

SLIC Web Service API Guide

Version: 4.4.2

December 17, 2012

Revision History

Date	Version	Description	Author
2002	1.0	Initial release of this document	Shawn Rogan
October 2003	2.0	Revised to include support ISO MD02	Shawn Rogan
February 2007	3.0	Updated to include new RTAM and System Notification API Calls Title changed from "SLIC Web Service"	Cas Mundy
December 2009	4.0	Updated to include changes to support for Multi Stage Generation providers.	Jeremy Leng
March 4, 2010	4.1	Modified to reflect recent design decisions	Jeremy Leng
May 20, 2010	4.2	Modified to reflect recent design decisions	Jeremy Leng
Aug 20, 2010	4.3	Modified to reflect recent design decisions	Jeremy Leng
July 23, 2012	4.4	Updated to include changes to support for NGR resource outages	Arul Jayaraman
September 28, 2012	4.4.1	Updated section 7.Appendix to include ngr_out_of_service element to SLICDataTypes	Arul Jayaraman
December 17, 2012	4.4.2	Added list of currently supported SLIC API versions to section 1.3	Yinka Ajede

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1 Introduction

1.1 Purpose

This document describes the Market Participant interface to CAISO's Scheduling & Logging for ISO of California. It provides the WSDL, XSD, and XML information required by application programmers to make RPC style web service calls to the system.

1.2 Contact Information

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

1.3 Release Notes for Version 4.4 SLIC API Guide.

This release of the API guide includes changes to support the NGR project requirements

Changes include:

- The OutageCard data type has been extended to include ngr_pmax, ngr_pmin ngr_el_max and ngr_el_min input values.e
- The PResource data type has been extended to include ngr_pmax, ngr_pmin ngr_el_max and ngr_el_min data elements.

SLIC API versions currently supported by the ISO are described in the table below:

Technical API Guide	API Version Web Services Description Language (WSDLs)	Highlights	Effective Date
SLIC Web Service API Guide V4.4.2	OutageRequestWebService_v4.wsdl OutageWebService_v4.wsdl AvailabilityWebService_v4.wsdl RTAMWebService_v3.wsdl SystemNotificationWebService_v1.wsdl	Addition of new outage type to support Non Generating Resources (NGRs)	Fall 2012
SLIC Web Service API Guide V4.0	OutageRequestWebService_v3.wsdl OutageWebService_v3.wsdl AvailabilityWebService_v3.wsdl RTAMWebService_v2.wsdl SystemNotificationWebService_v1.wsdl	Update of existing outage types to support Multi Stage Generator (MSG) resources	2009
SLIC Web Service API Guide V3.0	OutageRequestWebService_v2.wsdl OutageWebService_v2.wsdl AvailabilityWebService_v2.wsdl RTAMWebService_v1.wsdl SystemNotificationWebService_v1.wsdl	Updated to include new RTAM and system notifications	2009

SLIC Web Service API Guide V2.0	OutageRequestWebService_v2.wsdl OutageWebService_v2.wsdl AvailabilityWebService_v2.wsdl	MRTU enhancements	2009
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The SLIC Web Service API Guide V1.0 as well as associated WSDLs effective in 2002 will no longer be supported.

1.4 Namespace Matrix

SLIC Data Types	https://slic.caiso.com/schemas/slic/v6
Base Data Types	https://slic.caiso.com/schemas/base/v3
Availability Web Service	http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0
Outage Retrieval Web Service	http://www.caiso.com/webservices/slic/OutageWebService/4.0
Outage Request Web Service	http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0
RTAM Web Service	http://www.caiso.com/webservices/slic/RTAMWebService/3.0
System Notice Web Service	http://www.caiso.com/webservices/slic/SystemNotificationWebService/1.0

1.5 Related Documents

NA

Availability Web Services

1.6 Business Scenario

Outage coordinators can retrieve generator availability information for affiliated generators. Generator availability information includes reported (stated) values as well as values that were known to the system in real-time.

Additionally, outage coordinators can retrieve availability data requirements for proposed equipment outage submissions and validate availability data prior to submission.

1.7 Service Level Agreement

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

Service availability	Service level goal is 99.9%.
Expected size of payload (average and maximum)	Variable (1KB to 1MB+)
Expected frequency (average and maximum)	On demand (50/day – 200/day).
Longest time the service can be unavailable before business is impacted	30 minutes
Business impact if is unavailable	External outage coordinators will need to use an alternate means to submit outage data (SLIC Web Client, phone call to the CA ISO)
Expected response time for the service	Variable (.1 sec – 30 sec)
Expected time to exchange	On demand

1.8 Use Model

Not available.

1.9 Operation Details

The following operations are all part of the Availability Web Service and are defined in the WDSL availabilitywebservice_v3.wsdl listed in section 2.5

1.9.1 Exception Handling

All Availability web service operations on exception produce an AvailabilityWebServiceException fault.

Fault name	Fault Parts	Fault part data type	Fault part description
AvailabilityWebServiceException	code	int	Unique fault code ID
	message	string	Description of fault>
	point_dts	string	Point in time when generator availability changes

1.9.2 getActualAvailability

Returns the resource MW availability that SLIC used at the time specified.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getActualAvailability	<i>getActualAvailabilityRequest</i>	Input	string	res_id	Resource ID
		Input	dateTime	dts	Date of inquiry
	<i>getActualAvailabilityResponse</i>	Output	double	return	resource MW availability that SLIC used at the time specified
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

1.9.3 getAvailabilityActuals

Returns actual (real-time) resource availability data for a specified time period.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getAvailabilityActuals	<i>getAvailabilityActualsRequest</i>	Input	string	res_id	Resource ID
		Input	dateTime	start_dts	Starting date/time for the time frame of interest
		Input	dateTime	end_dts	Ending date/time for the time frame of interest
	<i>getAvailabilityActualsResponse</i>	Output	<i>ArrayOf_Avai</i>	<i>ArrayOf_Avai</i>	array of availability

			<i>lablityActual</i>	<i>lablityActual</i>	actual values found for the resource in the time frame
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

1.9.4 getAvailabilityPoints

Retrieves all resource availability points for a specified time period.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getAvailabilityPoints	<i>getAvailabilityPointsRequest</i>	Input	string	res_id	Resource ID
		Input	dateTime	start_dts	Starting date/time for the time frame of interest
		Input	dateTime	end_dts	Ending date/time for the time frame of interest
	<i>getAvailabilityPointsResponse</i>	Output	<i>ArrayOf_AvailabiltyPoin</i>	<i>ArrayOf_AvailabiltyPoin</i>	array of availability point values found for the resource in the time frame
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

1.9.5 getRequiredAvailabilityPoints

Loads and returns resource availability points that must be set for the specified time period. This is used to determine required input data

Operation	Message name	type	Parameter data type	Parameter Name	Description
getRequiredAvailability Points	<i>getRequiredAvailabilityPointsR equest</i>	Input	Int	mode	Type of call that will be issued (see WSDL)
		Input	string	res_id	Resource ID
		Input	dateTime	start_dts1	Original (current) Start Date/Time of the Outage to be rescheduled

		Input	dateTime	end_dts1	Original (current) End Date/Time of the Outage to be rescheduled.
		Input	dateTime	start_dts2	Proposed Start Date/Time of the Outage to be rescheduled.
		Input	dateTime	end_dts2	Proposed End Date/Time of the Outage to be rescheduled
		Input	int	outage_id	ISO SLIC Outage ID
	<i>getRequiredAvailabilityPointsResponse</i>	Output	<i>ArrayOf_AvailabilityPoint</i>	<i>ArrayOf_AvailabilityPoint</i>	Availability point values that must be set for the supplied input values
<i>AvailabilityWebServiceException</i>	Fault			Exception error message	

1.9.6 getStatedAvailability

Returns the raw resource MW availability that was submitted by the schedule coordinator. Business or auditing rules may cause a difference between stated and actual availability.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getStatedAvailability	<i>getStatedAvailabilityRequest</i>	Input	string	res_id	Resource ID
		Input	dateTime	dts	Date of inquiry
	<i>getStatedAvailabilityResponse</i>	Output	double	return	stated availability, in MW, for the resource and date in question
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

1.9.7 LoadAvailabilityPoint

Loads resource availability MW and concurrent Outage details using a unique key.

Operation	Message name	type	Parameter data type	Parameter Name	Description
LoadAvailabilityPoint	<i>loadAvailabilityPointRequest</i>	Input	Int	point_key	The artificial key for the availability point in question as stored within the SLIC database
	<i>loadAvailabilityPointResponse</i>	Output	<i>AvailabilityPoint</i>	return	The availability point value corresponding to the supplied point key
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

1.9.8 validateAvailabilityPoints

Validates a supplied set of resource availability points that will be used as input data

Operation	Message name	type	Parameter data type	Parameter Name	Description
validateAvailabilityPoints	<i>validateAvailabilityPointsRequest</i>	Input	Int	mode	Type of call that will be issued (see WSDL)
		Input	Int	error_level	Bit flag indicating which warnings should be ignored
		Input	String	<i>res_id</i>	ID of the resource of interest.
		Input	<i>ArrayOf_AvailabilityPointValue</i>	<i>point_values</i>	The availability point values to validate.
		Input	<i>dateTime</i>	<i>start_dts1</i>	Original (current) Start Date/Time of the Outage to be rescheduled
		Input	<i>dateTime</i>	<i>end_dts1</i>	Original (current) End Date/Time of the Outage to be rescheduled
		Input	<i>dateTime</i>	<i>start_dts2</i>	Proposed Start Date/Time of the Outage to be rescheduled
		Input	<i>dateTime</i>	<i>end_dts2</i>	Proposed End Date/Time of the Outage to be rescheduled
		Input	Int	<i>outage_id</i>	ISO SLIC Outage ID
		<i>validateAvailabilityPointsResponse</i>	Output	boolean	<i>return</i>
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

1.10 WSDL

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:bns="https://slic.caiso.com/schemas/base/v3"
  xmlns:sns="https://slic.caiso.com/schemas/slic/v6"
  xmlns:tns="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
  targetNamespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wsdl:import
    location="SLICDataTypes_v6.xsd"
    namespace="https://slic.caiso.com/schemas/slic/v6"/>
  <wsdl:import
    location="BaseDataTypes_v3.xsd"
    namespace="https://slic.caiso.com/schemas/base/v3"/>
  <wsdl:message name="AvailabilityWebServiceException">
    <wsdl:part name="exception_content" type="sns:AvailabilityWebServiceException"/>
  </wsdl:message>
  <wsdl:message name="getActualAvailabilityRequest">
    <wsdl:part name="res_id" type="xsd:string"/>
    <wsdl:part name="dts" type="xsd:dateTime"/>
  </wsdl:message>
  <wsdl:message name="getActualAvailabilityResponse">
    <wsdl:part name="return" type="xsd:double"/>
  </wsdl:message>
  <wsdl:message name="getStatedAvailabilityRequest">
    <wsdl:part name="res_id" type="xsd:string"/>
    <wsdl:part name="dts" type="xsd:dateTime"/>
  </wsdl:message>
  <wsdl:message name="getStatedAvailabilityResponse">
    <wsdl:part name="return" type="xsd:double"/>
  </wsdl:message>
  <wsdl:message name="loadAvailabilityPointRequest">
    <wsdl:part name="point_key" type="xsd:int"/>
  </wsdl:message>
  <wsdl:message name="loadAvailabilityPointResponse">
    <wsdl:part name="return" type="sns:AvailabilityPoint"/>
  </wsdl:message>
  <wsdl:message name="getRequiredAvailabilityPointsRequest">
    <wsdl:part name="mode" type="xsd:int"/>
```

```
<wsdl:part name="res_id" type="xsd:string"/>
<wsdl:part name="start_dts1" type="xsd:dateTime"/>
<wsdl:part name="end_dts1" type="xsd:dateTime"/>
<wsdl:part name="start_dts2" type="xsd:dateTime"/>
<wsdl:part name="end_dts2" type="xsd:dateTime"/>
<wsdl:part name="outage_id" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="getRequiredAvailabilityPointsResponse">
  <wsdl:part name="return" type="sns:ArrayOf_AvailabilityPoint"/>
</wsdl:message>
<wsdl:message name="getAvailabilityPointsRequest">
  <wsdl:part name="res_id" type="xsd:string"/>
  <wsdl:part name="start_dts" type="xsd:dateTime"/>
  <wsdl:part name="end_dts" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="getAvailabilityPointsResponse">
  <wsdl:part name="return" type="sns:ArrayOf_AvailabilityPoint"/>
</wsdl:message>
<wsdl:message name="getAvailabilityActualsRequest">
  <wsdl:part name="res_id" type="xsd:string"/>
  <wsdl:part name="start_dts" type="xsd:dateTime"/>
  <wsdl:part name="end_dts" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="getAvailabilityActualsResponse">
  <wsdl:part name="return" type="sns:ArrayOf_AvailabilityActual"/>
</wsdl:message>
<wsdl:message name="validateAvailabilityPointsRequest">
  <wsdl:part name="mode" type="xsd:int"/>
  <wsdl:part name="error_level" type="xsd:int"/>
  <wsdl:part name="res_id" type="xsd:string"/>
  <wsdl:part name="point_values" type="sns:ArrayOf_AvailabilityPointValue"/>
  <wsdl:part name="start_dts1" type="xsd:dateTime"/>
  <wsdl:part name="end_dts1" type="xsd:dateTime"/>
  <wsdl:part name="start_dts2" type="xsd:dateTime"/>
  <wsdl:part name="end_dts2" type="xsd:dateTime"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="validateAvailabilityPointsResponse">
  <wsdl:part name="return" type="xsd:boolean"/>
</wsdl:message>
<wsdl:portType name="AvailabilityWebService">
  <wsdl:operation
    name="getActualAvailability"
```

```

        parameterOrder="res_id dts">
        <wsdl:input message="tns:getActualAvailabilityRequest" />
        <wsdl:output message="tns:getActualAvailabilityResponse" />
        <wsdl:fault
            message="tns:AvailabilityWebServiceException"
            name="AvailabilityWebServiceException" />
    </wsdl:operation>
    <wsdl:operation
        name="getStatedAvailability"
        parameterOrder="res_id dts">
        <wsdl:input message="tns:getStatedAvailabilityRequest" />
        <wsdl:output message="tns:getStatedAvailabilityResponse" />
        <wsdl:fault
            message="tns:AvailabilityWebServiceException"
            name="AvailabilityWebServiceException" />
    </wsdl:operation>
    <wsdl:operation
        name="loadAvailabilityPoint"
        parameterOrder="point_key">
        <wsdl:input message="tns:loadAvailabilityPointRequest" />
        <wsdl:output message="tns:loadAvailabilityPointResponse" />
        <wsdl:fault
            message="tns:AvailabilityWebServiceException"
            name="AvailabilityWebServiceException" />
    </wsdl:operation>
    <wsdl:operation
        name="getRequiredAvailabilityPoints"
        parameterOrder="mode res_id start_dts1 end_dts1 start_dts2 end_dts2
outage_id">
        <wsdl:input message="tns:getRequiredAvailabilityPointsRequest" />
        <wsdl:output message="tns:getRequiredAvailabilityPointsResponse" />
        <wsdl:fault
            message="tns:AvailabilityWebServiceException"
            name="AvailabilityWebServiceException" />
    </wsdl:operation>
    <wsdl:operation
        name="getAvailabilityPoints"
        parameterOrder="res_id start_dts end_dts">
        <wsdl:input message="tns:getAvailabilityPointsRequest" />
        <wsdl:output message="tns:getAvailabilityPointsResponse" />
        <wsdl:fault
            message="tns:AvailabilityWebServiceException"
            name="AvailabilityWebServiceException" />
    </wsdl:operation>

```



```

<wsdl:operation
  name="getAvailabilityActuals"
  parameterOrder="res_id start_dts end_dts">
  <wsdl:input message="tns:getAvailabilityActualsRequest"/>
  <wsdl:output message="tns:getAvailabilityActualsResponse"/>
  <wsdl:fault
    message="tns:AvailabilityWebServiceException"
    name="AvailabilityWebServiceException"/>
</wsdl:operation>
<wsdl:operation
  name="validateAvailabilityPoints"
  parameterOrder="mode error_level res_id point_values start_dts1 end_dts1
start_dts2 end_dts2 outage_id">
  <wsdl:input message="tns:validateAvailabilityPointsRequest"/>
  <wsdl:output message="tns:validateAvailabilityPointsResponse"/>
  <wsdl:fault
    message="tns:AvailabilityWebServiceException"
    name="AvailabilityWebServiceException"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="AvailabilityWebServiceSoapBinding"
type="tns:AvailabilityWebService">
  <wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="getActualAvailability">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded"/>
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded"/>
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded"/>
    </wsdl:fault>
  </wsdl:operation>

```

```

    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="getStatedAvailability">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded" />
    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="loadAvailabilityPoint">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"

```

```
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="getRequiredAvailabilityPoints">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="getAvailabilityPoints">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
```

```
<wsdlsoap:fault
  encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
  use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="getAvailabilityActuals">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
      use="encoded" />
    </wsdl:output>
  <wsdl:fault name="AvailabilityWebServiceException">
    <wsdlsoap:fault
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
      use="encoded" />
    </wsdl:fault>
  </wsdl:operation>
<wsdl:operation name="validateAvailabilityPoints">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
      use="encoded" />
    </wsdl:output>
  </wsdl:operation>
</wsdl:operation>
```

```
</wsdl:output>
<wsdl:fault name="AvailabilityWebServiceException">
  <wsdlsoap:fault
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    namespace="http://www.caiso.com/webservices/slic/AvailabilityWebService/4.0"
    use="encoded" />
  </wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="AvailabilityWebService">
  <wsdl:port binding="tns:AvailabilityWebServiceSoapBinding"
    name="AvailabilityWebService">
    <wsdlsoap:address location="https://slicqa.caiso.com/soaprpcrouter"/>
  </wsdl:port>
</wsdl:service>
</wsdl:definitions>
```

1.11 Fault Return

The fault return message is the same for all services; see Section 2.9 for details.

2 Outage Web Services

2.1 Business Scenario

Outage Coordinators can retrieve outage information that has been previously submitted to the CA ISO. Outages may be retrieved by unique identifier or searched by various criteria.

Additionally, outage and equipment characteristic information, such as Ramp Rate Segments and, Planned/Forcedtimepline indicator can be retrieved.

2.2 Service Level Agreement

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

Service availability	<i>Service level goal is 99.9%.</i>
Expected size of payload (average and maximum)	<i>Less than 1 KB.</i>
Expected frequency (average and maximum)	<i>The only action is to cancel bids. Expect this to be infrequent.</i>
Longest time the service can be unavailable before business is impacted	<i>[to be determined]</i>
Business impact if is unavailable	<i>Schedule Coordinators utilizing the service may not cancel a bid.</i>
Expected response time for the service	<i>[to be determined]</i>
Expected time to exchange	<i>[to be determined]</i>

2.3 Use Model

Not available

2.4 Operation Details

2.4.1 Exception Handling

All Outage web service operations on exception produce an OutageWebServiceException fault.

Fault name	Fault Parts	Fault part data type	Fault part description
AvailabilityWebServiceException	code	int	SLIC error code
	message	string	Text error message

2.4.2 downloadOutageSearchXML

Used to page through Outage requests. Differs from the **downloadOutageSearchXML2** operation only by object type of the parameters.

Operation	Message name	type	Parameter data type	Parameter Name	Description
downloadOutageSearchXML	<i>downloadOutageSearchXMLRequest</i>	Input	Int	<i>res_id</i>	Resource to return. Null will return all.
		Input	int	<i>res_type_key</i>	Resource types to return. 0 will return all.
		Input	String	<i>status_cd</i>	Outage states to return. Null will return all.
		Input	Int	<i>type</i>	Outage type to return. 0 will return all.
		Input	Int	<i>date_mode</i>	Date mode to enforce (RECEIVED, UPDATED, OUT) 0 will ignore dates.
		Input	dateTime	<i>start_date</i>	Date to begin querying.
		Input	dateTime	<i>End_date</i>	Date to end querying.
		<i>downloadOutageSearchXMLResponse</i>	Output	String	<i>return</i>

	<i>OutageWebServiceException</i>	Fault			Exception error message
--	----------------------------------	-------	--	--	-------------------------

2.4.3 downloadOutageSearchXML2

Used to page through Outage requests. Differs from the operation only by the object type of the parameters.

Operation	Message name	type	Parameter data type	Parameter Name	Description
downloadOutageSearchXML2	<i>downloadOutageSearchXMLRequest</i>	Input	ArrayOf_Int	Outage_mode_key	
		Input	Int	res_id	Resource to return Null will return all.
		Input	int	res_type_key	Resource types to return 0 will return all.
		Input	String	status_cd	Outage states to return. Null will return all.
		Input	Int	type	Outage type to return 0 will return all.
		Input	Int	date_mode	Date mode to enforce (RECEIVED, UPDATED, OUT) 0 will ignore dates.
		Input	dateTime	start_date	Date to begin querying.
		Input	dateTime	end_date	Date to end querying
		<i>downloadOutageSearchXMLResponse</i>	Output	String	return
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.4 getOutageTimelineIndicator

Calls the timeline indicator API with a date to determine an Outage classification (PLANNED, FORCED, or FORCED/IMMEDIATE) at the time of submission.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getOutageTimelineIndicator	<i>getOutageTimelineIndicatorRequest</i>	Input	Int	<i>outage_mode_key</i>	Type of Outage (DERATE, RERATE, etc.)
		Input	<i>dateTime</i>	<i>outage_start_dts</i>	Proposed start date of the Outage which will be created. all.
	<i>getOutageTimelineIndicatorResponse</i>	Output	int	return	The timeline indicator value for the supplied mode and date (PLANNED, FORCED, etc).
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.5 isForced

Determines if the FORCED Outage timeline is valid for the specified Outage type and start date.

Operation	Message name	type	Parameter data type	Parameter Name	Description
isForced	<i>isForcedRequest</i>	Input	Int	<i>outage_mode_key</i>	Type of Outage (DERATE, RERATE, etc.)
		Input	<i>dateTime</i>	<i>outage_start_dts</i>	Proposed start date of the Outage which will be created. all.
	<i>isForcedResponse</i>	Output	boolean	return	True if the Outage mode and date would be within the FORCED timeframe
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.6 isForcedImmediate

Determines if the FORCED/IMMEDIATE Outage timeline is valid for the specified Outage type and start date.

Operation	Message name	type	Parameter data type	Parameter Name	Description
isForcedImmediate	<i>isForcedImmediateRequest</i>	Input	Int	<i>outage_mode_key</i>	Type of Outage (DERATE, RERATE, etc.)

		Input	<i>dateTime</i>	<i>outage_start_dts</i>	Proposed start date of the Outage which will be created. all.
	<i>isForcedImmediateResponse</i>	Output	boolean	return	True if the Outage mode and date would be within the FORCED/IMMEDIATE timeframe
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.7 isPlanned

Determines if the PLANNED Outage timeline is valid for the specified Outage type and start date.

Operation	Message name	type	Parameter data type	Parameter Name	Description
isPlanned	<i>isPlannedRequest</i>	Input	Int	<i>outage_mode_key</i>	Type of Outage (DERATE, RERATE, etc.)
		Input	<i>dateTime</i>	<i>outage_start_dts</i>	Proposed start date of the Outage which will be created.
	<i>isPlannedResponse</i>	Output	boolean	return	True if the Outage mode and date would be within the PLANNED timeframe
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.8 loadByID

Used to load an Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Description
loadByID	<i>loadByIDRequest</i>	Input	Int	<i>outage_id</i>	ISO SLIC Outage ID
	<i>loadByIDResponse</i>	Output	<i>OutageCard</i>	return	Data structure containing Outage details.
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.9 loadByReferenceID

Used to load an Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Description
loadByReferenceID	<i>loadByReferenceIDRequest</i>	Input	String	<i>ref_id</i>	Outage ID supplied by the external entity
	<i>loadByReferenceIDResponse</i>	Output	<i>OutageCard</i>	return	Data structure containing Outage details.
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.10 loadRampRateSegments

Used to load ramp rate segment data.

Operation	Message name	type	Parameter data type	Parameter Name	Description
loadRampRateSegments	<i>loadRampRateSegmentsRequest</i>	Input	String	<i>res_id</i>	Resource ID supplied by the external entity
		Input	<i>dateTime</i>	<i>outage_start_dts</i>	Outage start date/time.
	<i>loadRampRateSegmentsResponse</i>	Output	<i>ArrayOf_PRampRateSegment</i>	return	Array of data structures containing ramp rate data.
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.11 searchByCriteria

Used to page through Outage requests. Differs from the **searchByCriteria2** operation only by object type of the parameters.

Operation	Message name	type	Parameter data type	Parameter Name	Description
searchByCriteria	<i>searchByCriteriaRequest</i>	Input	Int	<i>page_index</i>	Browse page index.
		Input	<i>String</i>	<i>res_id</i>	Resources to return Null will return all.
		Input	<i>Int</i>	<i>res_type_key</i>	Resource types to return 0 will return all.
		Input	<i>String</i>	<i>status_cd</i>	Outage states to return. Null will return all

		Input	<i>int</i>	type	Outage type to return 0 will return all.
		Input	<i>int</i>	date_mode	Date mode to enforce (RECEIVED, UPDATED, OUT) 0 will ignore dates
		Input	<i>dateTime</i>	start_date	Date to begin querying.
		Input	<i>dateTime</i>	end_date	Date to end querying
	<i>searchByCriteriaResponse</i>	Output	<i>OutageSearch ResultPage</i>	return	Results page that includes an array of matching Outages.
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.12 searchByCriteria2

Used to page through Outage requests. Differs from the **searchByCriteria** operation only by the object type of the parameters.

Operation	Message name	type	Parameter data type	Parameter Name	Description
searchByCriteria2	<i>searchByCriteria2Request</i>	Input	Int	<i>page_index</i>	Browse page index.
		Input	ArrayOf_Int	<i>outage_mode_key</i>	Outage modes to be included in results
		Input	<i>ArrayOf_String</i>	<i>res_id</i>	Resources to return Null will return all.
		Input	<i>ArrayOf_Int</i>	res_type_key	Resource types to return 0 will return all.
		Input	<i>ArrayOf_String</i>	status_cd	Outage states to return. Null will return all
		Input	<i>ArrayOf_Int</i>	type	Outage type to return 0 will return all.
		Input	<i>int</i>	date_mode	Date mode to enforce (RECEIVED, UPDATED, OUT) 0 will ignore dates
		Input	<i>dateTime</i>	start_date	Date to begin querying.

		Input	<i>dateTime</i>	<i>end_date</i>	Date to end querying
	<i>searchByCriteria2Response</i>	Output	<i>OutageSearchResultPage</i>	<i>return</i>	Results page that includes an array of matching Outages.
	<i>OutageWebServiceException</i>	Fault			Exception error message

2.4.13 getLastUpdateTime

Retrieves the Date/Time that an Outage(s) was most recently updated

Operation	Message name	type	Parameter data type	Parameter Name	Description
getLastUpdateTime	<i>getLastUpdateTimeRequest</i>	Input	<i>ArrayOf_int</i>	<i>outage_ids</i>	Browse page index
	<i>getLastUpdateTimeResponse</i>	Output	<i>ArrayOf_NamedValueID</i>	<i>return</i>	Returns the Outage ID (ID), BA Reference ID (Name) and Outage Update Date/Time (Value) for the specified Outages
	<i>OutageWebServiceException</i>	Fault			Exception error message

WSDL

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:bns="https://slic.caiso.com/schemas/base/v3"
  xmlns:sns="https://slic.caiso.com/schemas/slic/v6"
  xmlns:tns="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
  targetNamespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
  xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wSDLsoap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wSDL:import
    location="SLICDataTypes_v6.xsd"
    namespace="https://slic.caiso.com/schemas/slic/v6" />
  <wSDL:import
    location="BaseDataTypes_v3.xsd"
```

```

    namespace="https://slic.caiso.com/schemas/base/v3" />
<wsdl:message name="OutageWebServiceException">
    <wsdl:part name="exception_content" type="sns:OutageWebServiceException"/>
</wsdl:message>
<wsdl:message name="downloadOutageSearchXMLResponse">
    <wsdl:part name="return" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="searchByCriteriaResponse">
    <wsdl:part name="return" type="sns:OutageSearchResultPage"/>
</wsdl:message>
<wsdl:message name="loadByReferenceIDResponse">
    <wsdl:part name="return" type="sns:OutageCard"/>
</wsdl:message>
<wsdl:message name="loadByReferenceIDRequest">
    <!--
        Reference ID (BA outage ID) assigned to the outage by the external user.
    -->
    <wsdl:part name="ref_id" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="loadRampRateSegmentsResponse">
    <wsdl:part name="return" type="sns:ArrayOf_PRampRateSegment"/>
</wsdl:message>
<wsdl:message name="loadRampRateSegmentsRequest">
    <!--
        Resource ID.
    -->
    <wsdl:part name="res_id" type="xsd:string"/>
    <wsdl:part name="outage_start_dts" type="xsd:dateTime"/>
</wsdl:message>

<wsdl:message name="searchByCriteriaRequest">
    <!--
        Index of page if result set matching criteria.
    -->
    <wsdl:part name="page_index" type="xsd:int"/>
    <wsdl:part name="res_id" type="xsd:string"/>
    <!--
        Resource type of outage.
        Current types:
        8 - Line
        2 - Generator
        9 - Station
        3 - Intertie
    -->

```

```
        6 - Sync Condenser
        36 - NGR
-->
<wsdl:part name="res_type_key" type="xsd:int"/>
<!--
        Current status codes:
        SCHEDULED
        PENDING
        APPROVED
        OUTOK
        OUT
        INOK
        INSERVICE
        ETOTIMEOUT - Estimated start time past due.
        ETRTIMEOUT - Estimated end time past due.
        CANCELLED
        DISAPPROVED
        POSTPONED
        APVTIMEOUT - Approval past due.
        REQUESTED
        WITHDRAWN
-->
<wsdl:part name="status_cd" type="xsd:string"/>
<!--
        Current types:
        1 - Planned
        2 - Forced
        3 - Ambient
        4 - NORMAL
-->
<wsdl:part name="type" type="xsd:int"/>
<!--
        Current modes:
        0 - By outage dates
        1 - By received date
        2 - By update date
-->
<wsdl:part name="date_mode" type="xsd:int"/>
<wsdl:part name="start_date" type="xsd:dateTime"/>
<wsdl:part name="end_date" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="searchByCriteria2Request">
<!--
```

```
        Index of page if result set matching criteria.
-->
<wsdl:part name="page_index" type="xsd:int"/>
<wsdl:part name="outage_mode_key" type="bns:ArrayOf_Int"/>
<!--
        modes of outage.
        Current modes:
        1 - Derate
        2 - Rerate
        3 - Ramp Rates
-->
<wsdl:part name="res_id" type="bns:ArrayOf_String"/>
<!--
        Resource type of outage.
        Current types:
        8 - Line
        2 - Generator
        9 - Station
        3 - Intertie
        6 - Sync Cindenser
-->
<wsdl:part name="res_type_key" type="bns:ArrayOf_Int"/>
<!--
        Current status codes:
        SCHEDULED
        PENDING
        APPROVED
        OUTOK
        OUT
        INOK
        INSERVICE
        ETOTIMEOUT - Estimated start time past due.
        ETRTIMEOUT - Estimated end time past due.
        CANCELED
        DISAPPROVED
        POSTPONED
        APVTIMEOUT - Approval past due.
        REQUESTED
        WITHDRAWN
-->
<wsdl:part name="status_cd" type="bns:ArrayOf_String"/>
<!--
        Current types:
```



```

        1 - Planned
        2 - Forced
        3 - Ambient
        4 - NORMAL
    -->
<wsdl:part name="type" type="bns:ArrayOf_Int" />
<!--
    Current modes:
    0 - By outage dates
    1 - By received date
    2 - By update date
-->
<wsdl:part name="date_mode" type="xsd:int" />
<wsdl:part name="start_date" type="xsd:dateTime" />
<wsdl:part name="end_date" type="xsd:dateTime" />
</wsdl:message>
<wsdl:message name="loadByIDResponse">
    <wsdl:part name="return" type="sns:OutageCard" />
</wsdl:message>
<wsdl:message name="loadByIDRequest">
    <wsdl:part name="outage_id" type="xsd:int" />
</wsdl:message>
<wsdl:message name="isForcedRequest">
    <wsdl:part name="outage_mode_key" type="xsd:int" />
<!--
    outage mode.
    Current modes:
    1 - DERATE
    2 - RERATE
    3 - RAMP RATE
    4 - MOW
-->
<wsdl:part name="outage_start_dts" type="xsd:dateTime" />
</wsdl:message>
<wsdl:message name="isForcedResponse">
    <wsdl:part name="return" type="xsd:boolean" />
</wsdl:message>
<wsdl:message name="isForcedImmediateRequest">
    <wsdl:part name="outage_mode_key" type="xsd:int" />
<!--
    outage mode.
    Current modes:
    1 - DERATE

```

```

                2 - RERATE
                3 - RAMP RATE
                4 - MOW
        -->
        <wsdl:part name="outage_start_dts" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="isForcedImmediateResponse">
    <wsdl:part name="return" type="xsd:boolean"/>
</wsdl:message>
<wsdl:message name="isPlannedRequest">
    <wsdl:part name="outage_mode_key" type="xsd:int"/>
    <!--
        outage mode.
        Current modes:
        1 - DERATE
        2 - RERATE
        3 - RAMP RATE
        4 - MOW
    -->
    <wsdl:part name="outage_start_dts" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="isPlannedResponse">
    <wsdl:part name="return" type="xsd:boolean"/>
</wsdl:message>
<wsdl:message name="getOutageTimelineIndicatorRequest">
    <wsdl:part name="outage_mode_key" type="xsd:int"/>
    <!--
        outage mode.
        Current modes:
        1 - DERATE
        2 - RERATE
        3 - RAMP RATE
        4 - MOW
    -->
    <wsdl:part name="outage_start_dts" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="getOutageTimelineIndicatorResponse">
    <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="downloadOutageSearchXMLRequest">
    <wsdl:part name="res_id" type="xsd:string"/>
    <!--
        Resource type of outage.

```

```
Current types:
  8 - Line
  2 - Generator
  9 - Station
  3 - Intertie
  6 - Sync Condenser
-->
<wsdl:part name="res_type_key" type="xsd:int"/>
<!--
    Current status codes:
    SCHEDULED
    PENDING
    APPROVED
    OUTOK
    OUT
    INOK
    INSERVICE
    ETOTIMEOUT - Estimated start time past due.
    ETRTIMEOUT - Estimated end time past due.
    CANCELLED
    DISAPPROVED
    POSTPONED
    APVTIMEOUT - Approval past due.
    REQUESTED
    WITHDRAWN
-->
<wsdl:part name="status_cd" type="xsd:string"/>
<!--
    Current types:
    1 - Planned
    2 - Forced
    3 - Ambient
    4 - NORMAL
-->
<wsdl:part name="type" type="xsd:int"/>
<!--
    Current modes:
    0 - By outage dates
    1 - By received date
    2 - By update date
-->
<wsdl:part name="date_mode" type="xsd:int"/>
<wsdl:part name="start_date" type="xsd:dateTime"/>
```

```
<wsdl:part name="end_date" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="downloadOutageSearchXML2Request">
  <wsdl:part name="outage_mode_key" type="bns:ArrayOf_Int"/>
  <!--
    modes of outage.
    Current modes:
    1 - Derate
    2 - Rerate
    3 - Ramp Rates
  -->
  <wsdl:part name="res_id" type="bns:ArrayOf_String"/>
  <!--
    Resource type of outage.
    Current types:
    8 - Line
    2 - Generator
    9 - Station
    3 - Intertie
    6 - Sync Cindenser
  -->
  <wsdl:part name="res_type_key" type="bns:ArrayOf_Int"/>
  <!--
    Current status codes:
    SCHEDULED
    PENDING
    APPROVED
    OUTOK
    OUT
    INOK
    INSERVICE
    ETOTIMEOUT - Estimated start time past due.
    ETRTIMEOUT - Estimated end time past due.
    CANCELED
    DISAPPROVED
    POSTPONED
    APVTIMEOUT - Approval past due.
    REQUESTED
    WITHDRAWN
  -->
  <wsdl:part name="status_cd" type="bns:ArrayOf_String"/>
  <!--
    Current types:
```

```

        1 - Planned
        2 - Forced
        3 - Ambient
        4 - NORMAL
    -->
<wsdl:part name="type" type="bns:ArrayOf_Int" />
<!--
    Current modes:
    0 - By outage dates
    1 - By received date
    2 - By update date
-->
<wsdl:part name="date_mode" type="xsd:int" />
<wsdl:part name="start_date" type="xsd:dateTime" />
<wsdl:part name="end_date" type="xsd:dateTime" />
</wsdl:message>
<wsdl:message name="getLastUpdateTimeResponse">
    <wsdl:part name="return" type="sns:ArrayOf_NamedValueID" />
</wsdl:message>
<wsdl:message name="getLastUpdateTimeRequest">
    <wsdl:part name="outage_ids" type="bns:ArrayOf_Int" />
</wsdl:message>
<wsdl:portType name="OutageWebService">
    <wsdl:operation
        name="loadRampRateSegments"
        parameterOrder="res_id outage_start_dts">
        <!--
        -->
        <wsdl:input message="tns:loadRampRateSegmentsRequest" />
        <wsdl:output message="tns:loadRampRateSegmentsResponse" />
        <wsdl:fault
            message="tns:OutageWebServiceException"
            name="OutageWebServiceException" />
    </wsdl:operation>
    <wsdl:operation
        name="isForced"
        parameterOrder="outage_mode_key outage_start_dts">
        <wsdl:input message="tns:isForcedRequest" />
        <wsdl:output message="tns:isForcedResponse" />
        <wsdl:fault
            message="tns:OutageWebServiceException"
            name="OutageWebServiceException" />
    </wsdl:operation>

```

```

<wsdl:operation
  name="isForcedImmediate"
  parameterOrder="outage_mode_key outage_start_dts">
  <wsdl:input message="tns:isForcedImmediateRequest" />
  <wsdl:output message="tns:isForcedImmediateResponse" />
  <wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="isPlanned"
  parameterOrder="outage_mode_key outage_start_dts">
  <wsdl:input message="tns:isPlannedRequest" />
  <wsdl:output message="tns:isPlannedResponse" />
  <wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="getOutageTimelineIndicator"
  parameterOrder="outage_mode_key outage_start_dts">
  <wsdl:input message="tns:getOutageTimelineIndicatorRequest" />
  <wsdl:output message="tns:getOutageTimelineIndicatorResponse" />
  <wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="searchByCriteria"
  parameterOrder="page_index res_id res_type_key status_cd type date_mode
start_date end_date">
  <!--
    Search for outages using search criteria by page.
    All parameters are required. xsd:int values set to 0 and complex types
set to nil
    will remove the criteria.
    Returns a search page with the details of a matching existing outages
    and information about the result set.
    Access privileges to requests are assigned using the SSL Client
certificate
    submitted when this method is invoked.
  -->
  <wsdl:input message="tns:searchByCriteriaRequest" />
  <wsdl:output message="tns:searchByCriteriaResponse" />

```

```

    <wsdl:fault
      message="tns:OutageWebServiceException"
      name="OutageWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="searchByCriteria2"
    parameterOrder="page_index outage_mode_key res_id res_type_key status_cd type
date_mode start_date end_date">
    <!--
      Search for outages using search criteria by page.
      All parameters are required. xsd:int values set to 0 and complex types
set to nil
      will remove the criteria.
      Returns a search page with the details of a matching existing outages
      and information about the result set.
      Access privileges to requests are assigned using the SSL Client
certificate
      submitted when this method is invoked.
    -->
    <wsdl:input message="tns:searchByCriteria2Request"/>
    <wsdl:output message="tns:searchByCriteria2Response"/>
    <wsdl:fault
      message="tns:OutageWebServiceException"
      name="OutageWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="downloadOutageSearchXML"
    parameterOrder="res_id res_type_key status_cd type date_mode start_date
end_date">
    <!--
      Download an XML document describing outages that match search criteria.
      All parameters are required. xsd:int values set to 0 and complex types
set to nil
      will remove the criteria.
      Returns an XML document with the details of a matching existing outages
      and information about the result set.
      Access privileges to requests are assigned using the SSL Client
certificate
      submitted when this method is invoked.
    -->
    <wsdl:input message="tns:downloadOutageSearchXMLRequest"/>
    <wsdl:output message="tns:downloadOutageSearchXMLResponse"/>
    <wsdl:fault
      message="tns:OutageWebServiceException"
      name="OutageWebServiceException"/>
  </wsdl:operation>

```

```

<wsdl:operation
  name="downloadOutageSearchXML2"
  parameterOrder="outage_mode_key res_id res_type_key status_cd type date_mode
start_date end_date">
  <!--
    Download an XML document describing outages that match search criteria.
    All parameters are required. xsd:int values set to 0 and complex types
set to nil
    will remove the criteria.
    Returns an XML document with the details of a matching existing outages
    and information about the result set.
    Access privileges to requests are assigned using the SSL Client
certificate
    submitted when this method is invoked.
  -->
  <wsdl:input message="tns:downloadOutageSearchXML2Request"/>
  <wsdl:output message="tns:downloadOutageSearchXML2Response"/>
  <wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException"/>
</wsdl:operation>
<wsdl:operation
  name="loadByID"
  parameterOrder="outage_id">
  <!--
    Load an outage by CA ISO outage id.
    All parameters are required
    Returns an OutageCard
    Access privileges to requests are assigned using the SSL Client
certificate
    submitted when this method is invoked.
  -->
  <wsdl:input message="tns:loadByIDRequest"/>
  <wsdl:output message="tns:loadByIDResponse"/>
  <wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException"/>
</wsdl:operation>
<wsdl:operation
  name="loadByReferenceID"
  parameterOrder="ref_id">
  <!--
    Load an outage by reference outage id (provided by external user).
    All parameters are required If multiple outage cards are found with the
same reference

```



```

        outage id then the first outage encountered will be returned.
    Returns an OutageCard
    Access privileges to requests are assigned using the SSL Client
certificate
        submitted when this method is invoked.
-->
<wsdl:input message="tns:loadByReferenceIDRequest"/>
<wsdl:output message="tns:loadByReferenceIDResponse"/>
<wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException"/>
</wsdl:operation>
<wsdl:operation
    name="getLastUpdateTime"
    parameterOrder="outage_ids">
<!--
    fetches update tiems for outages
-->
<wsdl:input message="tns:getLastUpdateTimeRequest"/>
<wsdl:output message="tns:getLastUpdateTimeResponse"/>
<wsdl:fault
    message="tns:OutageWebServiceException"
    name="OutageWebServiceException"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="OutageWebServiceSoapBinding" type="tns:OutageWebService">
    <wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="loadRampRateSegments">
        <wsdlsoap:operation/>
        <wsdl:input>
            <wsdlsoap:body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
                use="encoded" />
        </wsdl:input>
        <wsdl:output>
            <wsdlsoap:body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
                use="encoded" />
        </wsdl:output>
        <wsdl:fault name="OutageWebServiceException">

```

```
<wsdlsoap:fault name="OutageWebServiceException"
  encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
  use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="isForced">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:output>
  <wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:fault>
  </wsdl:operation>
<wsdl:operation name="isForcedImmediate">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:output>
  </wsdl:operation>
</wsdl:operation>
```

```
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
  <wsdlsoap:fault name="OutageWebServiceException"
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
  </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="isPlanned">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:output>
  <wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:fault>
  </wsdl:operation>
<wsdl:operation name="getOutageTimelineIndicator">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
```

```
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="loadByID">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:input>
<wsdl:output>
    <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="loadByReferenceID">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:input>
<wsdl:output>
```

```
<wsdlsoap:body
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
        use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="searchByCriteria">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
            use="encoded" />
        </wsdl:input>
    </wsdl:output>
    <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageWebServiceException">
        <wsdlsoap:fault name="OutageWebServiceException"
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
            use="encoded" />
        </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="searchByCriteria2">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
            use="encoded" />
```

```

</wsdl:input>
<wsdl:output>
  <wsdlsoap:body
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
  <wsdlsoap:fault name="OutageWebServiceException"
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="downloadOutageSearchXML">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
  </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
  </wsdl:output>
  <wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
      use="encoded" />
  </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="downloadOutageSearchXML2">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"

```

```
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:input>
<wsdl:output>
    <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="getLastUpdateTime">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:input>
<wsdl:output>
    <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:output>
<wsdl:fault name="OutageWebServiceException">
    <wsdlsoap:fault name="OutageWebServiceException"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageWebService/4.0"
    use="encoded" />
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="OutageWebService">
    <wsdl:port binding="tns:OutageWebServiceSoapBinding"
```

```
        name="OutageWebService">  
        <wsdlsoap:address location="https://slicqa.caiso.com/soaprpcrouter"/>  
    </wsdl:port>  
</wsdl:service>  
</wsdl:definitions>
```


3 Outage Request Web Services

3.1 Business Scenario

Outage coordinators can submit requests to enter, update or manage equipment outages.

Additionally, outage coordinators can retrieve previously submitted requests and supporting reference data.

3.2 Service Level Agreement

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

Service availability	Service level goal is 99.9%.
Expected size of payload (average and maximum)	Variable (1KB to 1MB+)
Expected frequency (average and maximum)	On demand (500/day – 1000/day).
Longest time the service can be unavailable before business is impacted	30 minutes
Business impact if is unavailable	External outage coordinators will need to use an alternate means to submit outage data (SLIC Web Client, phone call to the CA ISO)
Expected response time for the service	Variable (.1 sec – 30 sec)
Expected time to exchange	On demand

3.3 Use Model

Not available

3.4 Operation Details

3.4.1 Exception Handling

Exceptions can be thrown under numerous conditions by all the OutageRequestWebService operations, for example.

- Outage card fails validation.
- Insufficient overlap relationship data is provided

- Outage can be characterized as Forced/Immediate

Fault name	Fault Parts	Fault part data type	Fault part description
<i>OutageRequestWebServiceException</i>	code	int	SLIC error code
	message	string	Text error message
	<i>overlaps</i>	<i>OverlapOutages</i>	Does not apply

3.4.2 addInformationRequest

Submits a new set of Availability Points for an Outage

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
addInformationRequest	<i>addInformationRequestResponse</i>	Input	String	user_id	SSL client certificate name of user making request
			Int	outage_id	ISO SLIC Outage ID
			String	comment	Optional text description of request
			Int	reason_code	ISO reason code
			string	reason	Text description
			ArrayOf_Attribute Values	att_values	Optional attribute values that further characterize the request
	<i>addInformationRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			Exception error message

3.4.3 cancelOutageRequest

Used to request an Outage cancellation.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
cancelOutageRequest	<i>cancelOutageRequestRequest</i>	Input	error_level	Int	<need description>
			String	user_id	SSL client certificate

					name of user making request
			Int	outage_id	ISO SLIC Outage ID
			String	comment	Optional text description of request
			Int	reason_code	ISO reason code
			string	reason	Text description
			ArrayOf_Availability PointValue	pointVals	
			ArrayOf_AttributeValues	att_values	Optional attribute values that further characterize the request
<i>cancelOutageRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status	
<i>OutageRequestWebServiceException</i>	Fault			Exception error message	

3.4.4 changeOutageRequest

Used to request a change to Outage data.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
changeOutageRequest	<i>changeOutageRequestRequest</i>	Input	String	user_id	SSL client certificate name of user making request
			String	<i>comment</i>	Optional text description of request
			OutageCard	<i>Outage_card</i>	Structure that describes data changes. ngr_pmax, ngr_pmin, ngr_el_max (energy limit max) and ngr_el_min (energy limit min) are only applicable to NGR resources.
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	Optional attribute values that further characterize the request
	<i>changeOutageRequestResponse</i>	Output	Int	return	Unique ID for the request. Can be used to track request status

	<i>OutageRequestWebServiceException</i>	Fault			
--	---	-------	--	--	--

3.4.5 correctInRequest

Creates requests for SLIC Outage transactions relating to the correction of Outage lifecycle events

Operation	Message name	Type	Parameter data type	Parameter Name	Parameter description
correctInRequest	<i>correctInRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored.
			String	user_id	SSL client certificate name of user making request
			Int	outage_id	ISO SLIC outage ID
			String	comment	Optional text description of request
			<i>dateTime</i>)	<i>newDTS</i>	New date for when the outage should convert to out
			<i>int</i>	<i>reason_code</i>	ISO reason code
			String	<i>reason</i>	Text description
			<i>ArrayOf_AvailabilityPointValue</i>	<i>pointVals</i>	An array of availability point values
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	An array of attribute values
		<i>correctInRequestResponse</i>	Output	Int	return
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.6 correctOutRequest

Creates requests for SLIC Outage transactions relating to the correction of Outage lifecycle events.

Operation	Message name	Type	Parameter data type	Parameter Name	Parameter description
correctOutRequest	<i>correctOutRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored.
			String	user_id	SSL client certificate name of user making request

			Int	outage_id	ISO SLIC outage ID
			String	comment	Optional text description of request
			<i>dateTime</i>)	<i>newDTS</i>	New date for when the outage should convert to out
			<i>int</i>	<i>reason_code</i>	ISO reason code
			String	<i>reason</i>	Text description
			<i>ArrayOf_AvailabilityPointValue</i>	<i>pointVals</i>	An array of availability point values
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	An array of attribute values
<i>correctOutRequestResponse</i>	Output	Int	return	Unique ID for the request. Can be used to track request status	
<i>OutageRequestWebServiceException</i>	Fault				

3.4.7 forcedImmediateOutageRequest

Used to request a new forced/immediate Outage. The current window for creating a forced/immediate Outage is less than 24 hours before the Outage starts.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
forcedImmediateOutage Request	<i>forcedImmediateOutageRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			String	<i>comment</i>	Optional text description of request
			<i>OutageCard</i>	<i>outage_card</i>	Structure that describes data changes. ngr_pmax,ngr_pmin,ngr_el_max (energy limit max) and ngr_el_min (energy limit min) are only applicable to NGR resources.
			<i>ArrayOf_AvailabilityPointValue</i>	<i>pointVals</i>	An array of availability point values

			<i>alue</i>		
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	Optional attribute values that further characterize the request.
	<i>forcedImmediateOutageRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.8 forcedOutageRequest

Used to request a new forced Outage. The current window for creating a forced Outage is less than 3 business days and more than 24 hours before Outage start.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
forcedOutageRequest	<i>newOutageRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			String	comment	Optional text description of request
			<i>OutageCard</i>	<i>outage_card</i>	Structure that describes data changes. ngr_pmax, ngr_pmin, ngr_el_max (energy limit max) and ngr_el_min (energy limit min) are only applicable to NGR resources.
			<i>ArrayOf_AvailabilityPointValue</i>	<i>pointVals</i>	An array of availability point values
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	Optional attribute values that further characterize the request.
	<i>newOutageRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.9 loadByID

Used to load a request

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
loadByID	<i>loadByIDRequest</i>	Input	Int	request_id	Request ID
	<i>loadByIDResponse</i>	Output	<i>OutageRequestData</i>	return	Data structure containing request details
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.10 loadMultipleRequestStatus

Searches for and retrieves the status of multiple SLIC requested Outage transactions.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
loadMultipleRequestStatus	<i>loadMultipleRequestStatusRequest</i>	Input	<i>ArrayOf_Int</i>	request_ids	Array of request ID's
	<i>loadMultipleRequestStatusResponse</i>	Output	<i>ArrayOf_PNamedValueID</i>	return	An array of pre-named values
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.11 loadMultipleRequestStatus2

Searches for and retrieves the status of multiple SLIC requested Outage transactions

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
loadMultipleRequestStatus2	<i>loadMultipleRequestStatus2Request</i>	Input	<i>ArrayOf_IntegerAtt</i>	request_ids	Request ID
	<i>loadMultipleRequestStatus2Response</i>	Output	<i>ArrayOf_PNamedValueID</i>	return	An array of pre-named values
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.12 loadRequestStatus

Searches for and retrieves the status of a SLIC requested Outage transaction

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
loadRequestStatus	<i>loadRequestStatusRequest</i>	Input	int	request_id	The ISO request ID for the request
	<i>loadMultipleRequestStatusResponse</i>	Output	String	return	A string indicating the status of the requested SLIC Outage.
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.13 loadRequestStatus2

Searches for and retrieves the status of a SLIC requested Outage transaction.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
loadRequestStatus2	<i>loadRequestStatus2Request</i>	Input	<i>IntegerAtt</i>	<i>request_id</i>	The Outage Request ID specified as an IntegerAtt.
	<i>loadRequestStatus2Response</i>	Output	String	return	A string indicating the status of the requested SLIC Outage
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.14 newOutageRequest

Used to request a new planned Outage. The current window for creating a planned Outage is three business days prior to the start of the Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
newOutageRequest	<i>newOutageRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			String	comment	Optional text description of request
			<i>OutageCard</i>	<i>outage_card</i>	Structure that describes data changes

			<i>ArrayOf_AvailabilityPointValue</i>	<i>pointVals</i>	An array of availability point values
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	Optional attribute values that further characterize the request.
	<i>newOutageRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.15 rescheduleOutageRequest

Used to request a change to the start and end dates of an Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
rescheduleOutageRequest	<i>rescheduleOutageRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			<i>OutageCard</i>	<i>outage_card</i>	Structure that describes data changes
			String	comment	Optional text description of request
			dateTime	outageStartDTS	New Outage start date/time
			dateTime	outageEndDTS	New Outage end date/time
			int	reason_code	ISO reason code
			String	reason	Text description
			<i>ArrayOf_AvailabilityPointValue</i>	<i>pointVals</i>	An array of availability point values
			<i>ArrayOf_AttributeValue</i>	<i>att_values</i>	Optional attribute values that further characterize the request.
	<i>rescheduleOutageRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
<i>OutageRequestWebServiceException</i>	Fault				

3.4.16 rescheduleDueBackRequest

Used to request a change to the Outage end date

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
rescheduleDueBackRequest	<i>rescheduleDueBackRequestRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			dateTime	outageEndDTS	End date/time of outage
			int	reason_code	ISO reason code
			String	reason	Text description
			ArrayOf_AvailabilityPointValue	pointVals	An array of availability point values
			ArrayOf_AttributeValue	att_values	Optional attribute values that further characterize the request.
	<i>rescheduleDueBackRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
<i>OutageRequestWebServiceException</i>	Fault				

3.4.17 reviseAvailabilityRequest

Creates a request for a SLIC Outage transaction that will modify resource availability during an Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
reviseAvailabilityRe	reviseAvailabilityRequestR	Input	Int	error_level	Bit flag indicating which

quest	equest				warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			int	reason_code	ISO reason code
			String	reason	Text description
			ArrayOf_AvailabilityPoint Value	pointVals	An array of availability point values
			ArrayOf_AttributeValue	att_values	Optional attribute values that further characterize the request.
	reviseAvailabilityRequestResponse	Output	int	return	Unique ID for the request. Can be used to track request status
<i>OutageRequestWebServiceException</i>	Fault				

3.4.18 revisePMINRateRequest

Used to request a change to the Outage PMIN rate

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
revisePMINRateRequest	revisePMINRateRequest	Input	String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			double	newVal	New PMIN rate value
			int	reason_code	ISO reason code
			String	reason	Text description
			ArrayOf_AttributeValue	att_values	Optional attribute values that further characterize the

					request.
	revisePMinRerateRequest Response	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.19 revise PMinRerateRequest2

Used to request a change to the Outage PMin rerate using an array of PMinValue complex types.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
revisePMinRerateRequest2	revisePMinRerateRequest2 Request	Input	String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			ArrayOfPMinValue	Pmin rerates	New PMin rerate values
			int	reason_code	ISO reason code
			String	reason	Text description
			ArrayOf_AttributeValue	att_values	Optional attribute values that further characterize the request.
	revisePMinRerateRequest2 Response	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.20 searchByCriteria

Used to page through Outage requests. Differs from the **searchByCriteria2** operation only by object type of the parameters.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
searchByCriteria	searchByCriteriaRequest	Input	int	page_index	Browse page index
			String	requester_id	User certificate common name of the requester.
			ArrayOf_Int	types	Types of requests to return (NEW, CHANGE, CANCEL). Null will return all.
			ArrayOf_String	state_codes	Request states to return (OPEN, ACCEPTED, DENIED). Null will return all.
			dateTime	start_date	Date to begin querying
			dateTime	end_date	Date to end querying
	searchByCriteriaResponse	Output	<i>OutageRequestSearchPage</i>	return	Results page that includes an array of matching Outage requests.
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.21 searchByCriteria2

Used to page through Outage requests. Differs from the **searchByCriteria** operation only by object type of the parameters.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
searchByCriteria2	searchByCriteria2Request	Input	int	page_index	Browse page index
			String	requester_id	User ID of requester
			ArrayOf_Int	types	Types of requests to return (NEW, CHANGE, CANCEL). Null will return all.
			ArrayOf_String	state_codes	Request states to return (OPEN, ACCEPTED, DENIED). Null will return all.
			dateTime	start_date	Date to begin querying
			dateTime	end_date	Date to end querying
			int	date_mode	Search by outage dates, submitted dates, or update dates
			int	res_key	Resource identifier

			int	res_type_key	Resource type
	searchByCriteria2Response	Output	<i>OutageRequestSearchPage</i>	return	Results page that includes an array of matching Outage requests.
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.22 searchByOutage

Searches for Outage requests by ISO Outage ID

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
searchByOutage	searchByOutageRequest	Input	int	<i>outage_id</i>	ISO SLIC Outage ID
	searchByOutageResponse	Output	<i>ArrayOf_OutageRequestData</i>	return	Outage request date values in an array which match the search criteria
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.23 setAvailabilityPointRequest

Automates the creation of a *reviseAvailabilityRequest*

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
setAvailabilityPointRequest	<i>setAvailabilityPointRequest</i>	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			<i>int</i>	reason_code	ISO reason code
			String	reason	Text description
			<i>AvailabilityPointValue</i>	pointVal	Availability value

			ArrayOf_AttributeValue	att_values	Request attributes (i.e. Phone Number)
	<i>setAvailabilityPointRequestResponse</i>	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.24 startOutageRequest

Creates a request for beginning an Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
startOutageRequest	startOutageRequestRequest	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			dateTime	newDTS	End date/time of outage
			int	reason_code	ISO reason code
			String	reason	Text description
			ArrayOf_AvailabilityPointValue	pointVals	An array of availability point values
			ArrayOf_AttributeValue	att_values	Optional attribute values that further characterize the request.
		startOutageRequestResponse	Output	int	return
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.25 endOutageRequest

Creates a request for ending an Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
endOutageRequest	endOutageRequestRequest	Input	Int	error_level	Bit flag indicating which warnings should be ignored
			String	user_id	SSL client certificate name of user making request.
			int	outage_id	Structure that describes data changes
			String	comment	Optional text description of request
			dateTime	newDTS	End date/time of outage
			int	reason_code	ISO reason code
			String	reason	Text description
			ArrayOf_AvailabilityPointValue	pointVals	An array of availability point values
	ArrayOf_AttributeValue	att_values	Optional attribute values that further characterize the request.		
	endOutageRequestResponse	Output	int	return	Unique ID for the request. Can be used to track request status
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.26 uploadOutageRequestXML (Deprecated)

Used to send a batch of requests

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
uploadOutageRequestXML	<i>uploadOutageRequestXMLRequest</i>	Input	String	<i>requestXML</i>	XML representation of New Outage Requests. Change, Cancel Outage requests not supported at this time
	<i>uploadOutageRequestXML</i>	Output	String	dts	XML representaion of feedback.
	<i>OutageRequestWebServiceException</i>	Fault			

	<i>ption</i>				
--	--------------	--	--	--	--

3.4.27 withdrawOutageRequest

Withdraws an open request by a unique key.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
withdrawOutageRequest	withdrawOutageRequest	Input	String	request_id	The ISO request ID of the Outage request.
			String	user_id	SSL client certificate name of user making request
			String	reason	Text description
	withdrawOutageResponse	Output	void		No return value
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.28 getResourcesValid

Retrieves a list of resources linked to the current user which are also currently valid.

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
getResourcesValid	<i>getResourcesValidRequest</i>	Input			
	<i>withdrawOutageRequestResponse</i>	Output	<i>ArrayOf_PResource</i>	return	An array of pre-resource objects
	<i>OutageRequestWebServiceException</i>	Fault			

3.4.29 getResourcesAll

Retrieves a list of resources linked to the current user

Operation	Message name	type	Parameter data type	Parameter Name	Parameter description
getResourcesAll	getResourcesAllRequest	Input			
	<i>getResourcesAllResponse</i>	Output	<i>ArrayOf_PResource</i>	return	Resource data. For NGR resources ngr_pmax, ngr_pmin, ngr_el_max (energy limit max) and ngr_el_min (energy limit min) values will be included in the response.
	<i>OutageRequestWebServiceException</i>	Fault			

WSDL (OutageRequestWebService_v4.wSDL)

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

```

targetNamespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:bns="https://slic.caiso.com/schemas/base/v3"
xmlns:sns="https://slic.caiso.com/schemas/slic/v6"
xmlns:tns="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
xmlns:wSDLsoap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
<wSDL:import
  location="SLICDataTypes_v6.xsd"
  namespace="https://slic.caiso.com/schemas/slic/v6" />
<wSDL:message name="OutageRequestWebServiceException">
  <wSDL:part name="exception_content" type="sns:OutageRequestWebServiceException" />
</wSDL:message>
<wSDL:message name="empty" />
<wSDL:message name="withdrawOutageRequestRequest">
  <wSDL:part name="request_id" type="xsd:int" />
  <wSDL:part name="user_id" type="xsd:string" />
  <wSDL:part name="reason" type="xsd:string" />
</wSDL:message>
<wSDL:message name="loadRequestStatusRequest">
  <wSDL:part name="request_id" type="xsd:int" />
</wSDL:message>
<wSDL:message name="loadRequestStatusResponse">
  <wSDL:part name="return" type="xsd:string" />
</wSDL:message>
<wSDL:message name="loadRequestStatus2Request">
  <wSDL:part name="request_id" type="bns:IntegerAtt" />
</wSDL:message>
<wSDL:message name="loadRequestStatus2Response">
  <wSDL:part name="return" type="xsd:string" />
</wSDL:message>
<wSDL:message name="loadMultipleRequestStatusRequest">
  <wSDL:part name="request_ids" type="bns:ArrayOf_Int" />
</wSDL:message>
<wSDL:message name="loadMultipleRequestStatusResponse">
  <wSDL:part name="return" type="sns:ArrayOf_PNamedValueID" />
</wSDL:message>
<wSDL:message name="loadMultipleRequestStatus2Request">
  <wSDL:part name="request_ids" type="bns:ArrayOf_IntegerAtt" />
</wSDL:message>
<wSDL:message name="loadMultipleRequestStatus2Response">
  <wSDL:part name="return" type="sns:ArrayOf_PNamedValueID" />
</wSDL:message>
<wSDL:message name="loadByIDRequest">
  <wSDL:part name="request_id" type="xsd:int" />
</wSDL:message>
<wSDL:message name="cancelOutageRequestResponse">
  <wSDL:part name="return" type="xsd:int" />
</wSDL:message>
<wSDL:message name="changeOutageRequestRequest">
  <wSDL:part name="user_id" type="xsd:string" />
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wSDL:part name="comment" type="xsd:string" />
  <wSDL:part name="outage_card" type="sns:OutageCard" />
  <!--
    Current required attributes are: Phone Number (String), key=5003
  -->
  <wSDL:part name="att_values" type="sns:ArrayOf_AttributeValue" />
</wSDL:message>
<wSDL:message name="changeOutageRequestResponse">
  <wSDL:part name="return" type="xsd:int" />
</wSDL:message>

```

```

<wsdl:message name="uploadOutageRequestXMLResponse">
  <wsdl:part name="return" type="xsd:string"/>
</wsdl:message>
<wsdl:message name="forcedImmediateOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="outage_card" type="sns:OutageCard"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
  <!--
    Current required attributes are: Phone Number (String), key=5002
  -->
</wsdl:message>
<wsdl:message name="searchByCriteriaRequest">
  <wsdl:part name="page_index" type="xsd:int"/>
  <wsdl:part name="requester_id" type="xsd:string"/>
  <!--
    Current valid state codes are:
    1 - new planned/forced outage requests
    2 - new forced immediate outage requests
    3 - change outage requests
    4 - cancel outage requests
  -->
  <wsdl:part name="types" type="bns:ArrayOf_Int"/>
  <wsdl:part name="state_codes" type="bns:ArrayOf_String"/>
  <!--
    Current valid state codes are OPEN, ACCEPTED, DISAPPROVED, and WITHDRAWN.
  -->
  <wsdl:part name="start_date" type="xsd:dateTime"/>
  <wsdl:part name="end_date" type="xsd:dateTime"/>
</wsdl:message>
<wsdl:message name="searchByOutageRequest">
  <wsdl:part name="outage_id" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="searchByCriteria2Request">
  <wsdl:part name="page_index" type="xsd:int"/>
  <wsdl:part name="requester_id" type="xsd:string"/>
  <!--
    Current valid state codes are:
    1 - new planned/forced outage requests
    2 - new forced immediate outage requests
    3 - change outage requests
    4 - cancel outage requests
  -->
  <wsdl:part name="types" type="bns:ArrayOf_Int"/>
  <!--
    Current valid state codes are OPEN, ACCEPTED, DISAPPROVED, and WITHDRAWN.
  -->
  <wsdl:part name="state_codes" type="bns:ArrayOf_String"/>
  <wsdl:part name="start_date" type="xsd:dateTime"/>
  <wsdl:part name="end_date" type="xsd:dateTime"/>
  <wsdl:part name="date_mode" type="xsd:int"/>
  <wsdl:part name="res_key" type="xsd:int"/>
  <wsdl:part name="res_type_key" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="forcedImmediateOutageRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="loadByIDResponse">
  <wsdl:part name="return" type="sns:OutageRequestData"/>
</wsdl:message>
<wsdl:message name="uploadOutageRequestXMLRequest">

```

```

    <wsdl:part name="requestXML" type="xsd:string"/>
  </wsdl:message>
  <wsdl:message name="revisePMINRerateRequestRequest">
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="outage_id" type="xsd:int"/>
    <!--
      The comment parameter describes the request and can be used
      to identify the request during searches.
    -->
    <wsdl:part name="comment" type="xsd:string"/>
    <wsdl:part name="newVal" type="xsd:double"/>
    <wsdl:part name="reason_code" type="xsd:int"/>
    <wsdl:part name="reason" type="xsd:string"/>
    <!--
      Current required attributes are: Phone Number (String), key=5009
    -->
    <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
  </wsdl:message>
  <wsdl:message name="revisePMINRerateRequestResponse">
    <wsdl:part name="return" type="xsd:int"/>
  </wsdl:message>
  <wsdl:message name="revisePMINRerateRequest2Request">
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="outage_id" type="xsd:int"/>
    <!--
      The comment parameter describes the request and can be used
      to identify the request during searches.
    -->
    <wsdl:part name="comment" type="xsd:string"/>
    <wsdl:part name="pmin_rerates" type="sns:ArrayOf_PMinValue"/>
    <wsdl:part name="reason_code" type="xsd:int"/>
    <wsdl:part name="reason" type="xsd:string"/>
    <!--
      Current required attributes are: Phone Number (String), key=5009
    -->
    <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
  </wsdl:message>
  <wsdl:message name="revisePMINRerateRequest2Response">
    <wsdl:part name="return" type="xsd:int"/>
  </wsdl:message>
  <wsdl:message name="reviseAvailabilityRequestRequest">
    <wsdl:part name="errorLevel" type="xsd:int"/>
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="outage_id" type="xsd:int"/>
    <!--
      The comment parameter describes the request and can be used
      to identify the request during searches.
    -->
    <wsdl:part name="comment" type="xsd:string"/>
    <wsdl:part name="reason_code" type="xsd:int"/>
    <wsdl:part name="reason" type="xsd:string"/>
    <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
    <!--
      Current required attributes are: Phone Number (String), key=5007
    -->
    <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
  </wsdl:message>
  <wsdl:message name="reviseAvailabilityRequestResponse">
    <wsdl:part name="return" type="xsd:int"/>
  </wsdl:message>
  <wsdl:message name="setAvailabilityPointRequestRequest">
    <wsdl:part name="errorLevel" type="xsd:int"/>
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="outage_id" type="xsd:int"/>
    <!--
      The comment parameter describes the request and can be used
      to identify the request during searches.
    -->

```

```

-->
<wsdl:part name="comment" type="xsd:string"/>
<wsdl:part name="reason_code" type="xsd:int"/>
<wsdl:part name="reason" type="xsd:string"/>
<wsdl:part name="pointVal" type="sns:AvailabilityPointValue"/>
<!--
    Current required attributes are: Phone Number (String), key=5007
-->
<wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="setAvailabilityPointRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="startOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="newDTS" type="xsd:dateTime"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="startOutageRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="endOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="newDTS" type="xsd:dateTime"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="endOutageRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="correctOutRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="newDTS" type="xsd:dateTime"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="correctOutRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="correctInRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="newDTS" type="xsd:dateTime"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="correctInRequestResponse">

```

```

    <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="rescheduleDueBackRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="outageEndDTS" type="xsd:dateTime"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <!--
    Current required attributes are: Phone Number (String), key=5006
  -->
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="rescheduleDueBackRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="rescheduleOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="outageStartDTS" type="xsd:dateTime"/>
  <wsdl:part name="outageEndDTS" type="xsd:dateTime"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <!--
    Current required attributes are: Phone Number (String), key=5005
  -->
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="rescheduleOutageRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="addInformationRequestRequest">
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="reason_code" type="xsd:int"/>
  <wsdl:part name="reason" type="xsd:string"/>
  <!--
    Current required attributes are: Phone Number (String), key=5009
  -->
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="addInformationRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="cancelOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <wsdl:part name="outage_id" type="xsd:int"/>

```



```

<!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
-->
<wsdl:part name="comment" type="xsd:string"/>
<wsdl:part name="reason_code" type="xsd:int"/>
<wsdl:part name="reason" type="xsd:string"/>
<wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
<!--
    Current required attributes are: Phone Number (String), key=5004
-->
<wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="newOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="outage_card" type="sns:OutageCard"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <!--
    Current required attributes are: Phone Number (String), key=5001
  -->
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="newOutageRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="forcedOutageRequestRequest">
  <wsdl:part name="errorLevel" type="xsd:int"/>
  <wsdl:part name="user_id" type="xsd:string"/>
  <!--
    The comment parameter describes the request and can be used
    to identify the request during searches.
  -->
  <wsdl:part name="comment" type="xsd:string"/>
  <wsdl:part name="outage_card" type="sns:OutageCard"/>
  <wsdl:part name="pointVals" type="sns:ArrayOf_AvailabilityPointValue"/>
  <!--
    Current required attributes are: Phone Number (String), key=5001
  -->
  <wsdl:part name="att_values" type="sns:ArrayOf_AttributeValue"/>
</wsdl:message>
<wsdl:message name="forcedOutageRequestResponse">
  <wsdl:part name="return" type="xsd:int"/>
</wsdl:message>
<wsdl:message name="searchByCriteriaResponse">
  <wsdl:part name="return" type="sns:OutageRequestSearchPage"/>
</wsdl:message>
<wsdl:message name="searchByCriteria2Response">
  <wsdl:part name="return" type="sns:OutageRequestSearchPage"/>
</wsdl:message>
<wsdl:message name="searchByOutageResponse">
  <wsdl:part name="return" type="sns:ArrayOf_OutageRequestData"/>
</wsdl:message>
<wsdl:message name="getResourcesValidRequest">
</wsdl:message>
<wsdl:message name="getResourcesValidResponse">
  <wsdl:part name="return" type="sns:ArrayOf_PResource" />
</wsdl:message>
<wsdl:message name="getResourcesAllRequest">
</wsdl:message>
<wsdl:message name="getResourcesAllResponse">
  <wsdl:part name="return" type="sns:ArrayOf_PResource" />

```

```

</wsdl:message>
<wsdl:portType name="OutageRequestWebService">
  <wsdl:operation
    name="loadRequestStatus"
    parameterOrder="request_id">
    <!--
    -->
    <wsdl:input message="tns:loadRequestStatusRequest"/>
    <wsdl:output message="tns:loadRequestStatusResponse"/>
    <wsdl:fault
      message="tns:OutageRequestWebServiceException"
      name="OutageRequestWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="loadRequestStatus2"
    parameterOrder="request_id">
    <!--
    -->
    <wsdl:input message="tns:loadRequestStatus2Request"/>
    <wsdl:output message="tns:loadRequestStatus2Response"/>
    <wsdl:fault
      message="tns:OutageRequestWebServiceException"
      name="OutageRequestWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="loadMultipleRequestStatus"
    parameterOrder="request_ids">
    <!--
    -->
    <wsdl:input message="tns:loadMultipleRequestStatusRequest"/>
    <wsdl:output message="tns:loadMultipleRequestStatusResponse"/>
    <wsdl:fault
      message="tns:OutageRequestWebServiceException"
      name="OutageRequestWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="loadMultipleRequestStatus2"
    parameterOrder="request_ids">
    <!--
    -->
    <wsdl:input message="tns:loadMultipleRequestStatus2Request"/>
    <wsdl:output message="tns:loadMultipleRequestStatus2Response"/>
    <wsdl:fault
      message="tns:OutageRequestWebServiceException"
      name="OutageRequestWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="startOutageRequest"
    parameterOrder="errorLevel user_id outage_id comment newDTS reason_code
reason pointVals att_values">
    <!--
      All parameters are required.
      Returns the ID of the new request.
      The comment parameter describes the request and can be used to identify
      the request during searches.
    -->
    <wsdl:input message="tns:startOutageRequestRequest"/>
    <wsdl:output message="tns:startOutageRequestResponse"/>
    <wsdl:fault
      message="tns:OutageRequestWebServiceException"
      name="OutageRequestWebServiceException"/>
  </wsdl:operation>
  <wsdl:operation
    name="endOutageRequest"
    parameterOrder="errorLevel user_id outage_id comment newDTS reason_code
reason pointVals att_values">
    <!--

```

```

        All parameters are required.
        Returns the ID of the new request.
        The comment parameter describes the request and can be used to identify
        the request during searches.
    -->
    <wsdl:input message="tns:endOutageRequestRequest"/>
    <wsdl:output message="tns:endOutageRequestResponse"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="correctOutRequest"
        parameterOrder="errorLevel user_id outage_id comment newDTS reason_code
reason pointVals att_values">
    <!--
        All parameters are required.
        Returns the ID of the new request.
        The comment parameter describes the request and can be used to identify
        the request during searches.
    -->
    <wsdl:input message="tns:correctOutRequestRequest"/>
    <wsdl:output message="tns:correctOutRequestResponse"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="correctInRequest"
        parameterOrder="errorLevel user_id outage_id comment newDTS reason_code
reason pointVals att_values">
    <!--
        All parameters are required.
        Returns the ID of the new request.
        The comment parameter describes the request and can be used to identify
        the request during searches.
    -->
    <wsdl:input message="tns:correctInRequestRequest"/>
    <wsdl:output message="tns:correctInRequestResponse"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="addInformationRequest"
        parameterOrder="user_id outage_id comment reason_code reason att_values">
    <!--
        All parameters are required.
        Returns the ID of the new request.
        The comment parameter describes the request and can be used to identify
        the request during searches.
    -->
    <wsdl:input message="tns:addInformationRequestRequest"/>
    <wsdl:output message="tns:addInformationRequestResponse"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="rescheduleOutageRequest"
        parameterOrder="errorLevel user_id outage_id comment outageStartDTS
outageEndDTS reason_code reason pointVals att_values">
    <!--
        All parameters are required.
        Returns the ID of the new request.
        The comment parameter describes the request and can be used to identify
        the request during searches.

```

```

-->
<wsdl:input message="tns:rescheduleOutageRequestRequest" />
<wsdl:output message="tns:rescheduleOutageRequestResponse" />
<wsdl:fault
  message="tns:OutageRequestWebServiceException"
  name="OutageRequestWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="rescheduleDueBackRequest"
  parameterOrder="errorLevel user_id outage_id comment outageEndDTS reason_code
reason pointVals att_values">
  <!--
    All parameters are required.
    Returns the ID of the new request.
    The comment parameter describes the request and can be used to identify
    the request during searches.
  -->
  <wsdl:input message="tns:rescheduleDueBackRequestRequest" />
  <wsdl:output message="tns:rescheduleDueBackRequestResponse" />
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="reviseAvailabilityRequest"
  parameterOrder="errorLevel user_id outage_id comment reason_code reason
pointVals att_values">
  <!--
    All parameters are required.
    Returns the ID of the new request.
    The comment parameter describes the request and can be used to identify
    the request during searches.
  -->
  <wsdl:input message="tns:reviseAvailabilityRequestRequest" />
  <wsdl:output message="tns:reviseAvailabilityRequestResponse" />
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="setAvailabilityPointRequest"
  parameterOrder="errorLevel user_id outage_id comment reason_code reason
pointVal att_values">
  <!--
    All parameters are required.
    Returns the ID of the new request.
    The comment parameter describes the request and can be used to identify
    the request during searches.
  -->
  <wsdl:input message="tns:setAvailabilityPointRequestRequest" />
  <wsdl:output message="tns:setAvailabilityPointRequestResponse" />
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException" />
</wsdl:operation>
<wsdl:operation
  name="revisePMINRerateRequest"
  parameterOrder="user_id outage_id comment newVal reason_code reason
att_values">
  <!--
    All parameters are required.
    Returns the ID of the new request.
    The comment parameter describes the request and can be used to identify
    the request during searches.
  -->
  <wsdl:input message="tns:revisePMINRerateRequestRequest" />
  <wsdl:output message="tns:revisePMINRerateRequestResponse" />

```

```

        <wsdl:fault
            message="tns:OutageRequestWebServiceException"
            name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="revisePMINRerateRequest2"
        parameterOrder="user_id outage_id comment pmin_rerates reason_code reason
att_values">
        <!--
    All parameters are required.
    Returns the ID of the new request.
    The comment parameter describes the request and can be used to identify
    the request during searches.
    -->
    <wsdl:input message="tns:revisePMINRerateRequest2Request"/>
    <wsdl:output message="tns:revisePMINRerateRequest2Response"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="cancelOutageRequest"
        parameterOrder="errorLevel user_id outage_id comment reason_code reason
pointVals att_values">
        <!--
            Cancel outage request.
            A request to cancel an existing outage.
            Only one outstanding cancel request may exist for each outage.
            All parameters are required.
            Returns the ID of the new request.
            The comment parameter describes the request and can be used to identify
            the request during searches.
            Request attribute keys are provided by the ISO (e.g. Phone Number is
5004)
            Cancellation reason codes are provided by the ISO.
    -->
    <wsdl:input message="tns:cancelOutageRequestRequest"/>
    <wsdl:output message="tns:cancelOutageRequestResponse"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="changeOutageRequest"
        parameterOrder="user_id comment outage_card att_values">
        <!--
            Change outage request.
            A request to change an existing outage.
            Only one outstanding change request may exist for each outage.
            All parameters are required.
            Returns the ID of the new request.
            The comment parameter describes the request and can be used to identify
            the request during searches.
            Request attribute keys are provided by the ISO (e.g. Phone Number is
5003)
    -->
    <wsdl:input message="tns:changeOutageRequestRequest"/>
    <wsdl:output message="tns:changeOutageRequestResponse"/>
    <wsdl:fault
        message="tns:OutageRequestWebServiceException"
        name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="forcedImmediateOutageRequest"
        parameterOrder="errorLevel user_id comment outage_card pointVals att_values">
        <!--
            New Forced/Immediate outage request.

```



```

        <wsdl:input message="tns:withdrawOutageRequestRequest"/>
        <wsdl:output message="tns:empty"/>
        <wsdl:fault
            message="tns:OutageRequestWebServiceException"
            name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="loadByID"
        parameterOrder="request_id">
        <!--
            Load outage request by ISO request ID.
            Loads the details of an existing outage request.
            All parameters are required.
            Access privileges to requests are assigned using the SSL Client
certificate
            submitted when this method is invoked.
        -->
        <wsdl:input message="tns:loadByIDRequest"/>
        <wsdl:output message="tns:loadByIDResponse"/>
        <wsdl:fault
            message="tns:OutageRequestWebServiceException"
            name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="searchByCriteria"
        parameterOrder="page_index requester_id types state_codes start_date
end_date">
        <!--
            Search for outage requests using search criteria by page.
            All parameters are required. xsd:int values set to 0 and complex types
set to nil
            will remove the criteria.
            Returns a search page with the details of a matching existing outage
requests
            and information about the result set.
            Access privileges to requests are assigned using the SSL Client
certificate
            submitted when this method is invoked.
        -->
        <wsdl:input message="tns:searchByCriteriaRequest"/>
        <wsdl:output message="tns:searchByCriteriaResponse"/>
        <wsdl:fault
            message="tns:OutageRequestWebServiceException"
            name="OutageRequestWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
        name="searchByCriteria2"
        parameterOrder="page_index requester_id types state_codes start_date end_date
date_mode res_key res_type_key">
        <!--
            Search for outage requests using search criteria by page.
            All parameters are required. xsd:int values set to 0 and complex types
set to nil
            will remove the criteria.
            Returns a search page with the details of a matching existing outage
requests
            and information about the result set.
            Access privileges to requests are assigned using the SSL Client
certificate
            submitted when this method is invoked.
        -->
        <wsdl:input message="tns:searchByCriteria2Request"/>
        <wsdl:output message="tns:searchByCriteria2Response"/>
        <wsdl:fault
            message="tns:OutageRequestWebServiceException"
            name="OutageRequestWebServiceException"/>
    </wsdl:operation>

```

```

<wsdl:operation
  name="searchByOutage"
  parameterOrder="outage_id">
  <!--
    Search for outage requests using search criteria by page.
    All parameters are required.
    Returns an array of matching existing outage requests.
    Access privileges to requests are assigned using the SSL Client
certificate
    submitted when this method is invoked.
  -->
  <wsdl:input message="tns:searchByOutageRequest"/>
  <wsdl:output message="tns:searchByOutageResponse"/>
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException"/>
</wsdl:operation>
<wsdl:operation
  name="uploadOutageRequestXML"
  parameterOrder="requestXML">
  <!--
    Batch upload of outage requests.
    All parameters are required. XML conform to ISO schema.
    Returns an XML string with success or error messages.
    Returns the ID of the new request.
  -->
  <wsdl:input message="tns:uploadOutageRequestXMLRequest"/>
  <wsdl:output message="tns:uploadOutageRequestXMLResponse"/>
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException"/>
</wsdl:operation>
<wsdl:operation
  name="getResourcesValid"
  parameterOrder="">
  <wsdl:input message="tns:getResourcesValidRequest"/>
  <wsdl:output message="tns:getResourcesValidResponse"/>
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException"/>
</wsdl:operation>
<wsdl:operation
  name="getResourcesAll"
  parameterOrder="">
  <wsdl:input message="tns:getResourcesAllRequest"/>
  <wsdl:output message="tns:getResourcesAllResponse"/>
  <wsdl:fault
    message="tns:OutageRequestWebServiceException"
    name="OutageRequestWebServiceException"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:binding name="OutageRequestWebServiceSoapBinding"
type="tns:OutageRequestWebService">
  <wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="loadRequestStatus">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.aiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded"/>
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"

```



```
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:output>
  <wsdl:fault name="OutageRequestWebServiceException">
    <wsdlsoap:fault
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="loadRequestStatus2">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:output>
  <wsdl:fault name="OutageRequestWebServiceException">
    <wsdlsoap:fault
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="loadMultipleRequestStatus">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:output>
  <wsdl:fault name="OutageRequestWebServiceException">
    <wsdlsoap:fault
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
  use="encoded" />
  </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="loadMultipleRequestStatus2">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    />
  />
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
```

```

        use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="startOutageRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="endOutageRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="correctOutRequest">
    <wsdlsoap:operation/>

```

```

    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="correctInRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="rescheduleOutageRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"

```

```

        use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="rescheduleDueBackRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="addInformationRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="reviseAvailabilityRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
    </wsdl:output>

```

```

        <wsdl:fault name="OutageRequestWebServiceException">
            <wsdlsoap:fault
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                use="encoded" />
            </wsdl:fault>
        </wsdl:operation>
        <wsdl:operation name="setAvailabilityPointRequest">
            <wsdlsoap:operation/>
            <wsdl:input>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:input>
            <wsdl:output>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:output>
            <wsdl:fault name="OutageRequestWebServiceException">
                <wsdlsoap:fault
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:fault>
        </wsdl:operation>
        <wsdl:operation name="revisePMINRerateRequest">
            <wsdlsoap:operation/>
            <wsdl:input>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:input>
            <wsdl:output>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:output>
            <wsdl:fault name="OutageRequestWebServiceException">
                <wsdlsoap:fault
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:fault>
        </wsdl:operation>
        <wsdl:operation name="cancelOutageRequest">
            <wsdlsoap:operation/>
            <wsdl:input>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
            </wsdl:input>
            <wsdl:output>
                <wsdlsoap:body

```

```

        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="changeOutageRequest">
        <wsdlsoap:operation/>
        <wsdl:input>
            <wsdlsoap:body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
            </wsdl:input>
        <wsdl:output>
            <wsdlsoap:body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
            </wsdl:output>
        <wsdl:fault name="OutageRequestWebServiceException">
            <wsdlsoap:fault
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
            </wsdl:fault>
        </wsdl:operation>
        <wsdl:operation name="forcedImmediateOutageRequest">
            <wsdlsoap:operation/>
            <wsdl:input>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
                </wsdl:input>
            <wsdl:output>
                <wsdlsoap:body
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
                </wsdl:output>
            <wsdl:fault name="OutageRequestWebServiceException">
                <wsdlsoap:fault
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
                </wsdl:fault>
            </wsdl:operation>
            <wsdl:operation name="newOutageRequest">
                <wsdlsoap:operation/>
                <wsdl:input>
                    <wsdlsoap:body
                        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"

```

```

namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="forcedOutageRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="withdrawOutageRequest">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:fault>
</wsdl:operation>

```

```

<wsdl:operation name="loadByID">
  <wsdlsoap:operation/>
  <wsdl:input>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
      use="encoded" />
    </wsdl:input>
  <wsdl:output>
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
      use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
      <wsdlsoap:fault
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
      </wsdl:fault>
    </wsdl:operation>
  <wsdl:operation name="searchByCriteria">
    <wsdlsoap:operation/>
    <wsdl:input>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
      <wsdlsoap:body use="encoded" />
    </wsdl:input>
    <wsdl:output>
      <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
        use="encoded" />
      </wsdl:output>
      <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
          encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
          namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
          use="encoded" />
        </wsdl:fault>
      </wsdl:operation>
    <wsdl:operation name="searchByCriteria2">
      <wsdlsoap:operation/>
      <wsdl:input>
        <wsdlsoap:body
          encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
          namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
          use="encoded" />
        <wsdlsoap:body use="encoded" />
      </wsdl:input>
      <wsdl:output>
        <wsdlsoap:body
          encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
          namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
          use="encoded" />
        </wsdl:output>
        <wsdl:fault name="OutageRequestWebServiceException">

```



```

        <wsdlsoap: fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
            use="encoded" />
        </wsdl: fault>
    </wsdl: operation>
    <wsdl: operation name="searchByOutage">
        <wsdlsoap: operation/>
        <wsdl: input>
            <wsdlsoap: body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                use="encoded" />
            <wsdlsoap: body use="encoded" />
        </wsdl: input>
        <wsdl: output>
            <wsdlsoap: body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                use="encoded" />
            </wsdl: output>
            <wsdl: fault name="OutageRequestWebServiceException">
                <wsdlsoap: fault
                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                    use="encoded" />
                </wsdl: fault>
            </wsdl: operation>
            <wsdl: operation name="uploadOutageRequestXML">
                <wsdlsoap: operation/>
                <wsdl: input>
                    <wsdlsoap: body
                        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                        use="encoded" />
                    </wsdl: input>
                    <wsdl: output>
                        <wsdlsoap: body
                            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                            use="encoded" />
                        </wsdl: output>
                        <wsdl: fault name="OutageRequestWebServiceException">
                            <wsdlsoap: fault
                                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                                use="encoded" />
                            </wsdl: fault>
                        </wsdl: operation>
                        <wsdl: operation name="getResourcesValid">
                            <wsdlsoap: operation/>
                            <wsdl: input>
                                <wsdlsoap: body
                                    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
                                    use="encoded" />
                                </wsdl: input>
                                <wsdl: output>
                                    <wsdlsoap: body

```

```

        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageRequestWebServiceException">
        <wsdlsoap:fault
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="getResourcesAll">
        <wsdlsoap:operation/>
        <wsdl:input>
            <wsdlsoap:body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
            </wsdl:input>
        <wsdl:output>
            <wsdlsoap:body
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
            </wsdl:output>
        <wsdl:fault name="OutageRequestWebServiceException">
            <wsdlsoap:fault
                encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/OutageRequestWebService/4.0"
    use="encoded" />
            </wsdl:fault>
        </wsdl:operation>
    </wsdl:binding>
    <wsdl:service name="OutageRequestWebServiceService">
        <wsdl:port
            binding="tns:OutageRequestWebServiceSoapBinding"
            name="OutageRequestWebService">
            <wsdlsoap:address location="https://slicqa.caiso.com/soaprpcrouter" />
        </wsdl:port>
    </wsdl:service>
</wsdl:definitions>

```

3.5 Fault Return

The fault return message is the same for all services; see Section 2.9 for details.

4 RTAM Web Services

4.1 Business Scenario

Outage coordinators can use the RTAM web service to submit the minimum amount of data to request a generator outage or generator availability update.

Additionally, outage coordinators can retrieve availability data and information about active RTAM outages

4.2 Service Level Agreement

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

Service availability	Service level goal is 99.9%.
Expected size of payload (average and maximum)	Variable (1KB to 1MB+)
Expected frequency (average and maximum)	On demand (1/day – 100/day).
Longest time the service can be unavailable before business is impacted	30 minutes
Business impact if is unavailable	External outage coordinators will need to use an alternate means to submit outage data (SLIC Web Client, phone call to the CA ISO)
Expected response time for the service	Variable (.1 sec – 20 sec)
Expected time to exchange	On demand

4.3 Use Model

Not available

4.4 Operation Details

4.4.1 getActiveRTAMOutage

Locates and returns active RTAM-flagged Outages by Resource ID.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getActiveRTAMOutage	<i>getActiveRTAMOutageRequest</i>	Input	String	<i>res_id</i>	Browse page index
	<i>getActiveRTAMOutageResponse</i>	Output	ArrayOf_Name dValueID	return	Currently active RTAM Outages described as Outage ID (ID),

					Reference ID (Name), Short Description (Value).
	<i>AvailabilityWebServiceException</i>	Fault			Exception error message

4.4.2 getCurrentAvailability

Retrieves the current availability points for the specified resource(s); accepts multiple resource IDs

Operation	Message name	type	Parameter data type	Parameter Name	Description
getCurrentAvailability	<i>getCurrentAvailabilityRequest</i>	Input	<i>ArrayOf_String</i>	<i>res_ids</i>	Browse page index
	<i>getCurrentAvailabilityResponse</i>	Output	<i>ArrayOf_AvailabilityPoint</i>	return	Currently active Availability Point for each specified Resource ID
	<i>AvailabilityWebServiceException</i>	Fault			

4.4.3 setRTAMAvailability

Generates an Outage request in SLIC using the supplied parameters to create availability points; offers two modes of operation:

- Submit a request for a new Outage.
- Submit a request to update an existing Outage.

Operation	Message name	type	Parameter data type	Parameter Name	Description
setRTAMAvailability	<i>setRTAMAvailabilityRequest</i>	Input	<i>String</i>	<i>user_id</i>	SSL client certificate name of user making request
			<i>String</i>	<i>res_id</i>	Resource ID
			<i>dateTime</i>	<i>start_date</i>	Start of the time frame

			<i>dateTime</i>	end_date	End of the time frame
			double	MW	Megawatt value
			<i>Int</i>	<i>outage_id</i>	ISO Outage ID, 0 if there is not one.
			<i>String</i>	phone_number	Contact information of user making the request
	<i>getCurrentAvailabilityResponse</i>	Output	<i>int</i>	return	Unique ID for the request. Can be used to track request status
<i>AvailabilityWebServiceException</i>	Fault				

4.4.4 setRTAMAvailability2

Operation	Message name	type	Parameter data type	Parameter Name	Description
setRTAMAvailability2	<i>setRTAMAvailability2Request</i>	Input	<i>String</i>	<i>user_id</i>	SSL client certificate name of user making request
			<i>String</i>	res_id	Resource ID
			<i>dateTime</i>	start_date	Start of the time frame
			<i>dateTime</i>	end_date	End of the time frame
			<i>dateTime</i>	discovery_time	
			double	MW	Megawatt value
			<i>Int</i>	<i>outage_id</i>	ISO Outage ID, 0 if there is not one.
			<i>String</i>	phone_number	Contact information of user making the request
	<i>getCurrentAvailabilityResponse</i>	Output	<i>int</i>	return	Unique ID for the request. Can be used to track request status
<i>AvailabilityWebServiceException</i>	Fault				

4.4.5 setRTAMAvailability3

Operation	Message name	type	Parameter data type	Parameter Name	Description
setRTAMAvailability3	<i>setRTAMAvailability3Request</i>	Input	<i>String</i>	<i>user_id</i>	SSL client certificate name of user making request
			<i>String</i>	<i>res_id</i>	Resource ID
			<i>dateTime</i>	<i>start_date</i>	Start of the time frame
			<i>dateTime</i>	<i>end_date</i>	End of the time frame
			<i>dateTime</i>	<i>discovery_time</i>	
			ArrayOf_ConfigurationDoubleValue	MW	Array of megawatt value for each resource configuration
			<i>Int</i>	<i>outage_id</i>	ISO Outage ID, 0 if there is not one.
			<i>String</i>	<i>phone_number</i>	Contact information of user making the request
	<i>getCurrentAvailabilityResponse</i>	Output	<i>int</i>	<i>return</i>	Unique ID for the request. Can be used to track request status
<i>AvailabilityWebServiceException</i>	Fault				

4.5 WSDL

```

<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:bns="https://slic.caiso.com/schemas/base/v3"
  xmlns:sns="https://slic.caiso.com/schemas/slic/v6"
  xmlns:tns="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
  targetNamespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wsdl:import
    location="SLICDataTypes_v6.xsd"
    namespace="https://slic.caiso.com/schemas/slic/v6"/>
  <wsdl:import
    location="BaseDataTypes_v3.xsd"
    namespace="https://slic.caiso.com/schemas/base/v3"/>
  <wsdl:message name="AvailabilityWebServiceException">
    <wsdl:part name="exception_content" type="sns:AvailabilityWebServiceException"/>
  </wsdl:message>
  <wsdl:message name="getActiveRTAMOutageRequest">
    <wsdl:part name="res_id" type="xsd:string"/>
  </wsdl:message>
  <wsdl:message name="getActiveRTAMOutageResponse">
    <wsdl:part name="return" type="sns:ArrayOf_NamedValueID"/>
  </wsdl:message>
  <wsdl:message name="getCurrentAvailabilityRequest">
    <wsdl:part name="res_ids" type="bns:ArrayOf_String"/>
  </wsdl:message>
  <wsdl:message name="getCurrentAvailabilityResponse">
    <wsdl:part name="return" type="sns:ArrayOf_AvailabilityPoint"/>
  </wsdl:message>
  <wsdl:message name="setRTAMAvailabilityRequest">
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="res_id" type="xsd:string"/>
    <wsdl:part name="start_time" type="xsd:dateTime"/>
    <wsdl:part name="end_time" type="xsd:dateTime"/>
    <wsdl:part name="MW" type="xsd:double"/>
    <wsdl:part name="outage_id" type="xsd:int"/>
    <wsdl:part name="phone_number" type="xsd:string"/>
  </wsdl:message>
  <wsdl:message name="setRTAMAvailabilityResponse">
    <wsdl:part name="return" type="xsd:int"/>
  </wsdl:message>
  <wsdl:message name="setRTAMAvailabilityRequest2">
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="res_id" type="xsd:string"/>
    <wsdl:part name="start_time" type="xsd:dateTime"/>
    <wsdl:part name="end_time" type="xsd:dateTime"/>
    <wsdl:part name="discovery_time" type="xsd:dateTime"/>
    <wsdl:part name="MW" type="xsd:double"/>
    <wsdl:part name="outage_id" type="xsd:int"/>
    <wsdl:part name="phone_number" type="xsd:string"/>
  </wsdl:message>
  <wsdl:message name="setRTAMAvailabilityResponse2">
    <wsdl:part name="return" type="xsd:int"/>
  </wsdl:message>
  <wsdl:message name="setRTAMAvailabilityRequest3">
    <wsdl:part name="user_id" type="xsd:string"/>
    <wsdl:part name="res_id" type="xsd:string"/>
    <wsdl:part name="start_time" type="xsd:dateTime"/>
    <wsdl:part name="end_time" type="xsd:dateTime"/>
    <wsdl:part name="discovery_time" type="xsd:dateTime"/>
    <wsdl:part name="MW" type="sns:ArrayOf_ConfigurationDoubleValue"/>

```

```

    <wsdl:part name="outage_id" type="xsd:int"/>
    <wsdl:part name="phone_number" type="xsd:string"/>
  </wsdl:message>
  <wsdl:message name="setRTAMAvailabilityResponse3">
    <wsdl:part name="return" type="xsd:int"/>
  </wsdl:message>
  <wsdl:portType name="RTAMWebService">
    <wsdl:operation
      name="getActiveRTAMOutage"
      parameterOrder="res_id">
      <wsdl:input message="tns:getActiveRTAMOutageRequest"/>
      <wsdl:output message="tns:getActiveRTAMOutageResponse"/>
      <wsdl:fault
        message="tns:AvailabilityWebServiceException"
        name="AvailabilityWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
      name="getCurrentAvailability"
      parameterOrder="res_ids">
      <wsdl:input message="tns:getCurrentAvailabilityRequest"/>
      <wsdl:output message="tns:getCurrentAvailabilityResponse"/>
      <wsdl:fault
        message="tns:AvailabilityWebServiceException"
        name="AvailabilityWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
      name="setRTAMAvailability"
      parameterOrder="user_id res_id start_time end_time MW outage_id
phone_number">
      <wsdl:input name="old" message="tns:setRTAMAvailabilityRequest"/>
      <wsdl:output name="old" message="tns:setRTAMAvailabilityResponse"/>
      <wsdl:fault
        message="tns:AvailabilityWebServiceException"
        name="AvailabilityWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
      name="setRTAMAvailability2"
      parameterOrder="user_id res_id start_time end_time discovery_time MW
outage_id phone_number">
      <wsdl:input name="new" message="tns:setRTAMAvailabilityRequest2"/>
      <wsdl:output name="new" message="tns:setRTAMAvailabilityResponse2"/>
      <wsdl:fault
        message="tns:AvailabilityWebServiceException"
        name="AvailabilityWebServiceException"/>
    </wsdl:operation>
    <wsdl:operation
      name="setRTAMAvailability3"
      parameterOrder="user_id res_id start_time end_time discovery_time MW
outage_id phone_number">
      <wsdl:input name="new3" message="tns:setRTAMAvailabilityRequest3"/>
      <wsdl:output name="new3" message="tns:setRTAMAvailabilityResponse3"/>
      <wsdl:fault
        message="tns:AvailabilityWebServiceException"
        name="AvailabilityWebServiceException"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="RTAMWebServiceSoapBinding" type="tns:RTAMWebService">
    <wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="getActiveRTAMOutage">
      <wsdlsoap:operation/>
      <wsdl:input>
        <wsdlsoap:body
          encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
          namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
          use="encoded"/>
      </wsdl:input>
      <wsdl:output>

```



```

        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
        <wsdlsoap:fault name="AvailabilityWebServiceException"
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="getCurrentAvailability">
    <wsdlsoap:operation/>
    <wsdl:input>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:input>
    <wsdl:output>
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
        <wsdlsoap:fault name="AvailabilityWebServiceException"
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="setRTAMAvailability">
    <wsdlsoap:operation/>
    <wsdl:input name="old">
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:input>
    <wsdl:output name="old">
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:output>
    <wsdl:fault name="AvailabilityWebServiceException">
        <wsdlsoap:fault name="AvailabilityWebServiceException"
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
<wsdl:operation name="setRTAMAvailability2">
    <wsdlsoap:operation/>
    <wsdl:input name="new">
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />
    </wsdl:input>
    <wsdl:output name="new">
        <wsdlsoap:body
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
            namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
            use="encoded" />

```

```

</wsdl:output>
<wsdl:fault name="AvailabilityWebServiceException">
  <wsdlsoap:fault name="AvailabilityWebServiceException"
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
    use="encoded" />
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="setRTAMAvailability3">
  <wsdlsoap:operation/>
  <wsdl:input name="new3">
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
      use="encoded" />
  </wsdl:input>
  <wsdl:output name="new3">
    <wsdlsoap:body
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
      use="encoded" />
  </wsdl:output>
  <wsdl:fault name="AvailabilityWebServiceException">
    <wsdlsoap:fault name="AvailabilityWebServiceException"
      encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://www.caiso.com/webservices/slic/RTAMWebService/3.0"
      use="encoded" />
  </wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="RTAMWebService">
  <wsdl:port binding="tns:RTAMWebServiceSoapBinding"
    name="RTAMWebService">
    <wsdlsoap:address location="https://slicqa.caiso.com/soaprpcrouter"/>
  </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

5 System Notification Web Services

5.1 Business Scenario

Outage coordinators can use this API to retrieve information about outages that have meet certain alarm conditions.

5.2 Service Level Agreement

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

Service availability	Service level goal is 99.9%.
Expected size of payload (average and maximum)	Variable (1KB to 1MB+)
Expected frequency (average and maximum)	On demand (50/day – 200/day).
Longest time the service can be unavailable before business is impacted	30 minutes
Business impact if is unavailable	External outage coordinators will need to use an alternate means to submit outage data (SLIC Web Client, phone call to the CA ISO)
Expected response time for the service	Variable (.1 sec – 30 sec)
Expected time to exchange	On demand

5.3 Use Model

Not available

5.4 Operation Details

5.4.1 getAllSystemNotifications

Retrieves all system notifications and returns:

- Outages in ETOTIMEOUT that require a start Outage request
- Outages in ETRTIMEOUT that require a start Outage request
- Forced Outages that require submission of a forced Outage report.

Operation	Message name	type	Parameter data type	Parameter Name	Description
getLastUpdateTime	<i>getAllSystemNotificationsRequest</i>	Input			

	<i>getAllSystemNotificationsResponse</i>	Output	<i>ArrayOfNamedValueID</i>	return	An array of named value IDs
	<i>OutageWebServiceException</i>	Fault			

5.5 WSDL

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:bns="https://slic.caiso.com/schemas/base/v3"
  xmlns:sns="https://slic.caiso.com/schemas/slic/v4"
  xmlns:tns="http://www.caiso.com/webservices/slic/SystemNotificationWebService/1.0"
  targetNamespace="http://www.caiso.com/webservices/slic/SystemNotificationWebService/1.0"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wsdl:import
    location="SLICDataTypes_v4.xsd"
    namespace="https://slic.caiso.com/schemas/slic/v4"/>
  <wsdl:import
    location="BaseDataTypes_v3.xsd"
    namespace="https://slic.caiso.com/schemas/base/v3"/>
  <wsdl:message name="OutageWebServiceException">
    <wsdl:part name="exception_content" type="sns:OutageWebServiceException"/>
  </wsdl:message>
  <wsdl:message name="getAllSystemNotificationsRequest">
  </wsdl:message>
  <wsdl:message name="getAllSystemNotificationsResponse">
    <wsdl:part name="return" type="sns:ArrayOf_NamedValueID"/>
  </wsdl:message>
  <wsdl:portType name="SystemNotificationWebService">
    <wsdl:operation
      name="getAllSystemNotifications">
      <wsdl:input message="tns:getAllSystemNotificationsRequest"/>
      <wsdl:output message="tns:getAllSystemNotificationsResponse"/>
      <wsdl:fault
        message="tns:OutageWebServiceException"
        name="OutageWebServiceException"/>
      </wsdl:operation>
    </wsdl:portType>
    <wsdl:binding name="SystemNotificationWebServiceSoapBinding"
      type="tns:SystemNotificationWebService">
      <wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http"/>
      <wsdl:operation name="getAllSystemNotifications">
        <wsdlsoap:operation/>
        <wsdl:input>
```

```
<wsdlsoap:body
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/SystemNotificationWebService/1.0"
    use="encoded" />
</wsdl:input>
<wsdl:output>
    <wsdlsoap:body
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/SystemNotificationWebService/1.0"
        use="encoded" />
    </wsdl:output>
    <wsdl:fault name="OutageWebServiceException">
        <wsdlsoap:fault name="OutageWebServiceException"
            encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://www.caiso.com/webservices/slic/SystemNotificationWebService/1.0"
            use="encoded" />
    </wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="SystemNotificationWebService">
    <wsdl:port binding="tns:SystemNotificationWebServiceSoapBinding"
        name="SystemNotificationWebService">
        <wsdlsoap:address location="https://slicqa.caiso.com/soaprpcrouter"/>
    </wsdl:port>
</wsdl:service>
</wsdl:definitions>
```

6 Appendix – Base Data Types

6.1 Schema

```
<?xml version="1.0" encoding="UTF-8" ?>
<!--
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-->
<xsd:schema
    targetNamespace="https://slic.caiso.com/schemas/base/v3"
    xmlns="http://schemas.xmlsoap.org/wsdl/"
    xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:bns="https://slic.caiso.com/schemas/base/v3">

    <xsd:import namespace="http://schemas.xmlsoap.org/soap/encoding/"
    schemaLocation="http://schemas.xmlsoap.org/soap/encoding/" />

    <xsd:complexType name="IntegerAtt">
        <xsd:sequence>
            <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
            type="xsd:int" />
            <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
            type="bns:AttValueState" />
        </xsd:sequence>
    </xsd:complexType>
    <xsd:simpleType name="AttValueState">
        <xsd:restriction base="xsd:int">
            <!--
                UNKNOWN - used when submitting incomplete data during an update
            -->
            <xsd:enumeration value="0" />
            <!--
                NULL - used to indicate null data
            -->
            <xsd:enumeration value="1" />
            <!--
                KNOWN
            -->
            <xsd:enumeration value="2" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

```

</xsd:simpleType>
<xsd:complexType name="ArrayOf_IntegerAtt">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="bns:IntegerAtt" />
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="bns:IntegerAtt[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="StringAtt">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ArrayOf_StringAtt">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="bns:StringAtt" />
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="bns:StringAtt[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="ExtendedAttributes">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ArrayOf_ExtendedAttributes">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="bns:ExtendedAttributes" />

```



```

        </xsd:sequence>
        <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="bns:ExtendedAttributes[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="DoubleAtt">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:double" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState" />
    </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ArrayOf_DoubleAtt">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="bns:DoubleAtt" />
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="bns:DoubleAtt[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="DateTimeAtt">
    <xsd:sequence>
        <!--
            All dates are in GMT
            DateTimeAtt value string should be in the format yyyyMMddTHHmss.SSS
            example: 20030731T2035.000 (July 31, 2003 8:35 PM)
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState" />
    </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ArrayOf_DateTimeAtt">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="bns:DateTimeAtt" />
            </xsd:sequence>
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

```

```
        <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="bns:DateTimeAtt[]" />
    </xsd:restriction>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="ArrayOf_String">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="xsd:string" />
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="xsd:string[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="ArrayOf_Int">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="xsd:int" />
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="xsd:int[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="ArrayOf_Double">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="xsd:double" />
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="xsd:double[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>
</xsd:schema>
```

7 Appendix – SLIC Data Types

7.1 Schema

```
<?xml version="1.0" encoding="UTF-8" ?>
<!--
Copyright 2001-2012 California Independent Service Operator. All rights reserved.
-->
<xsd:schema
    targetNamespace="https://slic.caiso.com/schemas/slic/v6"
    xmlns="http://schemas.xmlsoap.org/wsdl/"
    xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:sns="https://slic.caiso.com/schemas/slic/v6"
    xmlns:bns="https://slic.caiso.com/schemas/base/v3">

    <xsd:import namespace="https://slic.caiso.com/schemas/base/v3"
    schemaLocation="BaseDataTypes_v3.xsd"/>

    <xsd:import namespace="http://schemas.xmlsoap.org/soap/encoding/"
    schemaLocation="http://schemas.xmlsoap.org/soap/encoding/" />

    <xsd:annotation>
        <xsd:documentation>SLIC Core Data Types</xsd:documentation>
    </xsd:annotation>

    <xsd:simpleType name="RampRateSegmentType">
        <xsd:restriction base="xsd:int">
            <xsd:enumeration value="0">
                <xsd:annotation>
                    <xsd:documentation>MW_RANGE</xsd:documentation>
                </xsd:annotation>
            </xsd:enumeration>
            <xsd:enumeration value="1">
                <xsd:annotation>
                    <xsd:documentation>MSG_CONFIGURATION</xsd:documentation>
                </xsd:annotation>
            </xsd:enumeration>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

```

        </xsd:enumeration>
    </xsd:restriction>
</xsd:simpleType>
<xsd:complexType name="NamedValue">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="name"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of named values
-->
<xsd:complexType name="ArrayOf_NamedValue">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:NamedValue"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:NamedValue[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Named value with associated key
-->
<xsd:complexType name="NamedValueID">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="id"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="name"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState"/>
    </xsd:sequence>
</xsd:complexType>

```

```

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of named values with keys
-->
<xsd:complexType name="ArrayOf_NamedValueID">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:NamedValueID"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:NamedValueID[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    ISO internal use only
-->
<xsd:complexType name="SubAttributeValues">
    <xsd:sequence>
        <!--
            Required when submitting data
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_key"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_name"
type="xsd:string"/>
        <!--
            Required when submitting data
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="sns:ArrayOf_NamedValueID"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    ISO internal use only
-->
<xsd:complexType name="ArrayOf_SubAttributeValues">
    <xsd:complexContent>

```

```

    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:SubAttributeValues"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:SubAttributeValues[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Attribute value - holder of entity attribute information
-->
<xsd:complexType name="AttributeValue">
  <xsd:sequence>
    <!--
      Required when submitting data
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_key"
type="xsd:int"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_name"
type="xsd:string"/>
    <!--
      Required when submitting data
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string"/>
    <!--
      Value type
      current types (subject to change):
      I - Integer
      F - Floating point decimal
      D - Date in the format yyyyMMddTHHmss.SSSZ in GMT
         example: 20030731T0000.000Z (July 31, 2003)
      T - Date/Time in the format yyyyMMddTHHmss.SSS in GMT
         example: 20030731T2035.000Z (July 31, 2003 8:35 PM)
      M - Time in the format HHmss.SSSZ
         example: 104500.000Z (10:45 AM)
      S - String
      B - Boolean
      E - Set (not used by web)
      O - Optional Set (not used by web)
      C - Cached Set (not used by web)

```

```

        G - Grid (not used by web)
        L - Lookup (not used by web)
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value_type"
type="xsd:string"/>
    <!--
        ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="sub_values"
type="sns:ArrayOf_SubAttributeValues"/>
    <!--
        Required when submitting data
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of attribute value
-->
<xsd:complexType name="ArrayOf_AttributeValue">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:AttributeValue"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:AttributeValue[]"/>
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    ISO internal use only
-->
<xsd:complexType name="RelatedItem">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="id"
type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="desc"
type="bns:StringAtt"/>
    </xsd:sequence>

```

```

</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  ISO internal use only
-->
<xsd:complexType name="ArrayOf_RelatedItem">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:RelatedItem"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:RelatedItem[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  ISO internal use only
-->
<xsd:complexType name="UserGroup">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="name"
type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="description"
type="bns:StringAtt"/>
    <!--
      ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="security"
type="sns:ArrayOf_NamedValue"/>
    <!--
      Not currently used
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
  </xsd:sequence>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  ISO internal use only
-->

```



```

<xsd:complexType name="ArrayOf_UserGroup">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:UserGroup"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:UserGroup[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  User credentials - container for user identity information.
  For the web, the user_id field is of primary importance.
-->
<xsd:complexType name="UserCredentials">
  <xsd:sequence>
    <!--
      Required when submitting data
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="user_id"
type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="first_name"
type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="last_name"
type="bns:StringAtt"/>
    <!--
      ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="roles"
type="sns:ArrayOf_UserGroup"/>
    <!--
      ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="profile"
type="sns:ArrayOf_NamedValue"/>
    <!--
      Not currently used
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
  </xsd:sequence>
</xsd:complexType>

```

```
<!--
  SLIC DATA TYPES - Core SLIC data type
  Array of user credentials
-->
<xsd:complexType name="ArrayOf_UserCredentials">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:UserCredentials"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:UserCredentials[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Outage Resource - Resource data used with an outage
-->
<xsd:complexType name="OutageResource">
  <xsd:sequence>
    <!--
      ISO Resource unique identifier - ISO INTERNAL USE ONLY - MAY CHANGE
      WITHOUT NOTICE
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_key"
type="bns:IntegerAtt"/>
    <!--
      Master file resource unique identifier - required when submitting data
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_id"
type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_name"
type="bns:StringAtt"/>
    <!--
      Resource type of outage.
      Current types (subject to change):
      8 - Line
      2 - Generator
      9 - Station
      3 - Intertie
      6 - Sync Cindenser
    -->
```

```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type_key"
type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type"
type="bns:StringAtt"/>
        <!--
            GADS cause codes - Required when submitting data
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="causes"
type="bns:ArrayOf_IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_curtailed_mw" type="bns:DoubleAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_curtailed_flg" type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_multi_hr_curtail" type="bns:ArrayOf_DoubleAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="max_gen_cap"
type="bns:DoubleAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="rnr_contract_flg" type="bns:StringAtt"/>
        <!--
            Not currently used
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Outage Resource
-->
<xsd:complexType name="ArrayOf_OutageResource">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageResource"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:OutageResource[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Emergency Return UOM - used to indicate the unit of measure of the Emergency
Return

```

```

-->
<xsd:simpleType name="EmergencyReturnUom">
  <xsd:restriction base="xsd:int">
    <!--
      DAY
    -->
    <xsd:enumeration value="0"/>
    <!--
      HOUR
    -->
    <xsd:enumeration value="1"/>
    <!--
      MINUTE
    -->
    <xsd:enumeration value="2"/>
    <!--
      YEAR
    -->
    <xsd:enumeration value="3"/>
    <!--
      IMMEDIATE
    -->
    <xsd:enumeration value="4"/>
    <!--
      DURATION
    -->
    <xsd:enumeration value="5"/>
  </xsd:restriction>
</xsd:simpleType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Emergency Return - used to indicate the minimum period of time necessary to bring
  a resource back online
-->
<xsd:complexType name="EmergencyReturn">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="assigned"
type="bns:AttValueState"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="uom"
type="sns:EmergencyReturnUom"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="time"
type="bns:DoubleAtt"/>
  </xsd:sequence>
</xsd:complexType>

```

```

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Emergency Return
-->
<xsd:complexType name="ArrayOf_EmergencyReturn">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:EmergencyReturn"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:EmergencyReturn[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    ISO internal use only
-->
<xsd:complexType name="OutageBranchGroup">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_bg_key"
type="bns:IntegerAtt"/>
        <!--
            ISO Resource unique identifier - ISO INTERNAL USE ONLY - MAY CHANGE
            WITHOUT NOTICE
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_key"
type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="contract_party_id" type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="branch_flow_direction" type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="intertie_name"
type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="limit"
type="bns:IntegerAtt"/>
        <!--
            Not currently used
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
    </xsd:sequence>
</xsd:complexType>

```

```
<!--
  SLIC DATA TYPES - Core SLIC data type
  ISO internal use only
-->
<xsd:complexType name="ArrayOf_OutageBranchGroup">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageBranchGroup" />
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:OutageBranchGroup[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Outage Event - used to describe an event during the lifecycle of an outage
-->
<xsd:complexType name="OutageEvent">
  <xsd:sequence>
    <!--
      ISO outage event key (internal use only)
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="event_key"
type="bns:IntegerAtt" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="event_dts"
type="bns:DateTimeAtt" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="user"
type="sns:UserCredentials" />
    <!--
      Current outage event types (subject to change):
      Note: value is numeric
      1 - NEW OUTAGE
      2 - NEW FORCED
      3 - POSTPONED
      4 - RESURRECTED
      5 - DISAPPROVED
      6 - INVESTIGATE
      7 - APPROVE
      8 - APPROVE OUT OK
    -->
  </xsd:sequence>
</xsd:complexType>
```

- 9 - APPROVE IN OK
- 10- OUTAGE STARTED
- 11- OUTAGE COMPLETED
- 12- RESCHEDULE OUTAGE
- 13- RESCHEDULE RETURN
- 14- CANCELLED
- 15- REVISE AVAIL
- 16- ESTIMATED TIME OF RETURN PASSED DUE
- 17- ESTIMATED TIME OF START PASSED DUE
- 18- APPROVAL PASSED DUE
- 19- OUTAGE REQUEST_REJECTED
- 20- NEW OUTAGE REQUEST
- 21- ACCEPT NEW OUTAGE REQUEST
- 22- REJECT NEW OUTAGE REQUEST
- 23- CHANGE REQUEST
- 24- ACCEPT CHANGE REQUEST
- 25- REJECT CHANGE REQUEST
- 26- CANCEL OUTAGE REQUEST
- 27- ACCEPT CANCEL REQUEST
- 28- REJECT CANCEL REQUEST
- 29- INFORMATIONAL EVENT
- 30- NEW FORCED OUT
- 31- OC NOTES
- 32- MAKE FORCED
- 33- MAKE PLANNED
- 34- ACCEPT FORCED IMMED REQUEST TO OUT
- 35- ACCEPT FORCED IMMED REQUEST TO APPROVED
- 37- WITHDRAW NEW REQUEST
- 38- WITHDRAW CHANGE REQUEST
- 39- WITHDRAW CANCEL REQUEST
- 40- RESET TIMEOUT
- 41- OUT IN
- 42- REVERSE OUT
- 43- REVERSE IN
- 44- CORRECT ACTUAL OUT DTS
- 45- CORRECT ACTUAL IN DTS

-->

```
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="event_type_id" type="bns:StringAtt"/>
```

```
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="event_short_name" type="bns:StringAtt"/>
```

<!--

Current outage status codes (subject to change):

SCHEDULED

```
PENDING
APPROVED
OUTOK
OUT
INOK
INSERVICE
ETOTIMEOUT - Estimated start time past due.
ETRTIMEOUT - Estimated end time past due.
CANCELLED
DISAPPROVED
POSTPONED
APVTIMEOUT - Approval past due.
REQUESTED
WITHDRAWN
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="from_state_cd"
type="bns:StringAtt"/>
<!--
    Current outage status codes (subject to change):
    SCHEDULED
    PENDING
    APPROVED
    OUTOK
    OUT
    INOK
    INSERVICE
    ETOTIMEOUT - Estimated start time past due.
    ETRTIMEOUT - Estimated end time past due.
    CANCELLED
    DISAPPROVED
    POSTPONED
    APVTIMEOUT - Approval past due.
    REQUESTED
    WITHDRAWN
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="to_state_cd"
type="bns:StringAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="gen_status"
type="bns:StringAtt"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="reason"
type="bns:StringAtt"/>
```



```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="reason_cd"
type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="avail_mw"
type="bns:DoubleAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_start_dts" type="bns:DateTimeAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_end_dts" type="bns:DateTimeAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="contact_dts"
type="bns:DateTimeAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="contact"
type="sns:UserCredentials"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_request_id" type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="update_dts"
type="bns:DateTimeAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="update_uid"
type="bns:StringAtt"/>
        <!--
                ISO internal use only
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="log_id"
type="bns:IntegerAtt"/>
        <!--
                Not currently used
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Outage Events
-->
<xsd:complexType name="ArrayOf_OutageEvent">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageEvent"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:OutageEvent[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

```

```

<!--
    SLIC DATA TYPES - Core SLIC data type
    Overlap Relationship - used to indicate the relationship between overlapping
    generation outages for the same resource
-->
<xsd:complexType name="OverlapRelationship">
    <xsd:sequence>
        <!--
            CA ISO assigned outage identifier - unique within the system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="bns:IntegerAtt"/>
        <!--
            Availability capacity calculation types.
            Current types (subject to change):
            R - Restrictive (highest value taken)
            A - Additive (values added together)
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="nac_calc"
type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_start_dts" type="bns:DateTimeAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_end_dts" type="bns:DateTimeAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_curtailed_mw" type="bns:DoubleAtt"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Overlap Relationship
-->
<xsd:complexType name="ArrayOf_OverlapRelationship">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OverlapRelationship"/>
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:OverlapRelationship[]"/>
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

```

```

    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    ISO internal use only
-->
<xsd:complexType name="Equipment">
    <xsd:sequence>
        <!--
            ISO Resource unique identifier - ISO INTERNAL USE ONLY - MAY CHANGE
            WITHOUT NOTICE
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_key"
            type="bns:IntegerAtt"/>
        <!--
            Master file resource unique identifier
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_id"
            type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_name"
            type="bns:StringAtt"/>
        <!--
            Resource type of outage.
            Current types (subject to change):
            8 - Line
            2 - Generator
            9 - Station
            3 - Intertie
            6 - Sync Cindenser
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type_key"
            type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type"
            type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_state_cd"
            type="bns:StringAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="primary_flg"
            type="bns:StringAtt"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    ISO internal use only
-->

```

```

<xsd:complexType name="ArrayOf_Equipment">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:Equipment"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:Equipment[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Overlap Outage - used to describe an overlapping relationship and indicate the
relationship between
      overlapping generation outages for the same resource
-->
<xsd:complexType name="OverlapOutage">
  <xsd:sequence>
    <!--
      CA ISO assigned outage identifier - unique within the system
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="bns:IntegerAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_start_dts" type="bns:DateTimeAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_end_dts" type="bns:DateTimeAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_curtailed_mw" type="bns:DoubleAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_overlap" type="sns:ArrayOf_OverlapRelationship"/>
    <!--
      Not currently used
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
  </xsd:sequence>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Array of Overlap Outages
-->
<xsd:complexType name="ArrayOf_OverlapOutage">

```

```

<xsd:complexContent>
  <xsd:restriction base="SOAP-ENC:Array">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OverlapOutage"/>
    </xsd:sequence>
    <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:OverlapOutage[]"/>
  </xsd:restriction>
</xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Outage Note - container for large texts of outage descriptive information
-->
<xsd:complexType name="OutageNote">
  <xsd:sequence>
    <!--
      Note type.
      Current types (subject to change):
      E - External (visible to web)
      I - Internal (not visible to web)
      C - Equipment changes, black book note (not currently used)
      O - Engineering notes (not visible to web)
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="detail_type"
type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="detail_desc"
type="bns:StringAtt"/>
  </xsd:sequence>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Array of Outage Note
-->
<xsd:complexType name="ArrayOf_OutageNote">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageNote"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:OutageNote[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

```

```
</xsd:restriction>
</xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Overlapping Outages - container for outage overlap information returned with
  overlap exceptions
-->
<xsd:complexType name="OverlapOutages">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outages"
type="sns:ArrayOf_OverlapOutage"/>
    <!--
      Not currently used
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>
  </xsd:sequence>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Not currently used
-->
<xsd:complexType name="ArrayOf_OverlapOutages">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OverlapOutages"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:OverlapOutages[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!-- RampRateValue -->
<xsd:complexType name="RampRateValue">
  <xsd:sequence>
    <!-- outage_id -->
    <xsd:element name="outage_id" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:IntegerAtt"/>
    <!-- segment_no_rr -->
```

```

    <xsd:element name="seg_no_rr" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:IntegerAtt"/>
    <!-- ramp_rate_value -->
    <xsd:element name="ramp_rate_value" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:DoubleAtt"/>
    <!-- res_key -->
    <xsd:element name="res_key" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:IntegerAtt"/>
    <!-- mw -->
    <xsd:element name="mw" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:DoubleAtt"/>
    <!-- min_ramp_rate -->
    <xsd:element name="min_ramp_rate" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:DoubleAtt"/>
    <!-- max_ramp_rate -->
    <xsd:element name="max_ramp_rate" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:DoubleAtt"/>

    <xsd:element name="segment_type" maxOccurs="1" minOccurs="0" nillable="true"
type="sns:RampRateSegmentType"/>
    </xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_RampRateValue -->
<xsd:complexType name="ArrayOf_RampRateValue">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="sns:RampRateValue[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<xsd:simpleType name="AvailabilityMode">
  <xsd:restriction base="xsd:int">
    <!--
      NEW AVAILABILITY POINTS
      for use when issuing a new outage request
    -->
    <xsd:enumeration value="0"/>
    <!--
      NEW AVAILABILITY POINTS HOURLY
      for use when issuing a new outage request for an outage with hourly availability
      fluctuations
    -->
    <xsd:enumeration value="1"/>
  </xsd:restriction>
</xsd:simpleType>

```

```

<!--
    REVISE AVAILABILITY POINTS
    for use when issuing a revise availability request
-->
<xsd:enumeration value="2"/>
<!--
    SET SINGLE AVAILABILITY POINT
    for use when issuing a set single availability point request
-->
<xsd:enumeration value="3"/>
<!--
    RESCHEDULE AVAILABILITY POINTS
    for use when issuing a reschedule, reschedule due back, correct start, or correct
end request
-->
<xsd:enumeration value="4"/>
<!--
    CANCEL AVAILABILITY POINTS
    for use when issuing a cancel outage request
-->
<xsd:enumeration value="5"/>
</xsd:restriction>
</xsd:simpleType>

<!-- AvailabilityPointDetail -->
<xsd:complexType name="AvailabilityPointDetail">
  <xsd:sequence>
    <!-- avail_point_key -->
    <xsd:element name="avail_point_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
    <!-- outage_id -->
    <xsd:element name="outage_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
    <!-- detail_mode -->
    <xsd:element name="detail_mode" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
    <!-- reference_id -->
    <xsd:element name="reference_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- state_cd -->
    <xsd:element name="state_cd" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- short_desc -->
    <xsd:element name="short_desc" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- outage_start_dts -->

```



```

    <xsd:element name="outage_start_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- outage_end_dts -->
    <xsd:element name="outage_end_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- gen_curtailed_mw -->
    <xsd:element name="gen_curtailed_mw" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double"/>
    <!-- gen_curtailed_flg -->
    <xsd:element name="gen_curtailed_flg" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean"/>
    <!-- child_res_keys -->
    <xsd:element name="child_res_keys" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:ArrayOf_Int"/>
    <!-- child_res_ids -->
    <xsd:element name="child_res_ids" maxOccurs="1" minOccurs="0" nillable="true"
type="bns:ArrayOf_String"/>
  </xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_AvailabilityPointDetail -->
<xsd:complexType name="ArrayOf_AvailabilityPointDetail">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:AvailabilityPointDetail"/>
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:AvailabilityPointDetail[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!-- AvailabilityPointValue -->
<xsd:complexType name="AvailabilityPointValue">
  <xsd:sequence>
    <!-- configuration idoid -->
    <xsd:element name="config_oid" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
    <xsd:element name="config_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- point_dts -->
    <xsd:element name="point_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- available_mw -->
    <xsd:element name="available_mw" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double"/>

```

```

    <!-- out_of_service -->
    <xsd:element name="out_of_service" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean" />
    <!-- ndc -->
    <xsd:element name="ndc" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean" />
  </xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_AvailabilityPointValue -->
<xsd:complexType name="ArrayOf_AvailabilityPointValue">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:AvailabilityPointValue[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!-- AvailabilityPoint -->
<xsd:complexType name="AvailabilityPoint">
  <xsd:sequence>
    <!-- configuration idoid, 0 for plant -->
    <xsd:element name="config_oid" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <xsd:element name="config_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
    <!-- avail_point_key -->
    <xsd:element name="avail_point_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <!-- res_key -->
    <xsd:element name="res_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <!-- point_type -->
    <xsd:element name="point_type" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <!-- created_event_key -->
    <xsd:element name="created_event_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <!-- deleted_event_key -->
    <xsd:element name="deleted_event_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <!-- point_dts -->
    <xsd:element name="point_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />

```

```

    <!-- res_id -->
    <xsd:element name="res_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- created_dts -->
    <xsd:element name="created_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- created_user_id -->
    <xsd:element name="created_user_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- deleted_dts -->
    <xsd:element name="deleted_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- deleted_user_id -->
    <xsd:element name="deleted_user_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- available_mw -->
    <xsd:element name="available_mw" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double"/>
    <!-- out_of_service -->
    <xsd:element name="out_of_service" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean"/>
    <!-- ndc -->
    <xsd:element name="ndc" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean"/>
    <!-- details -->
    <xsd:element name="details" maxOccurs="1" minOccurs="0" nillable="true"
type="sns:ArrayOf_AvailabilityPointDetail"/>
  </xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_AvailabilityPoint -->
<xsd:complexType name="ArrayOf_AvailabilityPoint">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:AvailabilityPoint[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!-- AvailabilityActual -->
<xsd:complexType name="AvailabilityActual">
  <xsd:sequence>
    <!-- configuration id, 0 for plant -->
    <xsd:element name="config_oid" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
    <xsd:element name="config_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>

```

```
<!-- avail_point_key -->
<xsd:element name="avail_point_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- actual_dts -->
<xsd:element name="actual_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
<!-- point_dts -->
<xsd:element name="point_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
<!-- available_mw -->
<xsd:element name="available_mw" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double"/>
<!-- actual_type -->
<xsd:element name="actual_type" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- out_of_service -->
<xsd:element name="out_of_service" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean"/>
<!-- ndc -->
<xsd:element name="ndc" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:boolean"/>
<!-- log_id -->
<xsd:element name="log_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- res_id -->
<xsd:element name="res_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
<!-- res_key -->
<xsd:element name="res_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- point_type -->
<xsd:element name="point_type" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- created_event_key -->
<xsd:element name="created_event_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- created_outage_id -->
<xsd:element name="created_outage_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- created_dts -->
<xsd:element name="created_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
<!-- created_user_id -->
<xsd:element name="created_user_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
<!-- deleted_event_key -->
<xsd:element name="deleted_event_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
<!-- deleted_outage_id -->
```

```

    <xsd:element name="deleted_outage_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
    <!-- deleted_dts -->
    <xsd:element name="deleted_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
    <!-- deleted_user_id -->
    <xsd:element name="deleted_user_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
  </xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_AvailabilityActual -->
<xsd:complexType name="ArrayOf_AvailabilityActual">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:AvailabilityActual[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

  <xsd:complexType name="PMinValue">
    <xsd:sequence>
      <!--
        outage id not required for submission
      -->
      <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="bns:IntegerAtt" />
      <!--
        config idoid, 0 for plant config
      -->
      <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="config_oid"
type="bns:IntegerAtt" />
      <xsd:element name="config_id" maxOccurs="1" minOccurs="0"
nillable="true" type="bns:StringAtt" />
      <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pmin_rerate"
type="bns:DoubleAtt" />
      <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="update_dts"
type="bns:DateTimeAtt" />
    </xsd:sequence>
  </xsd:complexType>

  <!--
    Array of PMIN values
  -->
  <xsd:complexType name="ArrayOf_PMinValue">

```

```

<xsd:complexContent>
  <xsd:restriction base="SOAP-ENC:Array">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PMinValue"/>
    </xsd:sequence>
    <xsd:attribute
      ref="SOAP-ENC:arrayType"
      wsdl:arrayType="sns:PMinValue[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Outage Card - principle container of outage information
-->
<xsd:complexType name="OutageCard">
  <xsd:sequence>
    <!--
      CA ISO assigned outage identifier - unique within the system
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="bns:IntegerAtt"/>
    <!--
      BA identifier - unique within the system
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_id"
type="bns:IntegerAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_short_name"
type="bns:StringAtt"/>
    <!--
      Web assigned outage identifier - not guaranteed to be unique within the
system
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_outage_id"
type="bns:StringAtt"/>
    <!--
      Current status codes (subject to change):
      SCHEDULED
      PENDING
      APPROVED
      OUTOK
      OUT
      INOK
      INSERVICE

```

```

ETOTIMEOUT - Estimated start time past due.
ETRTIMEOUT - Estimated end time past due.
CANCELLED
DISAPPROVED
POSTPONED
APVTIMEOUT - Approval past due.
REQUESTED
WITHDRAWN
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="state_cd"
type="bns:StringAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="resource"
type="sns:OutageResource"/>
<!--
Current types:
1 - Planned
2 - Forced
3 - Ambient
4 - NORMAL
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_type_key" type="bns:IntegerAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="child_resources" type="sns:ArrayOf_OutageResource"/>
<!--
Current indicators:
O - Some open
C - All closed
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="line_term_ind"
type="bns:StringAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_curtailed_mw" type="bns:DoubleAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_curtailed_flg" type="bns:StringAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_multi_hr_curtail" type="bns:ArrayOf_Double"/>
<!--
ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="gen_available_mw" type="bns:DoubleAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="line_voltage"
type="bns:IntegerAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="short_desc"
type="bns:StringAtt"/>

```

```

<!--
    ISO internal use only - NGR outage data
-->

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="ngr_out_of_service" type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_pmax"
type="bns:DoubleAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_pmin"
type="bns:DoubleAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_el_max"
type="bns:DoubleAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_el_min"
type="bns:DoubleAtt"/>

<!--
    Note of type E is required for web submitssions
-->

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="notes"
type="sns:ArrayOf_OutageNote"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="update_user_id" type="bns:StringAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_start_dts" type="bns:DateTimeAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_end_dts" type="bns:DateTimeAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="received_dts"
type="bns:DateTimeAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="update_dts"
type="bns:DateTimeAtt"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="created_dts"
type="bns:DateTimeAtt"/>

<!--
    ISO internal use only
-->

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="created_user"
type="sns:UserCredentials"/>

<!--
    ISO internal use only
-->

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="update_user"
type="sns:UserCredentials"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="emergency_return" type="sns:EmergencyReturn"/>

<!--
    ISO internal use only
-->

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="related_outages" type="sns:ArrayOf_RelatedItem"/>

```



```

<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="related_logs"
type="sns:ArrayOf_RelatedItem"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="branch_groups"
type="sns:ArrayOf_OutageBranchGroup"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="reports"
type="bns:ArrayOf_IntegerAtt"/>
<!--
    Outage attributes are resource type specific
    See look-up data for more information
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_events"
type="sns:ArrayOf_OutageEvent"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_overlap" type="sns:ArrayOf_OverlapRelationship"/>
<!--
    Not currently used
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="equipment"
type="sns:ArrayOf_Equipment"/>
<!--
    Not currently used
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="extended_attributes" type="bns:ExtendedAttributes"/>

<!-- outage_mode_key -->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_mode_key" type="bns:IntegerAtt"/>
<!-- pmin_rerate -->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pmin_rerate"
type="bns:DoubleAtt"/>
<!-- pmin_rerate -->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="pmin_rerate_values" type="sns:ArrayOf_PMinValue"/>
<!-- effective_pmin_rerate -->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="pmin_rerate_effective" type="bns:DoubleAtt"/>

```

```

        <!-- ramp_rate_values -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="ramp_rate_values" type="sns:ArrayOf_RampRateValue"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Outage Card
-->
<xsd:complexType name="ArrayOf_OutageCard">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageCard"/>
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:OutageCard[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Outage Search Result - flattened container for outage search result information
-->
<xsd:complexType name="OutageSearchResult">
    <xsd:sequence>
        <!--
            CA ISO assigned outage identifier - unique within the system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="bns:IntegerAtt"/>
        <!--
            ISO Resource unique identifier - ISO INTERNAL USE ONLY - MAY CHANGE
            WITHOUT NOTICE
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_key"
type="bns:IntegerAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_short_name"
type="bns:StringAtt"/>
        <!--
            Web assigned outage identifier - not guaranteed to be unique within the
            system
    </xsd:sequence>

```

```

-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_outage_id"
type="bns:StringAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_name"
type="bns:StringAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="state_name"
type="bns:StringAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_start_dts" type="bns:DateTimeAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="voltage"
type="bns:DoubleAtt"/>
<!--
  Current types:
  1 - Planned
  2 - Forced
  3 - Ambient
  4 - NORMAL
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_type_key" type="bns:IntegerAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="curtailed_mw"
type="bns:DoubleAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="short_desc"
type="bns:StringAtt"/>
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="expected_return_dts" type="bns:DateTimeAtt"/>
<!--
  Current status codes (subject to change):
  SCHEDULED
  PENDING
  APPROVED
  OUTOK
  OUT
  INOK
  INSERVICE
  ETOTIMEOUT - Estimated start time past due.
  ETRTIMEOUT - Estimated end time past due.
  CANCELLED
  DISAPPROVED
  POSTPONED
  APVTIMEOUT - Approval past due.
  REQUESTED
  WITHDRAWN
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="state_cd"
type="bns:StringAtt"/>
<!--

```

```
Maximum generation capacity (generators only)
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="max_gen_cap"
type="bns:DoubleAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="created_user"
type="bns:StringAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="updated_user"
type="bns:StringAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="created_dts"
type="bns:DateTimeAtt"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="update_dts"
type="bns:DateTimeAtt"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="rmr_unit"
type="xsd:boolean"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="affects_rmr"
type="xsd:boolean"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="affects_gen"
type="xsd:boolean"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="affects_transmission" type="xsd:boolean"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="non_critical"
type="xsd:boolean"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="important"
type="xsd:boolean"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ehv"
type="xsd:boolean"/>
```

```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="long_term_planning" type="xsd:boolean"/>
        <!-- outage_mode_key -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_mode_key" type="bns:IntegerAtt"/>
        <!-- pmin_rerate -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pmin_rerate"
type="bns:DoubleAtt"/>
        <!-- effective_pmin_rerate -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pmin_rerates"
type="sns:ArrayOf_PMinValue"/>

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="pmin_rerate_effective" type="bns:DoubleAtt"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="for_approved"
type="xsd:boolean"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="for_reviewed"
type="xsd:boolean"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Outage Search Result
-->
<xsd:complexType name="ArrayOf_OutageSearchResult">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageSearchResult"/>
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:OutageSearchResult[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Outage Search Result Page - container for outage search results
-->
<xsd:complexType name="OutageSearchResultPage">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="results"
type="sns:ArrayOf_OutageSearchResult"/>

```

```

<!--
    Flag indicating that more results are available
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="moreAvailable"
type="xsd:boolean"/>
<!--
    Size of page in current results set
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pageSize"
type="xsd:int"/>
<!--
    Total number of matching results
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="total"
type="xsd:int"/>
<!--
    Index of current results page
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pageIndex"
type="xsd:int"/>
<!--
    Last outage of current result page
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="lastID"
type="xsd:int"/>
</xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Not currently used
-->
<xsd:complexType name="ArrayOf_OutageSearchResultPage">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestSearchPage"/>
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:OutageRequestSearchPage[ ]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

```

```

<!--
    SLIC DATA TYPES - Core SLIC data type
    Outage Request Data - principle container of outage request information
-->
<xsd:complexType name="OutageRequestData">
    <xsd:sequence>
        <!--
            CA ISO assigned request identifier - unique within the system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_request_id" type="xsd:int"/>
        <!--
            CA ISO assigned outage identifier - unique within the system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="xsd:int"/>
        <!--
            BA identifier assigned to the outage
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_ba_id"
type="xsd:int"/>
        <!--
            Current valid request types(subject to change):
            1 - New planned or forced outage request
            2 - New forced/immediate outage request
            3 - Change outage request
            4 - Cancel outage request
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="request_type_key" type="xsd:int"/>
        <!--
            Current valid request state codes are (subject to change)
            OPEN
            ACCEPTED
            DISAPPROVED
            WITHDRAWN
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="request_state_cd" type="xsd:string"/>
        <!--
            Request disapproval reason code
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="request_state_reason_code" type="xsd:int"/>
        <!--
            Request disapproval reason test

```

```
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="request_state_reason" type="xsd:string"/>

<!--
  Reason web user withdrew the request
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="withdrawal_reason" type="xsd:string"/>

<!--
  CA ISO user who reviewed the request
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="request_reviewer_uid" type="xsd:string"/>

<!--
  Date/time request was reviewed, Should be in format yyyyMMddTHHmss.SSS
  example: 20030731T2035.000 (July 31, 2003 8:35 PM)
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="review_dts"
type="xsd:string"/>

<!--
  Date/time request was made, Should be in format yyyyMMddTHHmss.SSS
  example: 20030731T2035.000 (July 31, 2003 8:35 PM)
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="request_dts"
type="xsd:string"/>

<!--
  Web supplied description of the request
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="comment"
type="xsd:string"/>

<!--
  Name of the outage resource
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_name"
type="xsd:string"/>

<!--
  Date/time outage will start, Should be in format yyyyMMddTHHmss.SSS
  example: 20030731T2035.000 (July 31, 2003 8:35 PM)
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_start_dts" type="xsd:string"/>

<!--
  Date/time outage will end, Should be in format yyyyMMddTHHmss.SSS
  example: 20030731T2035.000 (July 31, 2003 8:35 PM)
```



```
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_end_dts" type="xsd:string"/>
<!--
  Current outage status codes (subject to change):
  SCHEDULED
  PENDING
  APPROVED
  OUTOK
  OUT
  INOK
  INSERVICE
  ETOTIMEOUT - Estimated start time past due.
  ETRTIMEOUT - Estimated end time past due.
  CANCELLED
  DISAPPROVED
  POSTPONED
  APVTIMEOUT - Approval past due.
  REQUESTED
  WITHDRAWN
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_state_cd" type="xsd:string"/>
<!--
  Current types:
  1 - Planned
  2 - Forced
  3 - Ambient
  4 - NORMAL
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_type_key" type="xsd:int"/>
<!--
  Current modes:
  1 - DERATE
  2 - RERATE
  3 - RAMP RATE
  4 - MOW
-->
  <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_mode_key" type="xsd:int"/>
<!--
  Web assigned outage identifier - not guaranteed to be unique within the
system
-->
```

```
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_outage_id"
type="xsd:string"/>
<!--
    Web user who made the request
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="requested_by_uid" type="xsd:string"/>
<!--
    Web user who withdrew the request
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="withdrawn_by_uid" type="xsd:string"/>
<!--
    Date/time request was withdrawn, Should be in format yyyyMMddTHHmms.SSS
    example: 20030731T2035.000 (July 31, 2003 8:35 PM)
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="withdrawn_dts"
type="xsd:string"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="routing_indicator" type="xsd:int"/>
<!--
    Not currently used
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="available_mw"
type="xsd:double"/>
<!--
    Not currently used
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="generation_status" type="xsd:string"/>
<!--
    Cancel request cancellation reason code
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="cancel_reason_code" type="xsd:int"/>
<!--
    Cancel request cancellation reason text
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="cancel_reason_text" type="xsd:string"/>

<!--
    Change request changed outage card
-->
```

```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outageCard"
type="sns:OutageCard"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="webUser"
type="sns:UserCredentials"/>
        <!--
            Request attributes (e.g. contact phone number)
            Attributes are request type specific
            See look-up data for more information
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue"/>

        <!-- submitted_reason_code -->
        <xsd:element name="submitted_reason_code" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:int"/>
        <!-- submitted_reason_text -->
        <xsd:element name="submitted_reason_text" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:string"/>
        <!-- submitted_outage_start_dts -->
        <xsd:element name="submitted_outage_start_dts" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:string"/>
        <!-- submitted_outage_end_dts -->
        <xsd:element name="submitted_outage_end_dts" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:string"/>
        <!-- submitted_curtailed_mw -->
        <xsd:element name="submitted_curtailed_mw" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:double"/>
        <!-- submitted_rerate_mw -->
        <xsd:element name="submitted_rerate_mw" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:double"/>
        <!-- submitted_rerate_values MSG -->
        <xsd:element name="submitted_rerate_values" maxOccurs="1" minOccurs="0"
nillable="true" type="sns:ArrayOf_PMinValue"/>
        <!-- submitted_error_level -->
        <xsd:element name="submitted_error_level" maxOccurs="1" minOccurs="0"
nillable="true" type="xsd:int"/>
        <!-- submitted_avail_values -->
        <xsd:element name="submitted_avail_values" maxOccurs="1" minOccurs="0"
nillable="true" type="sns:ArrayOf_AvailabilityPointValue"/>

    </xsd:sequence>
</xsd:complexType>

<!--
    SLIC DATA TYPES - Core SLIC data type
    Array of Outage Request Data
-->
<xsd:complexType name="ArrayOf_OutageRequestData">

```

```

<xsd:complexContent>
  <xsd:restriction base="SOAP-ENC:Array">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestData"/>
    </xsd:sequence>
    <xsd:attribute
      ref="SOAP-ENC:arrayType"
      wsdl:arrayType="sns:OutageRequestData[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Outage Request Search Page - container for outage request search results
-->
<xsd:complexType name="OutageRequestSearchPage">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="results"
type="sns:ArrayOf_OutageRequestData"/>
    <!--
      Flag indicating that more results are available
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="moreAvailable"
type="xsd:boolean"/>
    <!--
      Size of page in current results set
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pageSize"
type="xsd:int"/>
    <!--
      Total number of matching results
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="total"
type="xsd:int"/>
    <!--
      Index of current results page
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="pageIndex"
type="xsd:int"/>
    <!--
      Last outage request of current result page
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="lastID"
type="xsd:int"/>

```

```
</xsd:sequence>
</xsd:complexType>

<!--
  SLIC DATA TYPES - Core SLIC data type
  Not currently used
-->
<xsd:complexType name="ArrayOf_OutageRequestSearchPage">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestSearchPage"/>
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:OutageRequestSearchPage[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  WEB SERVICE API - Outage request web service exception
-->
<xsd:complexType name="OutageRequestWebServiceException">
  <xsd:sequence>
    <!-- code -->
    <xsd:element name="code" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int"/>
    <!-- message -->
    <xsd:element name="message" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string"/>
    <!-- OverlapOutages -->
    <xsd:element name="overlaps" maxOccurs="1" minOccurs="0" nillable="true"
type="sns:OverlapOutages"/>
  </xsd:sequence>
</xsd:complexType>

<!--
  WEB SERVICE API - Outage web service exception
-->
<xsd:complexType name="OutageWebServiceException">
  <xsd:sequence>
    <!-- code -->
```

```

        <xsd:element name="code" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
        <!-- message -->
        <xsd:element name="message" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
    </xsd:sequence>
</xsd:complexType>

<!--
    WEB SERVICE API - Availability web service exception
-->
<xsd:complexType name="AvailabilityWebServiceException">
    <xsd:sequence>
        <!-- code -->
        <xsd:element name="code" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
        <!-- message -->
        <xsd:element name="message" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
        <xsd:element name="point_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
-->
<xsd:complexType name="ChangeOutageRequest">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="comment"
type="xsd:string" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outageCard"
type="sns:OutageCard" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="userInfo"
type="sns:UserCredentials" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue" />
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
-->
<xsd:complexType name="CancelOutageRequest">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outageID"
type="xsd:int" />

```

```
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="comment"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="userInfo"
type="sns:UserCredentials"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="reasonCode"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="reason"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
-->
<xsd:complexType name="ForcedImmediateOutageRequest">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="comment"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outageCard"
type="sns:OutageCard"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="userInfo"
type="sns:UserCredentials"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
-->
<xsd:complexType name="NewOutageRequest">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="comment"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outageCard"
type="sns:OutageCard"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="userInfo"
type="sns:UserCredentials"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
-->
```

```

<xsd:complexType name="ForcedOutageRequest">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="comment"
type="xsd:string"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outageCard"
type="sns:OutageCard"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="userInfo"
type="sns:UserCredentials"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_values"
type="sns:ArrayOf_AttributeValue"/>
  </xsd:sequence>
</xsd:complexType>

<!--
  UPLOAD - For upload use
-->
<xsd:simpleType name="OutageRequestType">
  <xsd:restriction base="xsd:int">
    <xsd:enumeration value="0">
      <xsd:annotation>
        <xsd:documentation>_NEW_OUTAGE_REQUEST</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="1">
      <xsd:annotation>
        <xsd:documentation>_FORCED_OUTAGE_REQUEST</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="2">
      <xsd:annotation>
        <xsd:documentation>_FORCED_IMMEDIATE_OUTAGE_REQUEST</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="3">
      <xsd:annotation>
        <xsd:documentation>_CHANGE_OUTAGE_REQUEST</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="4">
      <xsd:annotation>
        <xsd:documentation>_CANCEL_OUTAGE_REQUEST</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>

```



```

</xsd:simpleType>

<!--
    UPLOAD - For upload use
-->
<xsd:complexType name="OutageRequestItem">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="itemType"
type="sns:OutageRequestType" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="changeOutageRequest" type="sns:ChangeOutageRequest" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="cancelOutageRequest" type="sns:CancelOutageRequest" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="newOutageRequest" type="sns:NewOutageRequest" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="forcedOutageRequest" type="sns:ForcedOutageRequest" />
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="forcedImmediateOutageRequest" type="sns:ForcedImmediateOutageRequest" />
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
-->
<xsd:complexType name="ArrayOf_OutageRequestItem">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestItem" />
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:OutageRequestItem[ ]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    UPLOAD - For upload use
    Outage Request Upload - root element for an outage request upload
-->
<xsd:complexType name="OutageRequestUpload">
    <xsd:sequence>

```

```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="requests"
type="sns:ArrayOf_OutageRequestItem"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="upload_transfer_ref" type="xsd:string"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
    Batch Outage Response - root element for a server response document
-->
<xsd:complexType name="BatchOutageResponse">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="request_id"
type="xsd:int"/>
        <!--
            CA ISO assigned outage identifier - unique within the system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="outage_id"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="outage_type_key" type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="status_cd"
type="xsd:int"/>
        <!--
            Web assigned outage identifier - not guaranteed to be unique within the
system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_outage_id"
type="xsd:string"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
    Batch Outage Error - error encountered during processing of a batch upload
-->
<xsd:complexType name="BatchOutageError">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="error_code"
type="xsd:int"/>
        <!--
            Web assigned outage identifier - not guaranteed to be unique within the
system
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_outage_id"
type="xsd:string"/>

```

```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="error_message"
type="xsd:string"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use
    Array Batch Outage Errors
-->
<xsd:complexType name="ArrayOf_BatchOutageError">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:BatchOutageError"/>
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:BatchOutageError[]"/>
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    UPLOAD - For upload use
    Outage Request Upload Resonse - container for server response information
-->
<xsd:complexType name="OutageRequestUploadResponse">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="success"
type="xsd:boolean"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="upload_transfer_ref" type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="iso_transfer_id" type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="responses"
type="sns:ArrayOf_BatchOutageResponse"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="errors"
type="sns:ArrayOf_BatchOutageError"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_ChangeOutageRequest">

```

```

<xsd:complexContent>
  <xsd:restriction base="SOAP-ENC:Array">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:ChangeOutageRequest"/>
    </xsd:sequence>
    <xsd:attribute
      ref="SOAP-ENC:arrayType"
      wsdl:arrayType="sns:ChangeOutageRequest[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_CancelOutageRequest">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:CancelOutageRequest"/>
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:CancelOutageRequest[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_ForcedImmediateOutageRequest">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:ForcedImmediateOutageRequest"/>
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:ForcedImmediateOutageRequest[]"/>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

```

```
</xsd:complexContent>
</xsd:complexType>

<!--
  UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_NewOutageRequest">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:NewOutageRequest" />
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:NewOutageRequest[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_BatchOutageResponse">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:BatchOutageResponse" />
      </xsd:sequence>
      <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:BatchOutageResponse[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_OutageRequestUpload">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
```

```

        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestUpload"/>
    </xsd:sequence>
    <xsd:attribute
        ref="SOAP-ENC:arrayType"
        wsdl:arrayType="sns:OutageRequestUpload[]" />
    </xsd:restriction>
</xsd:complexContent>
</xsd:complexType>

<!--
    UPLOAD - For upload use (not currently used)
-->
<xsd:complexType name="ArrayOf_OutageRequestUploadResponse">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestUploadResponse"/>
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:OutageRequestUploadResponse[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    PAttribute Definition
-->
<xsd:complexType name="PAttributeDefinition">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_key"
type="xsd:int"/>
    <!--
        Value type
        current types (subject to change):
        I - Integer
        F - Floating point decimal
        D - Date in the format yyyyMMddTHHmss.SSSZ in GMT
            example: 20030731T0000.000Z (July 31, 2003)
        T - Date/Time in the format yyyyMMddTHHmss.SSS in GMT
            example: 20030731T2035.000Z (July 31, 2003 8:35 PM)
    -->

```

```

M - Time in the format HHmmss.SSSZ
    example: 104500.000Z (10:45 AM)
S - String
B - Boolean
E - Set (not used by web)
O - Optional Set (not used by web)
C - Cached Set (not used by web)
G - Grid (not used by web)
L - Lookup (not used by web)
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_data_type"
type="xsd:string"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_type_key"
type="xsd:int"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="parent_key"
type="xsd:int"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="display_order"
type="xsd:int"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="parent_type"
type="xsd:string"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_name"
type="xsd:string"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="att_fmt_pattern" type="xsd:string"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="att_desc"
type="xsd:string"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="cached_set_id"
type="xsd:string"/>
<!--
    ISO internal use only
-->
<xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="access_level"
type="xsd:int"/>
<xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="sub_attributes" type="sns:ArrayOf_PAttributeDefinition"/>

```

```

        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="values"
type="bns:ArrayOf_String"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    Outage Request Definition
-->
<xsd:complexType name="OutageRequestDefinition">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="def_key"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="def_name"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="attributes"
type="bns:ArrayOf_Int"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    PNamed Value ID
-->
<xsd:complexType name="PNamedValueID">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="id"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="name"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="value"
type="xsd:string"/>
    </xsd:sequence>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    PStatic Outage Cause - GADS cause code
-->
<xsd:complexType name="PStaticOutageCause">
    <xsd:sequence>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="cause_code"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="cause_class"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="cause_description" type="xsd:string"/>
    </xsd:sequence>
</xsd:complexType>

```



```

    </xsd:sequence>
</xsd:complexType>

<!--
REFERENCE - For download of lookup data
PResource Type
-->
<xsd:complexType name="PResourceType">
  <xsd:sequence>
    <!--
      Resource type key.
      Current types (subject to change):
      8 - Line
      2 - Generator
      9 - Station
      3 - Intertie
      6 - Sync Condenser
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type_key"
type="xsd:int"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type_cd"
type="xsd:string"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type"
type="xsd:string"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="client_mode"
type="xsd:int"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_class_cd"
type="bns:ArrayOf_String"/>
  </xsd:sequence>
</xsd:complexType>

<!--
REFERENCE - For download of lookup data
PBusiness Associate - container of business entity information
-->
<xsd:complexType name="PBusinessAssociate">
  <xsd:sequence>
    <!--
      BA identifier - unique within the system
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ba_id"
type="bns:IntegerAtt"/>
    <!--
      BA identifier - unique within the system
    -->

```

```

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="bus_assoc_id"
type="xsd:int" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="short_name"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="display_name"
type="xsd:string" />
    <!--
        ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="display_type"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="name"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="bus_assoc_type" type="xsd:string" />
    <!--
        ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="source_cd"
type="xsd:string" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="PConfiguration">
  <xsd:sequence>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="config_id"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="config_oid"
type="xsd:int" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="sequence"
type="xsd:int" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="config_name"
type="xsd:string" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="max_gen_cap"
type="xsd:double" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="pmin" type="xsd:double" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="max_ramp_rate"
type="xsd:double" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="min_ramp_rate"
type="xsd:double" />
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="default_ramp_rate" type="xsd:double" />
  </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="ArrayOf_PConfiguration">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">

```

```

        <xsd:sequence>
            <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PConfiguration"/>
        </xsd:sequence>
        <xsd:attribute
            ref="SOAP-ENC:arrayType"
            wsdl:arrayType="sns:PConfiguration[]"/>
    </xsd:restriction>
</xsd:complexContent>
</xsd:complexType>

<!--
REFERENCE - For download of lookup data
PResource - container for grid resource information
-->
<xsd:complexType name="PResource">
    <xsd:sequence>
        <!--
            ISO Resource unique identifier - ISO INTERNAL USE ONLY - MAY CHANGE
WITHOUT NOTICE
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_key"
type="xsd:int"/>
        <!--
            Master file resource unique identifier
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_id"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_name"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="msg_flag"
type="xsd:boolean"/>
        <!--
            ISO internal use only
        -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="gen_status"
type="xsd:string"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="voltage"
type="xsd:int"/>
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="max_gen_cap"
type="xsd:double"/>
        <!-- pmin -->
        <xsd:element maxOccurs="1" minOccurs="0" nillable="true"
name="pmin" type="xsd:double"/>
        <!--
            ISO internal use only
        -->

```

```

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="nac_mw"
type="xsd:double"/>
    <!--
        Resource type key.
        Current types (subject to change):
        8 - Line
        2 - Generator
        9 - Station
        3 - Intertie
        6 - Sync Condenser
        36 - NGR
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_type_key"
type="xsd:int"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="parent_key"
type="xsd:int"/>
    <!--
        ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="client_mode"
type="xsd:int"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="rmr_flag"
type="xsd:boolean"/>
    <!--
        ISO internal use only
    -->
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="res_class_cd"
type="bns:ArrayOf_String"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="configurations"
type="sns:ArrayOf_PConfiguration"/>

    <!--
        ISO internal use only - NGR outage data
    -->

    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_pmax"
type="xsd:double"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_pmin"
type="xsd:double"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_el_max"
type="xsd:double"/>
    <xsd:element maxOccurs="1" minOccurs="0" nillable="true" name="ngr_el_min"
type="xsd:double"/>

</xsd:sequence>

```

```

</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    Array of Attribute Definitions
-->
<xsd:complexType name="ArrayOf_PAttributeDefinition">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PAttributeDefinition"/>
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:PAttributeDefinition[]"/>
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    Array of Outage Request Definitions
-->
<xsd:complexType name="ArrayOf_OutageRequestDefinition">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:OutageRequestDefinition"/>
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:OutageRequestDefinition[]"/>
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    Array of PNamed Value IDs
-->
<xsd:complexType name="ArrayOf_PNamedValueID">
    <xsd:complexContent>

```

```

        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PNamedValueID" />
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:PNamedValueID[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    Array of Outage Causes
-->
<xsd:complexType name="ArrayOf_PStaticOutageCause">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PStaticOutageCause" />
            </xsd:sequence>
            <xsd:attribute
                ref="SOAP-ENC:arrayType"
                wsdl:arrayType="sns:PStaticOutageCause[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!--
    REFERENCE - For download of lookup data
    Array of PResourceType
-->
<xsd:complexType name="ArrayOf_PResourceType">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:sequence>
                <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PResourceType" />
            </xsd:sequence>
            <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:PResourceType[]" />
        </xsd:restriction>
    </xsd:complexContent>

```

```

</xsd:complexType>

<!--
  REFERENCE - For download of lookup data
  Array of PBusinessAssociate
-->
<xsd:complexType name="ArrayOf_PBusinessAssociate">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PBusinessAssociate" />
      </xsd:sequence>
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!--
  REFERENCE - For download of lookup data
  Array of PResources
-->
<xsd:complexType name="ArrayOf_PResource">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" minOccurs="0" name="item"
type="sns:PResource" />
      </xsd:sequence>
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:PResource[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

<!-- PRampRateSegment -->
<xsd:complexType name="PRampRateSegment">
  <xsd:sequence>
    <!-- res_key -->
    <xsd:element name="res_key" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />

```

```

        <!-- seg_no_rr, MW range id or config idoid -->
        <xsd:element name="seg_no_rr" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
        <!-- start_dts -->
        <xsd:element name="start_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
        <!-- end_dts -->
        <xsd:element name="end_dts" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
        <!-- mw -->
        <xsd:element name="mw" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double" />
        <!-- min_ramp_rate -->
        <xsd:element name="min_ramp_rate" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double" />
        <!-- max_ramp_rate -->
        <xsd:element name="max_ramp_rate" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double" />
        <!-- default_value -->
        <xsd:element name="default_value" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double" />
        <!-- segment type 0 = MW Range, 1 = MSG Configuration-->
        <xsd:element name="segment_type" maxOccurs="1" minOccurs="0" nillable="true"
type="sns:RampRateSegmentType" />
    </xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_PRampRateSegment -->
<xsd:complexType name="ArrayOf_PRampRateSegment">
    <xsd:complexContent>
        <xsd:restriction base="SOAP-ENC:Array">
            <xsd:attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="sns:PRampRateSegment[]" />
        </xsd:restriction>
    </xsd:complexContent>
</xsd:complexType>

<!-- ConfigurationDoubleValue -->
<xsd:complexType name="ConfigurationDoubleValue">
    <xsd:sequence>
        <!-- configuration idoid -->
        <xsd:element name="config_oid" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:int" />
        <xsd:element name="config_id" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:string" />
        <!-- mw -->
        <xsd:element name="doubleValue" maxOccurs="1" minOccurs="0" nillable="true"
type="xsd:double" />

```



```
</xsd:sequence>
</xsd:complexType>

<!-- ArrayOf_ConfigurationDoubleValue -->
<xsd:complexType name="ArrayOf_ConfigurationDoubleValue">
  <xsd:complexContent>
    <xsd:restriction base="SOAP-ENC:Array">
      <xsd:attribute ref="SOAP-ENC:arrayType"
wsdl:arrayType="sns:ConfigurationDoubleValue[]" />
    </xsd:restriction>
  </xsd:complexContent>
</xsd:complexType>

</xsd:schema>
```