute Contingency Dispatch run.  Total MW cleared as Generation per TAC area for all 10-Minute Contingency Dispatch run.  Total MW cleared as imports per TAC area for all 10-Minute Contingency Dispatch run.  Total MW cleared as Exports per TAC area for all 10-Minute Contingency Dispatch run.
<b>Aggregated Generation Outages</b>  Generator de-rates and outages which are considered in the Day-Ahead Market. Report is generated from the list of de-rates and outages that are known at the time of publication, typically 5:00 AM PPT the day prior to the operating day. Aggregated into a total MW capacity reduction amount by trading hub (NP15, ZP26, and SP15) and resource type (thermal, hydro, renewable).	AGGR_OUTAGE_SCH	REPORT_DATE  OUTAGE_DATE  OUTAGE_HOUR  FUEL_CATEGORY  TRADING_HUB  OUTAGE_MW	The date when the data was published  Outage date  Outage hour  Fuel Category  Trading Hub name  Outage MW
EIM Transfer Limits	ENE_EIM_TRANSFER_LIMITS	MKT_TYPE	RTPD and RTD

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
After each RTPD and RTD market run is completed, OASIS will post the NSI low/high (before 2019) or import/export (2019 onwards) limits per each EIM BAA group that are used in the market		INTERVAL_START_GMT INTERVAL_END_GMT BAA_GRP_ID LIMIT_TYPE EIM_XFER_MW	Interval Start time (GMT) Interval End time (GMT) EIM BAA Group ID HIGH or LOW (before 2019) IMPORT or EXPORT (2019 onwards) EIM Transfer MW
EIM Transfer  EIM BAA Net Imbalance energy export (transfer) will be posted to OASIS for every RTD and RTPD market	ENE_EIM_TRANS FER	INTERVAL_START_GMT INTERVAL_END_GMT MKT_TYPE BAA_GRP_ID  EIM_XFER_MW	Interval Start time (GMT) Interval End time (GMT) RTPD and RTD EIM BAA Group (PACW, PACE, ISO, PACW_PACE, etc.) EIM Transfer MW
EIM BAA Dynamic NSI  Dynamic Net Schedule Interchange for each BAA will be posted to OASIS for every RTD and RTPD market	ENE_EIM_DYN_N SI	INTERVAL_START_GMT INTERVAL_END_GMT BAA_ID MKT_TYPE EIM_DYN_NSI_MW	Interval Start time (GMT) Interval End time (GMT) One of more EIM BAA ID RTPD and RTD EIM BAA Dynamic NSI MW
EIM BAA Base NSI  DAM and RTM base NSI for each EIM BAA. All data shall be from the latest DAM and the first RTPD 15-minute market within the hour.	ENE_BASE_NSI	INTERVAL_START_GMT INTERVAL_END_GMT SNAPSHOT_INDICATOR  BAA_ID MKT_TYPE BASE_NSI_MW	Interval Start time (GMT) Interval End time (GMT) Base schedule snapshot indicator (T75MIN, T55MIN, T40MIN, DA) One of more EIM BAA ID DAM and RTPD EIM Base NSI MW
EIM BAA Hourly Base NSI  DAM and RTM hourly base NSI for each EIM BAA.	ENE_HRLY_BASE _NSI	INTERVAL_START_GMT INTERVAL_END_GMT SNAPSHOT_INDICATOR  BAA_ID MKT_TYPE HRLY_BASE_NSI_MW	Interval Start time (GMT) Interval End time (GMT) Base schedule snapshot indicator (T75MIN, T55MIN, T40MIN, DA) One of more EIM BAA ID DAM and RTM EIM Hourly Base NSI MW
EIM BAA Hourly Base Loss  DAM and RTM hourly base loss for each EIM BAA.	ENE_HRLY_BASE _LOSS	INTERVAL_START_GMT INTERVAL_END_GMT SNAPSHOT_INDICATOR  BAA_ID	Interval Start time (GMT) Interval End time (GMT) Base schedule snapshot indicator (T75MIN, T55MIN, T40MIN, DA) One of more EIM BAA ID


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		MKT_TYPE HRLY_BASE_LOSS_MW	DAM and RTM EIM Hourly Base Loss MW
Uncertainty Movement by Category	ENE_UNCERTAIN TY_MV	BAA_GRP_ID  MKT_TYPE  INTERVAL_START_GMT  INTERVAL_END_GMT  CATEGORY  PRODUCT  UNCERTAINTY_MV_MW	BAA Group ID  Market type. Only applicable for RTD market  Interval Start time (GMT)  Interval End time (GMT)  Supply or Intertie or Load  UM – Uncertainty Movement  MW value
Flexible Ramp Requirements  Note: This API service is deprecated with FRP project activation and it can be used to get the data for the trade date before the FRP activation. Please use 'Flex Ramp Requirements Inputs and Outputs' report for the requirement amount after the FRP activation.	ENE_FLEX_RAMP _REQT	BAA_GRP_ID  MKT_TYPE   INTERVAL_START_GMT  INTERVAL_END_GMT  RAMP_TYPE  FLEX_RAMP_REQ_MW  NET_DEMAND_MW  UNCERTAINTY_MW	BAA ID  Market type. Before Fall 2016 release, only RTPD market applies. Beginning Fall 2016 release market type will be RTPD, RTD.  Interval Start time (GMT)  Interval End time (GMT)  Ramp Type ( UP or DOWN)  MW value  MW value  MW value
Flex Ramp Aggregated Awards	ENE_AGGR_FLE X_RAMP	BAA_GRP_ID  MKT_TYPE   INTERVAL_START_GMT  INTERVAL_END_GMT  RAMP_TYPE  AGGR_FLEX_RAMP_MW	BAA Group ID  Market type. Applicable for both RTPD and RTD markets.  Interval Start time (GMT)  Interval End time (GMT)  Ramp Type ( UP or DOWN)  MW value


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
Flex Ramp Surplus Demand Curves	ENE_FLEX_RAMP_DC	BAA_GRP_ID RAMP_TYPE INTERVAL_START_GMT INTERVAL_END_GMT SEGMENT_MW SEGMENT_PRC	BAA Group ID Ramp Type ( UP or DOWN) Interval Start time (GMT) Interval End time (GMT) MW value Price
EIM Transfer By Tie	ENE_EIM_TRANSFER_TIE	EIM_XFER_MW BAA_GRP_ID INTERVAL_START_GMT INTERVAL_END_GMT TIE_NAME DIRECTION FROM_BAA TO_BAA	Energy Imbalance Market (EIM) MW Transfer over the tie from one EIM BAA entity to the other EIM BAA entity. Balancing Authority Area Group Identifier Interval Start time (GMT) Interval End time (GMT) Tie in which the transfer occurs Import or Export EIM Transfer from the originating EIM BAA entity EIM Transfer to the destination EIM BAA entity
EIM Transfer Limits By Tie	ENE_EIM_TRANSFER_LIMITS_TIE	DATA_ITEM VALUE OPR_DATE	EIM_XFER_LIMITS_TIE_MW  Energy Imbalance Market (EIM) MW Transfer Limit over the tie from one EIM BAA entity to the other EIM BAA entity.




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		INTERVAL_NUM BAA_GRP_ID INTERVAL_START_GMT INTERVAL_END_GMT TIE_NAME DIRECTION FROM_BAA TO_BAA	Opr Date Interval Number Balancing Authority Area Group Identifier Interval Start time (GMT) Interval End time (GMT) Tie in which the transfer occurs Import or Export EIM Transfer from the originating EIM BAA entity EIM Transfer to the destination EIM BAA entity
Wind And Solar Summary	ENE_WIND_SOLAR_SUMMARY	OPR_DATE DATA_ITEM INTERVAL_START_GMT INTERVAL_END_GMT VALUE	Opr Date Summary Data Item( (DAM_SCHEDULE,DAM_NET_VIRTUAL,DAM_FORECAST,RTM_SCHEDULE) Interval Start Time in GMT Interval End Time in GMT MW Value
Flexible Ramp Requirements Input	ENE_EIM_FLEX_RAMP_INPUT (V6)	INTERVAL_START_GMT INTERVAL_END_GMT SNAPSHOT_INDICATOR BAA_ID DIVERSITY_BENEFIT_UC NET_EXPORT_CAPABILITY	Interval Start time (GMT) Interval End time (GMT) Base schedule snapshot indicator (T75MIN, T55MIN, T40MIN) One or more EIM BAA ID Diversity benefit scaled uncertainty component. Net Export Capability

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		NET_IMPORT_CAPABILITY	Net Import Capability
		CREDIT	Credit
		TEST_INDICATOR	There will be four flexible ramp capacity requirement sufficiency tests: 1. ramp time duration is the first 15-minute interval; 2. ramp time duration is 30-minutes spanning two 15-minute intervals; 3. ramp time duration is 45-minutes spanning three 15-minute intervals; 4. ramp time duration is 60 minutes spanning the four 15-minute intervals
		FLEX_RAMP_REQ_MW	Requirement MW
		RAMP_TYPE	Ramp Type ( UP or DOWN)
		DATA_ITEM	ENE_EIM_FLEX_RAMP_INPUT
Flex Ramp Requirements Inputs and Outputs	ENE_EIM_FLEX_RAMP_INPUT (V13)	MKT_TYPE	Market
		BAA_GRP_ID	BAA Id
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
		SNAPSHOT_INDICATOR	Base Schedule Snapshot Indicator
			Ramp Type

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		RAMP_TYPE	Test Indicator
		TEST_INDICATOR	
		DATA	DATA_ITEM: TEST_STATUS VALUE: Test Status
		DATA	DATA_ITEM: CHNG_LOAD_FORECAST VALUE: Change in Load Forecast
		DATA	DATA_ITEM: NET_LOAD_UNCERT VALUE: Net Load Uncertainty
		DATA	DATA_ITEM: RAMP_CAP VALUE: Ramping Capability
		DATA	DATA_ITEM: FLEX_RAMP_REQ_MW VALUE: Flexible Ramp Requirement
		DATA	DATA_ITEM: CREDIT VALUE: Credit
		DATA	DATA_ITEM: NET_IMPORT_CAPABILITY VALUE: Net Import Capability
		DATA	DATA_ITEM: NET_EXPORT_CAPABILITY VALUE: Net Export Capability
		DATA	DATA_ITEM: DIVERSITY_BENEFIT_UC VALUE: Diversity Benefit
	ENE_EIM_FLEX_RAMP_INPUT (v15)	Version 15 contains elements from version 13 and following 2 elements	
		DATA	DATA_ITEM: INSUFFICIENCY_AMOUNT VALUE: Insufficiency Amount

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		DATA	DATA_ITEM: INSUFFICIENCY_PERCENTAGE VALUE: Insufficiency Percentage
BAA Market Events	ENE_BAA_MKT_EVENTS	INTERVAL_START_GMT  INTERVAL_END_GMT  MKT_TYPE  BAA_ID  MKT_EVENT_TYPE	Interval Start time (GMT)  Interval End time (GMT)  Market type. Applicable for RTD market.  BAA ID  Market Event Type  The valid values for MKT_EVENT_TYPE currently being planned are as follows:  Contingency  Contingency-Corrected to Yes  Contingency-Corrected to No
Resource-Specific Uplift	ENE_RES_UPL	RESOURCE_ID  RESOURCE_NAME  INTERVAL_START_GMT  INTERVAL_END_GMT  UPLIFT_CATEGORY  UPLIFT_PAYMENT	Resource ID  Resource Common Name  Interval Start Date Time (GMT)  Interval End Date Time (GMT)  Uplift Category (Charge Code)  Uplift \$ Payment
Zonal Uplift	ENE_ZNL_UPL	INTERVAL_START_GMT  INTERVAL_END_GMT	Interval Start Date Time (GMT)  Interval End Date Time (GMT)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		TAC_AREA	TAC Area Name
		UPLIFT_CATEGORY	Uplift Category (Charge Code)
		UPLIFT_PAYMENT	Uplift \$ Payment
Operator-Initiated Commitment	ENE_OIC	RESOURCE_ID	Masked Resource ID
		TAC_AREA	TAC Area Name
		INTERVAL_START_GMT	Interval Start Date Time (GMT)
		START_DATE_TIME_GMT	Start Date Time (GMT)
		END_DATE_TIME_GMT	End Date Time (GMT)
		MKT_TYPE	Market Type. Applicable for DAM and RTM
		EXECUTION_TYPE	Execution Type. Applicable for RUC, RTPD, and RTD
		COMMITMENT_MW	Commitment Size (MW) <ul style="list-style-type: none"> <li>Dispatch MW for ED</li> <li>RUC Capacity for RUC</li> </ul>
		CONSTRAINT_TYPE	Constraint Type <ul style="list-style-type: none"> <li>Minimum, Maximum, Fixed, System Emergency for Exceptional Dispatch Capacity for RUC.</li> <li>Reason Code for Exceptional Dispatch</li> <li>"System Wide Capacity" for RUC</li> <li>SOC Hold and SOC Charge for Exceptional Dispatch</li> </ul>
		REASON	
		CLARIFIED_REASON	<ul style="list-style-type: none"> <li>Other Reason for Exceptional Dispatch</li> <li>"Optimization" for RU</li> </ul>
Transmission Loss	ENE_TRANS_LOSS	INTERVAL_START_GMT	Interval Start Date Time (GMT)
		INTERVAL_END_GMT	Interval End Date Time (GMT)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		MKT_TYPE	Market Type. Valid Value: RTD
		TRANS_LOSS_TYPE	Transmission Loss Type. Valid Value: Transmission Loss
		BAA_ID	BAA ID
		LOSS_MW	Transmission Loss MW
EBtMP Performance Data	ENE_EBTMP_PERF_DATA	OPR_DATE	Operation date when the metering was performed.
		INT_OPR_HR	Hour of Operation Date in which metering data aggregation is performed
		TAC_AREA	Transmission Access Charge (TAC) Area MRID
		MEASUREMENT_TYPE	Interval meter measurement type
		METER_VALUE_MWH	Hourly meter value (MWH)
		STATUS_TYPE	'Final', where data is from last update that occurs directly after the final meter submission deadline. Valid Value: Final
Schedule By Tie	ENE_SCH_BY_TIE	DATA_ITEM	SCH_BY_TIE
		VALUE	Gross import and export value by Intertie
		MKT_TYPE	An identifier which specifies the market run type (DAM,RTD,RTPD,RUC)
		BAA_GRP_ID	Balancing Authority Area Group Identifier
		TIE_NAME	Name of the Tie
		DIRECTION	Import or Export (I or E)
		INTERVAL_START_GMT	Interval Start Date Time (GMT)


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
RUC Under Supply Infeasibility & Market Enforced Constraints	ENE_UND_SPLY_INF_EC	INTERVAL_END_GMT	Interval End Date Time (GMT)
		DATA_ITEM	UND_GEN_INF_MWH
		VALUE	RUC under-gen infeasibility MW
		START_DATE_TIME_GMT	Start Date Time (GMT)
		END_DATE_TIME_GMT	End Date Time (GMT)
		CRITICAL_HOUR_FLAG	Critical Hour flag (Y or N)
Schedule Reduction	ENE_SCH_REDUCTION	MIN_SOC_DEACTIVATION_GMT	Minimum SOC Deactivation time in GMT
		MKT_TYPE	Market
		TIE_NAME	Tie Name
		BAA_GRP_ID	BAA Group Id
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
		DATA	Transaction Type DATA_ITEM: TRANSACTION_TYPE VALUE: Transaction type
		DATA	Schedule Type DATA_ITEM: SCHEDULE_TYPE VALUE: Possible values (CLEARED/MARKET/TOR/DALPT/DALPT/RTLPT/RTPT, etc.)
WEIM RSE Capacity Test	WEIM_RSE_CAPACITY_TEST(v13)	DATA	Schedule Reduction Value DATA_ITEM: SCHEDULE_REDUCTION VALUE: Schedule Reduction MW
		MKT_TYPE	Market
		BAA_GRP_ID	BAA Id
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
		SNAPSHOT_INDICATOR	


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
			Base Schedule Snapshot Indicator
		TEST_INDICATOR	
		DATA	Test Indicator
		DATA	DATA_ITEM: TEST_STATUS VALUE: Test Status
		DATA	DATA_ITEM: GEN_BASE_SCH VALUE: Generation Base Schedule
		DATA	DATA_ITEM: IMP_BASE_SCH VALUE: Import Base Schedule
		DATA	DATA_ITEM: EXP_BASE_SCH VALUE: Export Base Schedule
		DATA	DATA_ITEM: NET_BASE_SCH VALUE: Net Base Schedule
		DATA	DATA_ITEM: NET_LOAD_UNCERT VALUE: Net Load Uncertainty
		DATA	DATA_ITEM: ITIE_UNCERT VALUE: Intertie Uncertainty
		DATA	DATA_ITEM: LOAD_FORECAST VALUE: Load Forecast
		DATA	DATA_ITEM: IMP_QUANT VALUE: Import Quantity
		DATA	DATA_ITEM: EXP_QUANT VALUE: Export Quantity




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		DATA	DATA_ITEM: NET_QUANT VALUE: Net Quantity
		DATA	DATA_ITEM: BID_RANGE_CAP VALUE: Bid Range Capacity
			DATA_ITEM: CURVE_DIRECTION VALUE: Curve Direction
	WEIM_RSE_CAPACITY_TEST (v15)	Version 15 contains elements from version 13 and following 3 elements	
		DATA	DATA_ITEM: INSUFFICIENCY_AMOUNT VALUE: Insufficiency Amount
Flexible Ramp Test Result Groups	FLEX_RAMP_TEST_RESULT_GROUP	DATA	DATA_ITEM: INSUFFICIENCY_PERCENTAGE VALUE: Insufficiency Percentage
		DATA	DATA_ITEM: REQUIREMENT_AMOUNT VALUE: Requirement Amount
		MKT_TYPE	RTD or RTPD
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
Flexible Ramping Forecasts	FLEX_RAMP_FORECAST	BAA_GRP_ID	BAA Group MrlId
		BAA_ID	BAA Id
		RAMP_TYPE	UP or DOWN
		MKT_TYPE	RTD or RTPD
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
			BAA Group MrlId

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		BAA_GRP_ID	
		DATA	DATA_ITEM: INTERVAL_TYPE VALUE:
		DATA	DATA_ITEM: SOLAR VALUE: UOM: MW
		DATA	DATA_ITEM: WIND VALUE: UOM: MW
		DATA	DATA_ITEM: DEMAND VALUE: UOM: MW
Flex Ramp Requirements Input Uncertain Histogram	FLEX_RAMP_REQ_INP_HSG	MKT_TYPE	RTD or RTPD
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
		BAA_GRP_ID	BAA Group Id
		RAMP_TYPE	UP or DOWN
		DATA	DATA_ITEM: PERCENTILE VALUE:
		DATA	DATA_ITEM: DEMAND VALUE: UOM: MW
		DATA	DATA_ITEM: NET_DEMAND VALUE: UOM: MW
		DATA	DATA_ITEM: WIND VALUE: UOM: MW
		DATA	DATA_ITEM: SOLAR VALUE: UOM: MW
Flex Ramp Requirement Input Polynomials	FLEX_RAMP_REQ_INP_POLYNOMIALS	MKT_TYPE	RTD or RTPD

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
		BAA_GRP_ID	BAA Group Id
		RAMP_TYPE	UP or DOWN
		DATA	DATA_ITEM:PERCENTILE VALUE:
		DATA	DATA_ITEM:DATA_TYPE VALUE: < DEMAND /MOAIC /WIND/ SOLAR>
		DATA	DATA_ITEM: COEFFICIENT_A VALUE: UOM: MW
		DATA	DATA_ITEM: COEFFICIENT_B VALUE: UOM: MW
Flex Ramp Requirement Threshold	FLEX_RAMP_REQ_THRESH	MKT_TYPE	RTD or RTPD
		INTERVAL_START_GMT	Start Date Time (GMT)
		INTERVAL_END_GMT	End Date Time (GMT)
		BAA_GRP_ID	BAA Group Id
		RAMP_TYPE	UP or DOWN
		DATA	DATA_ITEM:DATA_TYPE VALUE:
		DATA	DATA_ITEM: LOW_PERCENTILE VALUE: UOM: MW

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		DATA	DATA_ITEM: HIGH_PERCENTILE VALUE: UOM: MW
<b>ANCILLARY</b>			
<b>AS Requirements</b> Ancillary Service Capacity Minimum and Maximums per AS Region. Report will post for the 2-Day-Ahead forecast, DAM , HASP and RTM (RTPD)  Note: When encountering a max A/S limit of zero, please interpret this as "no limit".	AS_REQ	NS_REQ_MAX_MW RD_REQ_MAX_MW RU_REQ_MAX_MW SP_REQ_MAX_MW NS_REQ_MIN_MW RD_REQ_MIN_MW RU_REQ_MIN_MW SP_REQ_MIN_MW AS_REQ_MAX_MW RMD_REQ_MAX_MW RMD_REQ_MIN_MW RMU_REQ_MAX_MW RMU_REQ_MIN_MW	Max capacity to be acquired for NonSpin Max capacity to be acquired for RegulationDown Max capacity to be acquired for RegulationUp Max capacity to be acquired for Spin Min capacity to be acquired for NonSpin Min capacity to be acquired for RegulationDown Min capacity to be acquired for RegulationUp Min capacity to be acquired for Spin Max capacity UP to be acquired for RegulationUp,Spin,Non Spin For 2DA Market. Max capacity to be acquired for Regulation Mileage Down Min capacity to be acquired for Regulation Mileage Down Max capacity to be acquired for Regulation Mileage Up Min capacity to be acquired for Regulation Mileage Down
<b>AS Results</b>	AS_RESULTS	RU_TOT_CST_PRC RD_TOT_CST_PRC	The Total line cost across AS Region for Regulation Up. The Total line cost across AS Region for Regulation Down.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
<p>Ancillary Service Capacity procured and self-scheduled, by AS type, posted for each AS Region. Also posts the sum of the procured and self-scheduled.</p> <p>Posts Hourly for the Day-Ahead (DAM), HASP. And in 15 Minute (RTPD) intervals, by AS type.</p> <p>Also posts Total AS Cost for each AS Region, by AS Type.</p> <p>Results will only post for AS Regions that are binding for that market run.</p>		SP_TOT_CST_PRC	The Total line cost across AS Region for Regulation Down.
		NS_TOT_CST_PRC	The Total line cost across AS Region for Spin.
		NS_PROC_MW	The Total line cost across AS Region for NonSpin.
		NS_SPROC_MW	The MW of capacity procured from the AS market bids for NonSpin.
		NS_TOT_MW	The MW of capacity self-provided by market participants.
		SP_PROC_MW	Total MW of capacity obtained.
		SP_SPROC_MW	The MW of capacity procured from the AS market bids for Spin.
		SP_TOT_MW	The MW of capacity self-provided by market participants
		RU_PROC_MW	Total MW of capacity obtained
		RU_SPROC_MW	The MW of capacity procured from the AS market bids for RegulationUp.
		RU_TOT_MW	The MW of capacity self-provided by market participants.
		RD_PROC_MW	Total MW of capacity obtained.
		RD_SPROC_MW	The MW of capacity procured from the AS market bids for RegulationDown.
		RD_TOT_MW	The MW of capacity self-provided by market participants.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		RMD_PROC_MW	Total MW of capacity obtained  The MW of capacity procured from the AS market bids for Regulation Mileage Down
		RMD_SPROC_MW	The MW of capacity self-provided by market participants for Regulation Mileage Down
		RMD_TOT_CST_PRC	The Total line cost across AS Region for Regulation Mileage Down
		RMD_TOT_MW	Total MW of capacity obtained for Regulation Mileage Up
		RMU_PROC_MW	The MW of capacity procured from the AS market bids for Regulation Mileage Up
		RMU_SPROC_MW	The MW of capacity self-provided by market participants for Regulation Mileage Up
		RMU_TOT_CST_PRC	The Total line cost across AS Region for Regulation Mileage Up
		RMU_TOT_MW	Total MW of capacity obtained for Regulation Mileage Up
<a href="#">Actual Operating Reserves</a> Total Actual Load, AS, and Operating Reserves maintained during delivery.	AS_OP_RSRV	OP_RSRV_ACT_PCT	Total Actual Operating Reserves maintained during delivery.
<a href="#">Mileage Calculation Components</a>  Lists system performance accuracy, average Instructed Mileage (MW), and system Mileage multiplier data from the prior seven days for each hour of a trading day.	AS_MILEAGE_CALC	RMD_AVG_MIL	Average Instructed Mileage for regulation mileage down
		RMD_SYS_MIL_MUL	System Mileage Multiplier for regulation mileage down
		RMD_SYS_PERF_ACC	


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		RMU_AVG_MIL  RMU_SYS_MIL_MUL  RMU_SYS_PERF_ACC	System Performance Accuracy for regulation mileage up  Average Instructed Mileage for regulation mileage up  System Mileage Multiplier for regulation mileage up  System Performance Accuracy for regulation mileage up.
<b>CRR</b>			
<b>CRR Clearing Prices</b>  Congestion Revenue Rights Auction Clearing Prices by Pnode for CRR segments.	CRR_CLEARING	ON_PRC LT_OFF_PRC  Note : These the XML tags for corresponding data items  CRR_MARKET_NAME RESOURCE_NAME START_DATE_TIME END_DATE_TIME REASON	On-peak Price Off-peak Price   CRR MARKET NAME APNODE ID START DATE End DATE MARKET TERM
<b>CRR Inventory</b>  Congestion Revenue Rights Daily Inventory.	CRR_INVENTORY	ON_MW OFF_MW  Note : These are the XML tags for corresponding data items CRR_MARKET_NAME SOURCE SINK RESOURCE_NAME OPTION INVENTORY_DATE_TIME START_DATE_TIME END_DATE_TIME REASON STATUS_TYPE CRR_CATEGORY CRR_NSR CRR_SEGMENT	On-peak capacity Off-peak capacity   CRR MARKET NAME Source APNODE Sink APNODE OWNER NAME CRR OPTION INVENTORY DATE START DATE END DATE MARKET TERM CRR Type CRR CATEGORY NSR INDEX SEGMENT ID


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
CRR Aggregated Revenue Adjustment Data	CRR_AGG_REV_ADJ	START_DATE_TIME	Market interval start time
		END_DATE_TIME	Market interval end time
		TRANS_CNSTR_ID	Unique Identifier that represents an event where a transmission line has restricted flow capacity for the designated time period
		CNSTR_CASE	Unique Identifier that represents the basis for a transmission line to have restricted flow capacity for the designated time period
		TOTAL_NOTIONAL_VALUE	The revenue amount normally paid for a CRR
		TOTAL_OFFSET_VALUE	The revenue amount not paid for a CRR due to transmission constraints and associated reduction in congestion revenues.
		DIRECTION	Indicator of the prevailing direction of flow at the constraint. Valid Entries: 1, -1
		IFM_NET_FLOW_MW	Calculated Net IFM Flow at constraint per contingency.
		CLAWBACK_REV	The amount of revenue deducted from an individual CRR payment based on convergence bidding settlement rules for a defined hour.




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		CIR_SCH_REV	The amount of revenue deducted from an individual CRR payment based on market rules for scheduling at interties for a defined hour.
		Note : The below elements are modeled as OASISDataItems	
		CRR_DATA	Value for this element is CRR_AGG_REV_ADJ
PUBLIC BIDS			
<b>Public Bids</b>  Clean Bid payloads used as the input in the markets, with certain fields replaced by pseudo data as indicated. Posted for DAM and RTM. Posted at T+90. The Public Bid Data is only downloadable to XML and CSV, for a single day at a time. Data is available for downloading at midnight on the 90 <sup>th</sup> day after the trading day. The Publications and Revisions log will not create records for the Public Bid data when it is becomes available for downloading on T+90.	PUB_BID	Note: Below structure is common for – GENERATION, LOAD, and INTERTIE.  STARTTIME STOPTIME  REGISTEREDGENERATOR  SCHEDULINGCOORDINATOR  PRODUCTBID DESCRIPTION MRID  MARKETPRODUCT DESCRIPTION  MARKETPRODUCTTYPE  BIDSELFSCHEM  TIMEINTERVALSTART TIMEINTERVALEND SELFSCHEM  BIDSCHEDULE  TIMEINTERVALSTART TIMEINTERVALEND BIDPRICECURVE MRID	Start time of bid End time of bid  Pseudo ID of Resource Pseudo ID of SC_ID  Description of product  All the possible types like EN, LFD, LFU, NR, RC,RD,RU,SR,RMD, RMU and GHG  Selfscheduled bid start and end time with the MW.  Bid Schedule with start and end time  Curve details contains X and Y1 & Y2 axis data.  Xaxis= optional element Y1axis = optional element

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		CURVESCHEDDATA XAXISDATA Y1AXISDATA Y2AXISDATA  In addition to above structure, New elements added to GENERATION,  MINEOHSTATEOFCHARGE  MAXEOHSTATEOFCHARGE	Y2 axis = Opportunity Cost; optional element      Minimum end-of-hour state-of-charge value  Maximum end-of-hour state-of-charge value
<b>CB Public Bids</b>  Convergence Bidding Clean Bid payloads used as the input in the markets, with certain fields replaced by pseudo data as indicated. Posted for DAM. Posted at T+90. The Public Bid Data is only downloadable to XML and CSV, for a single day at a time. Data is available for downloading at midnight on the 90 <sup>th</sup> day after the trading day.	PUB_CB_BID	STARTTIME  STOPTIME  AggregatedPnode IndividualPnode VirtualBidType SCHEDULINGCOORDINATOR  ENERGYPRODUCTBID BIDSCHEDULE  TIMEINTERVALSTART TIMEINTERVALEND BIDPRICECURVE  CURVESCHEDDATA XAXISDATA Y1AXISDATA	Start time of Virtual bid End time of Virtual bid  Pseudo ID of Apnode Pseudo ID of Pnode Supply/Demand Bid Pseudo ID of SC_ID  Bid Schedule with start and end time  Curve details contains X and Y axis data.
<b>Congestion Revenue Rights (CRR) Public Bids</b>  Bids submitted and used in the CRR auction markets, with certain fields replaced by pseudo data as indicated. Posted for the monthly auctions 90 days after the close of markets and seasonal auctions after each relevant quarter has passed. The Public Bid Data is only downloadable to XML and CSV, for a single market at a time.	PUB_CRR_BID	STARTTIME  STOPTIME  MARKETTERM  MARKETNAME  SOURCEID	Effective Start Date of the CRR  Effective End Date of the CRR  CRR auction type. Valid values are Seasonal or Monthly  CRR auction name  Source id

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		SINKID TIMEOFUSE MWQUANTITY CRR_PRICE CRRBID_ID CRRBIDSEG_ID AUCTIONCLOSEDATE TRANSACTION_TYPE HEDGE_TYPE	Sink id Time of use of the CRR bid The MW Quantity of the bid point The Price of the bid point CRR Bid identifier The point number in the CRR Bid CRR auction Close date. <i>Transaction type will be used to identify individual transactions as BUY or SELL</i> <i>Hedge type will be used to indicate CRR HedgeType ( OBLIGATION or OPTION</i>
Competitive Solicitation Process Offer Set  Finalized offers into the competitive solicitation process for Annual, monthly and intra-monthly offer period. This data will be posted on a rolling five-quarter delay. <i>The Offer Data is only downloadable to XML and CSV.</i>	PUB_CSP_OFFER_SET	OFFERPERIODSTARTTIME OFFERPERIODENDTIME RESOURCEADEQUACYPERIODTYPE STARTTIME ENDTIME	Start time of the CSP offer period (GMT). End time of the CSP offer period (GMT). Resource Adequacy Period type is one of the following enumerated value ANNUAL MONTHLY INTRAMONTHLY Start time of the CSP offer (GMT).

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
			End time of the CSP offer (GMT).
		SCHEDULETYPE	Schedule type is one of the following enumerated value
		REGISTEREDRESOURCE	FLEXIBLE GENERIC
			Pseudo ID of Resource
		SCHEDULINGCOORDINATOR	Pseudo ID of SC_ID
		GENERATIONTYPE	Generation Technology Type is one of the following value
		FLEXIBLECATEGORY	WIND SOLAR HYDRO AGGR_OTHER
			Flexible Category of the resource. This can be 1, 2 or 3. This value will be populated only for the scheduletype 'FLEXIBLE'
			1 - Base Ramping Flexibility 2 - Peak Ramping Flexibility 3- Super Ramping Flexibility
		AREA	The required hours for the Peak Ramping and Super-Peak Ramping categories change on a seasonal basis.
		BIDPRICECURVE	
		XAXISDATA	TAC Area
		Y1AXISDATA	BidPriceCurve data contains contains X and Y axis data.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
			<p>The value on x-axis is MW</p> <p>The value on y1-axis is price (\$).</p>
CPM Designations	PUB_CPM_DESIGNATION	RESOURCE_NAME RESOURCE_ID PERIOD_TYPE CPM_TYPE ACCEPTED_OFFER_PRICE AWARDED_CAPACITY_MW DESIGNATION_START_DATE DESIGNATION_END_DATE DURATION DESIGNATION_DETAILS	CPM Designated Resource Name CPM Designated Resource ID Intramonthly/Monthly/Annual Generic/CPM/Flex Price \$/kW-mon Awarded CPM Capacity CPM Designation Start Date CPM Designation End Date CPM Duration CPM Designation Details
Market Bid Caps	MKT_BID_CAPS	MKT_TYPE MKT_PRODUCT_TYPE INTERVAL_START_GMT INTERVAL_END_GMT BID_CAP	Market Type Market Product Type Interval Start Time in GMT Interval End Time in GMT Bid Capacity
Available Import Capability	AVAIL_IMP_CAP	START_DATE_TIME_GMT END_DATE_TIME_GMT SC_ID ITIE_ID LSE_ID LSE_NAME TOTAL_IMP_ALLOCATION	Start/end Date of Import Capability Scheduling coordinator Id Name of the Registered Intertie LSE ID Name of the LSE

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		RESERVED_CAP TRADABLE_CAP CONTACT_INFO	Total Available Import Allocation Reserved Capability Tradable Capability Contact Info of the LSE
Import Capability Used in RA Plan Data	IMP_CAP_USED_RA_PLAN	START_DATE_TIME_GMT END_DATE_TIME_GMT ITIE_ID  JURISDICTION TOTAL_IMP_ALLOCATION  RA_SHOWING_MW	Start/End Date of the Import Capability Used. Name of the Registered Intertie Jurisdiction Total Import Allocation Used Resource Adequacy Showing in MW
<b>ATLAS</b>			
Pnode Listing	ATL_PNODE	N/A	All Pricing Node locations in CAISO Markets. For CB, Y/N flag will be added. For CB, Maximum CB MW Limit, with effective start and end dates will be added.
APNode Listing	ATL_APNODE	N/A	All Aggregated Pricing Node locations used in CAISO Markets. For CB, Y/N flag will be added. For CB, Maximum CB MW Limit, with effective start and end dates will be added.
Load Distribution Factors (LDFs)	ATL_LDF	N/A	Typical Load Distribution Factors that map Pnodes to APNodes.
Load Aggregation Point Listing	ATL_LAP	N/A	All Load Aggregation Points in CAISO, by type.
Market Resource Listing	ATL_RESOURCE	N/A	List of CAISO Resources and their associated Pnode/APNode
Trading Hub Listing	ATL_HUB	N/A	All Trading Hub APNodes in CAISO.
Trading Hub – Pnode Mapping	ATL_PNODE_MAP	N/A	Map of all Pnodes to each Trading Hub APNode.
AS Region – Pnode Mapping	ATL_AS_REGION_MAP	N/A	Map of all Pnodes to each Ancillary Services Region.
RUC Zone – Pnode Mapping	ATL_RUC_ZONE_MAP	N/A	Map of all Pnodes to each Reliability Unit Commitment Zone.
TAC Area – Pnode Mapping	ATL_TAC_AREA	N/A	Map of all Pnodes to each Transmission Access Charge Area.


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
<a href="#">Intertie Constraint Mapping</a>  Note: Report will not display data after new ETCC activation date.	ATL_TIEPOINT	N/A	Map of all Intertie Constraints with respective Transmission Interface and TSIN.
<a href="#">Transmission Interface Listing</a>  Note: Report will not display data after new ETCC activation date.	ATL_TI	N/A	All Transmission Interfaces in CAISO.
<a href="#">Publications and Revisions</a>	ATL_PUB	N/A	List of all OASIS data publication and revisions. Users can track all data additions and updates to OASIS through these entries.
<a href="#">OASIS Publication Schedule</a>	ATL_PUB_SCHED	N/A	Expected publication schedule by which all OASIS reports are published.
<a href="#">System Operating Messages</a>	ATL_OSM	N/A	System Operating Messages posted by Severity. Severity : Green = Normal, Red = Emergency, Blue = Urgent
<a href="#">Peak-Off-Peak Definition</a>	ATL_PEAK_ON_OFF	N/A	Posts Hourly Peak/Off-Peak indicator based on the WECC definition.
<a href="#">Convergence Bidding Node List</a>	ATL_CBNODE	N/A	List all the nodes and/or ties for convergence bidding
<a href="#">Price Correction Messages</a>	ATL_PRC_CORR_MSG	MSG_TIME OASIS_MARKET_RUN_ID MSG_TEXT	Date And Time of the Message Actual Text of the correction
<a href="#">Scheduling Point Definition</a>	ATL_SP	BAA_ID  SCHEDULING_POINT  ALLOW_BID  TI_DIRECTION  START_DATE  END_DATE	Balancing Area Authority Id  Schedule Point Name  Flag to denote if the Bid is allowed Bid Direction (Import, export, Both) Effective Start Date of the Scheduling Point  Effective End Date of the Scheduling Point
<a href="#">BAA And Tie Definition</a>	ATL_BAA_TIE	TIE_NAME	Name of the Tie


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		FROM_BAA TO_BAA EIM_TRANSFER_FLAG START_DATE END_DATE	From BAA id To Baa Id Transfer Flag(Y or N) Effective Start Date of the Tie Effective End Date of the Tie
Scheduling Point and Tie Definition	ATL_SP_TIE	TIE_NAME SCHEDULING_POINT START_DATE END_DATE	Name of the Tie Scheduling Point Name Effective Start Date Effective End Date
Intertie Constraint and Scheduling Point Mapping	ATL_ITC_SP	TIEPOINT_NAME SCHEDULING_POINT START_DATE END_DATE	Name of the Constraint Group Name of the Schedule Point Effective Start Date of the Constraint and Schedule Point Mapping Effective End Date
Intertie Scheduling Limit and Tie Mapping	ATL_ISL_TIE	TIE_NAME ITIE_SCHEDULING_LIMIT START_DATE END_DATE	Name of the Tie Name of the Itie Schedule Limit Effective Start Date of the Schedule Limit and Tie Mapping Effective End Date of the Schedule Limit and Tie Mapping
Master Control Area Generating Capability List.  This service can be used to get the CAISO Control Area generating resource information.  This service will include only active generating resource information.	ATL_GEN_CAP_LIST	RESOURCE_ID GEN_UNIT_NAME PARENT_RESOURCE_ID BAA_ID CLASSIFICATION	ID of the resource that is certified in CAISO master file system. Name of the generating unit Parent resource id of the aggregated child resource Balancing Area Authority ID




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description
		RESOURCE_AGG_TYPE	Unit classification. Valid values are Participating or Nonparticipating
		QF	Y/N Identifier if a resource is Aggregate or Nonaggregate resource
		NET_DEPENDABLE_CAPACITY	Y/N Identifier if a resource is a qualifying cogeneration facility or small qualifying power production facility.
		PTO_AREA	Net Dependable Capacity (MW)
		OWNER_OR_QF	Name of the PTO Area
		UNIT_TYPE	Owner or QF ID
		ENERGY_SOURCE	Type of unit
		ZONE	Source of Energy
		COD	Zone Name
		UDC	NP15, SP15 and ZP26 The date when the capacity becomes commercial
		RIVER_SYSTEM	Utility Distribution Company
		NAMEPLATE_CAPACITY	River System
		RESOURCE_TYPE	The actual nameplate capacity rating on the resource, (Gross output that cannot exceed the interconnection agreement) Exact MW

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


Report/ResultSet	XML Name	XML Data Items	Description												
			Resource Type												
<p>Net Qualifying Capacities</p> <p>Note:</p> <p>Single Zip:</p> <p>ATL_RES_ADQ_NET_QUAL_CAP will return data for a maximum of 366 days between startdatetime and enddatetime.</p> <p>Group Zip:</p> <p>ATL_RES_ADQ_NET_QUAL_CAP_GRP will return data for the complete year of the startdatetime for all resources.</p>	ATL_RES_ADQ_NET_QUAL_CAP	RESOURCE_NAME	ISO Resource Name												
		START_DATE_GMT	Start Date of NQC value												
		END_DATE_GMT	End Date of NQC value												
		COMMENTS	Additional comments from ISO staff												
		RESOURCE_ID	ISO Resource ID												
		YEAR	NQC value Month												
		MONTH	NQC value Year												
		AREA	Resource Local Capacity Area												
		DISPATCHABLE	Resource Designated as Dispatchable in Masterfile												
		PATH_DESIGNATION	Resource Path 26 Designation												
		NQC_MW DELIVERABILITY_STATUSES	NQC MW Value Resource Deliverability Status												
		DELIVERABILITY	Resource Deliverability MW												
<p>Full Network Model Mapping Data</p> <p>Valid BAA Group &amp; Mapping types:</p> <table><tr><th>BAA Group</th><th>Mapping Type</th></tr><tr><td>CISO</td><td>GEN_RES_AGGR</td></tr><tr><td>CISO</td><td>TIE_RES</td></tr><tr><td>CISO</td><td>POR</td></tr><tr><td>CISO</td><td>TH</td></tr><tr><td>CISO</td><td>TIE_TNAME</td></tr></table>	BAA Group	Mapping Type	CISO	GEN_RES_AGGR	CISO	TIE_RES	CISO	POR	CISO	TH	CISO	TIE_TNAME	ATL_FNM_MAPPING_DATA	RESOURCE_NAME	Description of resource.
	BAA Group	Mapping Type													
	CISO	GEN_RES_AGGR													
	CISO	TIE_RES													
CISO	POR														
CISO	TH														
CISO	TIE_TNAME														
RESOURCE_ID	Market resource ID that will be used in scheduling, settlement, metering, and other market applications and non-market resource ID.														
DIST_FACTOR	The Distribution factor for ASR														

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet		XML Name	XML Data Items	Description
CISO	LAP		PARENT_RESOURCE_ID	Market resource ID that will be used in scheduling, settlement, metering, and other market applications.
CISO	GEN_RES			
CISO	TIE_RES_AGGR			
CISO	AS			
EIM_AREA	GEN_RES_AGGR		BAA_ID	Balancing Authority Area
EIM_AREA	GEN_RES		UDC	The Utility District Company ID
EIM_AREA	LAP		RESOURCE_TYPE	Type of resource (GEN - Generator Resources, TG - Tie Generator Resources)
EIM_AREA	TIE			
<p>Note: The below reference documents for CISO and EIM BAA's have been published on CAISO public site, under Network and Resource Modeling page. These documents define fields in OASIS reports.</p> <p><a href="http://www.caiso.com/Documents/FullNetworkModel_PricingNodeMapping_Reference.xls">http://www.caiso.com/Documents/FullNetworkModel_PricingNodeMapping_Reference.xls</a></p> <p><a href="http://www.caiso.com/Documents/FullNetworkModel_PricingNodeMapping_withEIM_Reference.xls">http://www.caiso.com/Documents/FullNetworkModel_PricingNodeMapping_withEIM_Reference.xls</a></p>			BUS_ID	Network model bus description that the resource is actually connected to. This description includes the bus number.
			FNM_VERSION	Version of the Full Network Model.
			PARENT_ID	Market resource ID that will be used in scheduling, settlement, metering, and other market applications.
			CHILD_ID	Physical components of aggregated resources. These IDs are not the market resources, but are used in the Network Applications.
			CHILD_RESOURCE_NAME	Description of the individual resources that make up aggregations.
			CHILD_RESOURCE_CNODE	The Cnode of the individual resources that make up aggregations.
			PNODE_ID APNODE_ID POR_ID	The network node that will be used to produce the LMP.
			POR_CNODE_ID	POR Connectivity Node ID

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		TNAME	Refer as Transmission Identification
		ITC_ISL	Intertie Constraint ID
		BG	Branch Group ID
		CNODE_RESOURCE_ID	The physical location of the resources
		INTERTIE_TYPE	Import Tie (ITIE) and Export Tie (ETIE)
		TIE_PARENT_ID	Aggregated Intertie resource ID (or ASR: Aggregated System Resources)
		TIE_PARENT_APNODE_ID	Aggregated Intertie resource Pricing ID (or ASR: Aggregated System Resources)
		TIE_CHILD_ID	The member resources of the aggregated resource
		CHILD_BUS_ID	Network model bus description that the child resource is actually connected to. This description includes the bus number.
		ASR	Aggregated System Resource (Intertie)
		AS_ID	Ancillary Service Region ID
		TH_APNODE_ID	Trading Hub ID
		LAP_APNODE_ID	Price of Load Aggregation Point.
		CNODE_ID	Connectivity Node ID
		PARENT_APNODE_ID	Parent Aggregate Pricing Node ID
		TIE_ID	Intertie Resource ID


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

Report/ResultSet	XML Name	XML Data Items	Description
		LDF_ON_PEAK	This Load Distribution Factor (LDF) is based on certain FNM cases, for illustrative purposes only, and is subject to change.
		LDF_OFF_PEAK	This Load Distribution Factor (LDF) is based on certain FNM cases, for illustrative purposes only, and is subject to change.
		LDF	This Load Distribution Factor (LDF)
		LAP_ID	Load Aggregation Point.
		RELEASE_DATE	Release Date of Full Network Model Version.
Constraint Relaxation Threshold	ATL_CNSTR_RLX_N_THRESHOLD	START_DATE_GMT	Effective Start Date in GMT
		END_DATE_GMT	Effective End Date in GMT
		BAA_GRP_ID	Balancing Authority Area Group Identifier
		CNSTR_RLXN_THRESHOLD	Static constraint relaxation threshold MW value for the CAISO BAA and each EIM BAA


#### 4.1.4.2 Group Report Definitions

This section contains all GroupIDs and corresponding reports.


GroupID	Reports In Group	Market Type	Report XML Names
DAM_LMP_GRP	Locational Marginal Prices (LMP)	DAM	PRC_LMP ( Note: 4 files will be created LMP, MCC, MCE, MCL for the trade date & will be cached for all nodes)
DAM_SPTIE_LMP_GRP	DAM Scheduling Point Tie Locational Marginal Prices (LMP)	DAM	PRC_SPTIE LMP ( Note: For version=3, 2 files will be created LMP, MCC for the trade date & will be cached for all nodes)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

			and for version =4,5, 4,5 files will be created LMP, MCC, MCE and MCL for the trade date )
RTPD_SPTIE_LMP_GRP	RTPD Scheduling Point Tie Locational Marginal Prices (LMP)	RTPD	PRC_SPTIE_LMP ( Note: Hourly 4 intervals cached files for trade date & will be cached for all nodes)
RTD_SPTIE_LMP_GRP	RTD Scheduling Point Tie Locational Marginal Prices (LMP)	RTD	PRC_SPTIE_LMP ( Note: Hourly 12 intervals cached files for trade date & will be cached for all
RUC_LMP_GRP	Locational Marginal Prices (LMP)	RUC	PRC_LMP ( Note: 1 file will be created LMP for the trade date & will be cached for all nodes)
HASP_LMP_GRP	HASP Locational Marginal Prices (LMP)	HASP	PRC_HASP_LMP ( Note: Hourly 4 intervals cached files for trade date & will be cached for all nodes)
RTPD_LMP_GRP	RTPD Locational Marginal Prices (LMP)	RTPD	PRC_RTPD_LMP ( Note: Hourly 4 intervals cached files for trade date & will be cached for all nodes)
RTM_LMP_GRP	Interval Locational Marginal Prices (LMP)	RTM	PRC_INTVL_LMP ( Note: Hourly 12 intervals cached files for trade date & will be cached for all nodes)


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

DAM_PRC_AS_GRP	AS Clearing Prices	DAM	PRC_AS ( Note: Daily cached files for trade date & will be cached for all AS Regions )
HASP_PRC_AS_GRP	AS Clearing Prices	HASP	PRC_AS ( Note: Daily cached files for trade date & will be cached for all AS Regions)
RTM_PRC_AS_GRP	Interval AS Clearing Prices	RTM	PRC_INTVL_AS ( Note: Hourly 4 intervals cached files for trade date & will be cached for all AS Regions)
DAM_TRNS_GRP	Transmission Interface Usage Market Available Transmission Capacity	DAM DAM	TRNS_USAGE TRNS_ATC
HASP_TRNS_GRP	Transmission Interface Usage Market Available Transmission Capacity	HASP HASP	TRNS_USAGE TRNS_ATC
RTPD_TRNS_GRP	Transmission Interface Usage Market Available Transmission Capacity	RTPD RTPD	TRNS_USAGE TRNS_ATC
DAM1_GRP	TAC Area Demand Forecast System Load and Resource Schedules Market Power Mitigation Status RMR Marginal Losses	DAM DAM DAM DAM DAM	SLD_FCST ENE_SLRS ENE_MPM CMMT_RMR ENE_LOSS
RTM1_GRP (RTD)	TAC Area Load Forecast System Load and Resource Schedules	RTM/RTD RTM	SLD_FCST ENE_SLRS


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

RTPD_FCST_GRP	TAC Area Load Forecast	RTM/RTPD	SLD_FCST
HASP1_GRP	System Load and Resource Schedules TAC Area Load Forecast RMR Marginal Losses	HASP HASP HASP HASP	ENE_SLRS SLD_FCST CMMT_RMR ENE_LOSS
POST1_GRP	Expected Energy Exceptional Dispatch	N/A	ENE_EA ENE_DISP
DAM_AS_GRP	AS Requirements AS Results	DAM DAM	AS_REQ AS_RESULTS
HASP_AS_GRP	AS Requirements AS Results	HASP	AS_REQ AS_RESULTS
RTM_AS_GRP	AS Requirements AS Results	RTM (RTPD)	AS_REQ AS_RESULTS
PUB_DAM_GRP	Public Bids	DAM	PUB_BID
PUB_RTM_GRP	Public Bids	RTM	PUB_BID




 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


CURR_LMP_GRP	Current interval Price	RTM	PRC_CURR_LMP
DAM_SD_PRC_GRP	Constraint Shadow Prices Nomogram/Branch Shadow Prices	DAM	PRC_CNSTR PRC_NOMOGRAM
HASP_SD_PRC_GRP	Constraint Shadow Prices Nomogram/Branch Shadow Prices	HASP	PRC_CNSTR PRC_NOMOGRAM
RTM_SD_PRC_GRP	Constraint Shadow Prices Nomogram/Branch Shadow Prices	RTM	PRC_CNSTR PRC_NOMOGRAM
PUB_CB_DAM_GRP	Public CB Bids	DAM	PUB_CB_BID
CB_REF_PRC_GRP	Reference Prices	DAM	PRC_DS_REF (Note: File will be created for Supply & Demand Prices for the effective date ranges (quarterly) for all nodes.)
CB_CLR_DAM_GRP	Net Cleared Awards	DAM	ENE_CB_CLR_AWARDS
CB_NODAL_LMT_GRP	Nodal Limit MW values	DAM	CB_NODAL_LIMITS
DAM_FLEX_RAMP_GRP	Flexible Ramping Constraint Results from DAM market run	DAM	PRC_FLEX_RAMP

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


RTPD_FLEX_RAMP_GRP	Flexible Ramping Constraint Results from RTPD market run	RTPD	PRC_FLEX_RAMP
RTD_FLEX_RAMP_GRP	Flexible Ramping Constraint Results from RTD market run	RTD	PRC_FLEX_RAMP
DAM_MPM_LMP_GRP	MPM Locational Marginal Prices (LMP)	DAM	PRC_MPM_LMP PRC_MPM_LMP_DAM_MCCC PRC_MPM_LMP_DAM_MCCNC PRC_MPM_LMP_DAM_MCE PRC_MPM_LMP_DAM_MCL
HASP_MPM_LMP_GRP	MPM HASP Locational Marginal Prices (LMP)	HASP	PRC_MPM_RTM_LMP_HASP
RTPD_MPM_LMP_GRP	MPM RTPD Locational Marginal Prices (LMP)	RTPD	PRC_MPM_RTM_LMP_RTPD
DAM_MPM_SD_PRC_GRP	MPM Constraint Shadow Prices MPM Constraint Competitive Paths MPM Nomogram/Branch Shadow Prices MPM Nomogram/Branch Competitive Paths	DAM	PRC_MPM_CONSTR PRC_MPM_CONSTR_CMP  PRC_MPM_NOMOGRAM PRC_MPM_NOMOGRAM_CMP

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


HASP_MPM_SD_PRC_GRP	MPM Flowgate Competitive Paths MPM Flowgate Shadow Prices MPM Nomogram/Branch Competitive Paths MPM Nomogram/Branch Shadow Prices	HASP	PRC_MPM_RTM_FLOWGATE_CMP_HASP PRC_MPM_RTM_FLOWGATE_HASP PRC_MPM_NOMOGRAM_CMP_HASP PRC_MPM_NOMOGRAM_HASP
RTPD_MPM_SD_PRC_GRP	MPM Flowgate Competitive Paths MPM Flowgate Shadow Prices MPM Nomogram/Branch Competitive Paths MPM Nomogram/Branch Shadow Prices	RTPD	PRC_MPM_RTM_FLOWGATE_CMP_RTPD PRC_MPM_RTM_FLOWGATE_RTPD PRC_MPM_RTM_NOMOGRAM_CMP_RTPD PRC_MPM_RTM_NOMOGRAM_RTPD
PUB_CRR_BID_SEASONAL_GRP	Congestion Revenue Rights (CRR) Public Bids From the Annual Auction	SEASONAL	PUB_CRR_BID
PUB_CRR_BID_MONTHLY_GRP	Congestion Revenue Rights (CRR) Public Bids From the Monthly Auction	MONTHLY	PUB_CRR_BID
AGGR_OUTAGE_SCH_GRP	Aggregated Generation Outages data	N/A	AGGR_OUTAGE_SCH
PUB_CSP_OFFER_SET_ANNUAL_GRP	Competitive Solicitation Process Offer Set for annual offer period.	ANNUAL	PUB_CSP_OFFER_SET

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


PUB_CSP_OFFER_SET_MONTHLY_GRP	Competitive Solicitation Process Offer Set for monthly offer period.	MONTHLY	PUB_CSP_OFFER_SET
PUB_CSP_OFFER_SET_INTRAMONTHLY_GRP	Competitive Solicitation Process Offer Set for intramonthly offer period.	INTRAMONTHLY	PUB_CSP_OFFER_SET
RTM_LAP_GRP	Hourly Real Time Market LAP Marginal Cost of Congestion (MCC) for Apnode.	RTM	PRC_RTM_LAP ( Note: 5 files will be created LMP, MCC, MCE, MCL, MGHG for the trade date & will be cached for all nodes)
CRR_AGG_REV_ADJ_GRP	CRR Aggregated Revenue Adjustment data	NA	CRR_AGG_REV_ADJ ( Note: Hourly CRR values are aggregated over all CRR IDs will be cached)
ENE_RES_UPL_GRP	Resource-Specific Uplift	NA	ENE_RES_UPL ( Note: The entire month data will be cached.)
ENE_ZNL_UPL_GRP	Zonal Uplift Payment	NA	ENE_ZNL_UPL ( Note: The entire month data will be cached.)
ENE_OIC_GRP	Operator-Initiated Commitment	NA	ENE_OIC ( Note: The entire month data will be cached.)
ATL_RES_ADQ_NET_QUAL_CAP_GRP	Net Qualifying Capacities	NA	ATL_RES_ADQ_NET_QUAL_CAP

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


ATL_FNM_MAPPING_D ATA_GRP	Full Network Model Mapping Data	N/A	ATL_FNM_MAPPING_DAT A
DAM_HRLY_ENE_SHAP ING_FCTR_GRP	Hourly Energy Price Shaping Factor	DAM	PRC_HRLY_ENE_SHAPIN G_FCTR
RTM_HRLY_ENE_SHAP ING_FCTR_GRP	Hourly Energy Price Shaping Factor	RTM	PRC_HRLY_ENE_SHAPIN G_FCTR
DAM_ENE_SCH_BY_TIE _GRP	Energy Schedule By Tie	DAM	ENE_SCH_BY_TIE
RTD_ENE_SCH_BY_TIE _GRP	Energy Schedule By Tie	RTD	ENE_SCH_BY_TIE
RTPD_ENE_SCH_BY_TI E_GRP	Energy Schedule By Tie	RTPD	ENE_SCH_BY_TIE
RUC_ENE_SCH_BY_TIE _GRP	Energy Schedule By Tie	RUC	ENE_SCH_BY_TIE
RUC_ENE_SCH_REDU CTION_GRP	Schedule Reduction	RTM / RUC	ENE_SCH_REDUCTION
HASP_ENE_SCH_REDU CTION_GRP	Schedule Reduction	RTM / HASP	ENE_SCH_REDUCTION
RUC LOAD_ADJUSTMENT_G RP	Load Adjustment	RTM / RUC	LOAD_ADJUSTMENT

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

HASP_LOAD_ADJUSTMENT_GRP	Load Adjustment	RTM / HASP	LOAD_ADJUSTMENT
RTD_LOAD_ADJUSTMENT_GRP	Load Adjustment	RTM / RTD	LOAD_ADJUSTMENT
RTPD_LOAD_ADJUSTMENT_GRP	Load Adjustment	RTM / RTPD	LOAD_ADJUSTMENT
ENE_EIM_FLEX_RAMP_INPUT_GRP	Flex Ramp Requirements Inputs and Outputs	RTM	ENE_EIM_FLEX_RAMP_INPUT
WEIM_RSE_CAPACITY_TEST_GRP	WEIM RSE Capacity Test	RTM	WEIM_RSE_CAPACITY_TEST
RTD_FLEX_RAMP_TEST_RESULT_GROUP	Flexible Ramp Test Result Groups	RTM / RTD	FLEX_RAMP_TEST_RESULT_GROUP
RTPD_FLEX_RAMP_TEST_RESULT_GROUP	Flexible Ramp Test Result Groups	RTM / RTPD	FLEX_RAMP_TEST_RESULT_GROUP
RTD_FLEX_RAMP_NODAL_PRC_GRP	Flexible Ramping Nodal Prices	RTM / RTD	FLEX_RAMP_NODAL_PRC
RTPD_FLEX_RAMP_NODAL_PRC_GRP	Flexible Ramping Nodal Prices	RTM / RTPD	FLEX_RAMP_NODAL_PRC
RTD_FLEX_RAMP_SPTIE_NODAL_PRC_GRP	Flexible Ramping Scheduling Point/Tie Nodal Prices	RTM / RTD	FLEX_RAMP_SPTIE_NODAL_PRC


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

RTPD_FLEX_RAMP_SP TIE_NODAL_PRC_GRP	Flexible Ramping Scheduling Point/Tie Nodal Prices	RTM / RTPD	FLEX_RAMP_SPTIE_NOD AL_PRC
RTD_FLEX_RAMP_CNS TR_SHDW_PRC_GRP	Flexible Ramping Constraint Shadow Prices	RTM / RTD	FLEX_RAMP_CNSTR_SH DW_PRC
RTPD_FLEX_RAMP_CN STR_SHDW_PRC_GRP	Flexible Ramping Constraint Shadow Prices	RTM / RTPD	FLEX_RAMP_CNSTR_SH DW_PRC
RTD_FLEX_RAMP_SCH _CNSTR_SHDW_PRC_GRP	Flexible Ramping Scheduling Constraint Shadow Prices	RTM / RTD	FLEX_RAMP_SCH_CNST R_SHDW_PRC
RTPD_FLEX_RAMP_SC H_CNSTR_SHDW_PRC_GRP	Flexible Ramping Scheduling Constraint Shadow Prices	RTM / RTPD	FLEX_RAMP_SCH_CNST R_SHDW_PRC
RTD_FLEX_RAMP_FCS T_GRP	Flexible Ramping Forecasts	RTM / RTD	FLEX_RAMP_FCST
RTPD_FLEX_RAMP_FC ST_GRP	Flexible Ramping Forecasts	RTM / RTPD	FLEX_RAMP_FCST
RTD_FLEX_RAMP_REQ _INP_HSG_GRP	Flex Ramp Requirements Input Uncertain Histogram	RTM / RTD	FLEX_RAMP_REQ_INP_H SG
RTPD_FLEX_RAMP_RE Q_INP_HSG_GRP	Flex Ramp Requirements Input Uncertain Histogram	RTM / RTPD	FLEX_RAMP_REQ_INP_H SG
RTD_FLEX_RAMP_REQ _INP_POLYNOMIALS_GRP	Flex Ramp Requirement Input Polynomials	RTM / RTD	FLEX_RAMP_REQ_INP_P OLYNOMIALS

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

RTPD_FLEX_RAMP_REQ_INP_POLYNOMIALS_GRP	Flex Ramp Requirement Input Polynomials	RTM / RTPD	FLEX_RAMP_REQ_INP_POLYNOMIALS
RTD_FLEX_RAMP_REQ_THRESH_GRP	Flex Ramp Requirement Threshold	RTM / RTD	FLEX_RAMP_REQ_THRESH
RTPD_FLEX_RAMP_REQ_THRESH_GRP	Flex Ramp Requirement Threshold	RTM / RTPD	FLEX_RAMP_REQ_THRESH
RTD_ACC_SHDW_PRC_GRP	Aggregate Capability Constraint Shadow Prices	RTM / RTD	ACC_SHDW_PRC
RTPD_ACC_SHDW_PRC_GRP	Aggregate Capability Constraint Shadow Prices	RTM / RTPD	ACC_SHDW_PRC
DAM_ACC_SHDW_PRC_GRP	Aggregate Capability Constraint Shadow Prices	DAM	ACC_SHDW_PRC
RTD_ENE_FLEX_RAMP_DC_GRP	Flexible Ramp Surplus Demand Curve	RTM / RPD	ENE_FLEX_RAMP_DC
RTPD_ENE_FLEX_RAMP_DC_GRP	Flexible Ramp Surplus Demand Curve	RTM / RTPD	ENE_FLEX_RAMP_DC
MKT_BID_CAPS_GRP	Market Bid Caps Group	RTM	MKT_BID_CAPS
AVAIL_IMP_CAP_GRP	Available Import Capability Group	N/A	AVAIL_IMP_CAP



 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

ANNUAL_IMP_CAP_USED_RA_PLAN_GRP	Import Capability Used RA Plan Data Annual Group	N/A	IMP_CAP_USED_RA_PLANN
MONTHLY_IMP_CAP_USED_RA_PLAN_GRP	Import Capability Used RA Plan Data Monthly Group	N/A	IMP_CAP_USED_RA_PLANN

## **5 Acceptable Use Policy**

### **5.1 Rate Limit**

Please refer the below document for details.

<https://developer.caiso.com/Documents/Technical-Specification-Rate-Limits-and-AUP-Implementation-v3.0.pdf>

### **5.2 Acceptable Use Policy**

For OASIS, if the request count for a rate limiting key (see definition below) exceeds more than once in a 5 second period, the second (and subsequent) requests will get the HTTP-429 error code. The timer starts when the requests processed by the CAISO infrastructure and ends at the 5-second mark.


ATL\_PUB service is exempt from AUP enforcement.

#### **5.2.1 AUP Key**

For OASIS rate limit the enforcement will be at the http session layer. There is no authentication mechanism that is required to be protected so the protections can be done at a higher layer of the OSI model.

From the AUP perspective, a Rate Limiting key for OASIS is the combination of the following 4 elements derived from the HTTP header and from the input URL parameters

1. Client/Remote IP addresses
2. queryname or groupid query parameter value
3. Market Run ID (if not applicable for the report, it will not be used in the key)
4. Execution Type (if not applicable for the report, it will not be used in the key)

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013


### **5.2.2 Error Response**

HTTP status code = 429

Error Response = Too Many Requests

or

Error Response = Too Many within a 5 second window.


 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

## 56 Fault Return Codes


This section describes the fault codes that are returned for any service requests that does not pass all the validation rules.

The XML API will throw errors based on the situation and those are described below. In the XML file, if there is any error comes because of different reasons will be thrown with both error code and error description. The Users will know the valid reason for failure. The error codes and descriptions are described below.

Fault Code	Fault Description	Fault Details
1000	No data returned for the specified selection.	No data found for the provided parameters.
1001	Invalid Parameters of the given report name.	Input Parameters are not valid.
1002	Invalid datetime format, please use valid datetime format.	Not valid date time format.
1003	Timed out waiting for query response.	Query response timed out in getting the data.
1004	Data can be requested for period of 31 days only.	Data can be requested for period of 31 days only.
1005	Report name does not exist, please use valid report name.	Requested report name does not exist in the system.
1006	Validation exception during transformation of XML.	Exception occurred when transforming XML.
1007	Required file for does not exist.	Required file does not exist.
1008	Out of memory exception.	System failed due to high memory usage issue.
1009	Exceptions in reading and writing of XML files.	Exceptions occurred in reading and writing of XML files.
1010	System Error.	System Error due to exceptional reason.
1011	Empty Query; Please Enter Report Name, Startdate, EndDate and Other Parameters.	Not all required parameters provided in the request.

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

1012	Connection refused.	Connection has been refused for the requested URL.
1013	Required Resources (xslt or xml or dir) Unavailable.	Required Resources (xslt or xml or dir) Unavailable.
1014	Start Date is beyond the limit, Please Use valid Start Date that falls within the prescribed limit.	Start Date is beyond the limit, Please Use valid Start Date that falls within the prescribed limit.
1015	GroupZip DownLoad is in Processing, Please Submit request after Sometime	GroupZip DownLoad is in Processing, Please Submit request after Sometime
1016	GROUPID Does Not Exist, Please Use Valid GROUPID Name	GROUPID Does Not Exist, Please Use Valid GROUPID Name
1017	Please select a maximum of 10 nodes or use the ALL option	Please select a maximum of 10 nodes or use the ALL option
1018	Invalid Selection, cannot select multiple hours for this query	Invalid Selection, cannot select multiple hours for this query
1019	market_term=ALL not supported for this query	market_term=ALL not supported for this query
1020	Version parameter is missing or is invalid	Version parameter is missing or is invalid
1021	market_run_id=ALL not supported for this query	market_run_id=ALL not supported for this query
1022	Data can be requested for period of 1 day only	Data can be requested for period of 1 day only
1023	Data can be requested for maximum of 366 days	Data can be requested for maximum of 366 days
1024	BAA Group parameter is missing or is invalid	BAA Group parameter is missing or is invalid
1025	Mapping Type parameter is missing or is invalid	Mapping Type parameter is missing or is invalid
1026	FNM Version parameter is missing or is invalid	FNM Version parameter is missing or is invalid

 California ISO	Technical Specification	Template Version:	1.5
		Document Version:	7.4. <u>10</u>
OASIS Technical Specification		Date Created (4.0.0):	9/23/2013

---