

SPECIFICATION



Web Service Design Specification

Outage Coordination and Scheduling System (OCSS)

Issue 2.0

This document provides the design specification for
Outage Coordination and Scheduling System
(OCSS) web service.

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0.24	Updated: <ul style="list-style-type: none"> - OutageSchedule.flags.Flag.name & OutageSchedule.flags.Flag.value - Appendix C.1: Updated Action Type names - Urgent Priority code: 6 -> 14 - Flag name: Loss of Redundancy -> Only a Loss of Redundancy - Included ConflictRationale error code - CancelOutage operation CROW calls (added Enum field) - ActualStart field CROW calls (To Implement outages) - ActualEnd field CROW calls (To Complete outages) - Appendix B: CROW typeName, and updated Equipment Name - OutageSchedule.OutageStudy >> OutageSchedule.studies.OutageStudy - Approval type name mapping update - Outage Recurrence logic added (for Noncontinuous) - Removed setting requestTypeID 	April 1, 2016
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0.26	<ul style="list-style-type: none"> - ToneCommunicationChannel OCSS to CROW name mapping in Appendix B 	

Issue	Reason for Issue	Date
	- Line and LineSection name/label changes in Appendix B	
0.27	<ul style="list-style-type: none"> - Updated TelemetryScalingImpact CROW mapping in Submit and Retrieve operations - Added FacilityClass field to EquipmentOutageProfile for RetrieveOutage operation - Added rules for ReSubmit Outage in Appendix C - Updated Cyber Asset Change purpose code to 'CYB' - Removed OutageDescription field from SubmitOutage Request - Updated explanation on ActualOutagePeriods 	
0.28	<ul style="list-style-type: none"> - Added CommitRequest Outage Action Type in Appendix D.1 - Updated Resubmit Outage Rules to include CommitRequest action - Updated cardinality for MaxRecall field - MaxRecallUnit in RetrieveOutage returns 'None' if recallTimeUnits is empty - Line/Line Section update in Appendix B 	
0.29	<ul style="list-style-type: none"> - Added From/To Station to be submitted(optional) and retrieved for line section equipment type - Updated warning codes in Appendix D.13.1 - Return ActualStart and ActualEnd in RetrieveOutage Operation. - Added ActualOutagePeriod in EquipmentOutageProfile 	
1.0	Issued in advance of Baseline 36.1	October 26, 2016
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1 Introduction

1.1 Purpose

- 1 The purpose of this document is to provide design specification for the Outage Coordination and Scheduling System (OCSS) web service.
- 2 These specifications and requirements are reviewed by relevant information solution stewards and infrastructure solutions SMEs and approved by relevant infrastructure solution steward.

1.2 Assumptions and Limitations

- 3 The design specification document only describes the Web Service module of the entire OCSS services provided by the solution.
- 4 The design specification document is a living document.

1.3 Conventions

- 5 The standard conventions followed for this document are as follows:
 - Quotation marks are used to highlight process or component names;
 - Italics are used to highlight publication, titles of procedures, letters and forms; and
 - All time mentioned in this document is in East Standard Time (EST).

1.4 Glossary

This glossary does not repeat terms or roles defined in guide IESO_GDE_0308 *Alter IESO Glossary* or in process “Outage Management”.

Web Service Design Specification Specific Glossary

- 6 See SE109 Outage Management Redesign Requirements Summary for the list of OCSS specific terms glossary.

Standard Infrastructure Solution Requirements Glossary

- 7 **Load Testing** is the process of putting demand on a system or device and measuring its response. Load testing is performed to determine a system’s behaviour under both normal and anticipated peak load conditions. It helps to identify the maximum operating capacity of an application as well as any bottlenecks and determine which element is causing degradation. When the load placed on the system is raised beyond normal usage patterns, in order to test the system's response at unusually high or peak loads, it is known as stress testing. The load is usually so great that error conditions are the expected result, although no clear boundary exists when an activity ceases to be a load test and becomes a stress test.

- 8 **Non-functional requirements** are requirements which specify criteria that can be used to judge the operation of a system, rather than specific behaviours. This should be contrasted with functional requirements that specify set behaviour or functions. In general, functional requirements define what a system is supposed to do whereas non-functional requirements define how a system is supposed to be. Non-functional requirements are often called qualities of a system.
- 9 **Non-functional requirements categories** provide a framework for identifying, and structure in documenting non-functional requirements.
- 10 **Reliability** includes aspects such as availability, mean time before failure, and recoverability.
- 11 **Performance** involves things such as throughput of information through the system, system response time (for GUI or API), batch cycle time, and start-up time. For convenience, the performance category is defined to include capacity.
- 12 **Security** protects information as well as functions and specifies who has access under identified scenarios. Security includes privacy issues.
- 13 **Supportability** specifies a number of other requirements. For information solution requirements this includes adaptability and configurability.
- 14 **Performance Test** is used to determine the speed or effectiveness of a computer, network, software program, or device. This process can involve quantitative tests done in a lab, such as measuring the response time or the number of MIPS (millions of instructions per second) at which a system functions. Qualitative attributes such as reliability, scalability and interoperability may also be evaluated. Performance testing is often done in conjunction with stress testing.
- 15 **Stress Testing** - see Load Testing.
- 16 **System specifications** detail the attributes, design and interfaces for a solution designed to meet one or multiple information solution requirement documents. A system specification may address portions of multiple information solution requirement documents.

1.5 How This Document Is Organized

- 17 Section 2 describes the web service operations provided by the module
- 18 Section 3 describes the complex elements used in the web service operations

– End of Section –

2 Web Service Operations

2.1 Operation: Login

Description

The Login operation allows user to authenticate with Active Directory.

Request

Field	Type	Cardinality	Examples/Explanations
Username	String(15)	1	The username to access API
Password	String(15)	1	The users API access password.

Response

Field	Type	Cardinality	Examples/Explanations
AuthToken	String	1	<p>Must be passed in as a header on all other operation requests.</p> <p>It is only valid for one client (IP address) and username, and it expires within 5 minutes. And then the Login request has to be repeated in order to refresh the token.</p>

2.2 Operation : SubmitOutage

Description

The SubmitOutage operation allows for submission and update of OutageRequest information.

Request

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	0..1	<p>This ID is assigned by the IESO, the field is:</p> <ul style="list-style-type: none"> • Blank if doing new submission • Required when doing an update

RemoteSystemOutageID	String(15)	0..1	For MP usage only. Information not consumed by the IESO
SaveAsDraft	Boolean	1	True if MP wishes to submit a draft outage request or change an existing outage request to the draft state. See section A.1 for state transition rules.
Recurrence	Enumerated String	1	<p>Recurrence of the outage periods:</p> <ul style="list-style-type: none"> • Continuous • Noncontinuous • Return Evenings • Return Weekends • Return Evenings And Weekends • Return Sat - Mon • Return Fri - Sun • Return Fri - Mon <p>If Recurrence = Noncontinuous {</p> <ul style="list-style-type: none"> - You can have more than one OutagePeriod. - OutagePeriod.PlannedStart and OutagePeriod.PlannedEnd dates must be provided for each period. - OutagePeriod.PlannedStart and OutagePeriod.PlannedEnd must be within SubmitOutage.PlannedStart and SubmitOutage.PlannedEnd, and no OutagePeriod overlaps with another OutagePeriod. <p>}</p> <p>Else {</p> <ul style="list-style-type: none"> - You can have only one OutagePeriod - OutagePeriod.PlannedStart and OutagePeriod.PlannedEnd dates should not be specified. - SubmitOutage.PlannedStart and SubmitOutage.PlannedEnd dates must be specified. <p>}</p>
PlannedStart	DateTime	0..1	YYYY-MM-DDThh:mm:ss

			PlannedStart not required for Forced Outages.
PlannedEnd	DateTime	1	YYYY-MM-DDThh:mm:ss
ActualOutagePeriods	<u>ActualOutage Period</u>	0..*	ActualStart and ActualEnd times of the latest period. Historical periods' values do not need to be resubmitted.
MaxRecall	Numeric	0..1	e.g. 1, 15, 30 MaxRecall field should not be specified for Non-recallable outages.
MaxRecallUnit	Enumerated String	1	See <u>Max Recall Time Units</u> <ul style="list-style-type: none"> • None - Use this to indicate a Non-recallable outage. • Minutes • Hours • Days • Immediate - This overrides the recallTime field value with a value of 0.
RecallComments	String	0..1	Description of the outage recall
PurposeCode	String(4)	1	Predefined list of PurposeCode of the requested outage. See Section A.4 Purpose Code Configuration for business rule validations.
PurposeDescription	String(32000)	0..1	Description of the purpose. Required if PurposeCode is "Other"
PriorityCode	Enumerated String	1	Predefined list of outage priority codes. See <u>Outage Priority Code:</u> <ul style="list-style-type: none"> • Forced • Opportunity • Urgent • Planned • Informational • Forced Extended <p>The ForcedExtended PriorityCode is a system generated PriorityCode</p>

			<p>when an the planned end date has been extended on a Planned, Opportunity or Informational Outage in the Implemented state.</p> <p>The ForcedExtended PriorityCode can only be submitted if your outage already has ForcedExtended as its PriorityCode.</p>
OutagePeriods	<u>OutagePeriod</u>	1..*	<p>OutagePeriods cannot overlap one other.</p> <p>All OutagePeriods must contain the same set of equipment.</p> <p>Only one period needs to be specified for non-recurring outages.</p>
MarketParticipantComment	String	0..1	Market Participant's comment on the outage assessment/result
RequestWeeklyAdvancedApproval	Boolean	1	<p>If Market Participant requires outage to be assessed in the weekly advanced approval process then select "True"</p> <ul style="list-style-type: none"> • True • False
LossOfRedundancy	Boolean	0..1	<p>Low impact question</p> <p>See Section A.5 Low Impact Questions for business rule requirements.</p>
AdjacentBreakerOOS	Boolean	0..1	<p>Low impact question</p> <p>See Section A.5 Low Impact Questions for business rule requirements.</p>
CTsOnBothSides	Boolean	0..1	<p>Low impact question</p> <p>See Section A.5 Low Impact Questions for business rule requirements.</p>
SuppliesTransformerCooling	Boolean	0..1	<p>Low impact question</p> <p>See Section A.5 Low Impact Questions for business rule requirements.</p>

RTUorHUBaffected	Boolean	0..1	<p>Low impact question</p> <p>See Section A.5 Low Impact Questions for business rule requirements.</p>
TelemetryScalingImpact	String	0..1	<p>Telemetry Scaling Impact question</p> <p>Available only for the following equipment classes:</p> <ul style="list-style-type: none"> • Tone Communication Channel • RTU/ICCP/HUB Equipment • Other Miscellaneous Equipment <p>No validation available on this field.</p> <p>Available values are:</p> <ul style="list-style-type: none"> - Yes - No - Don't provide a value for 'NA or Unknown' option
ConflictRationale	String	0..1	<p>If a conflict is found upon submission, a fault will be returned with an error indicating that the outage is causing a conflict.</p> <p><errorCode>-846</errorCode></p> <p><errorDescription>Conflict present, please provide a conflict rationale.</errorDescription>Submitter must fill out the ConflictRationale field for submission to go through.</p> <p>Once submission goes through, the error will become a warning message</p> <p>(Pending SE109 meeting agreement)</p>

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	IESO OCSS system generated outage ID
RevisionNumber	Numeric	1	Revision number of the outage request

Field	Type	Cardinality	Examples/Explanations
OutageStatus	Enumerated String	1	<p>Current outage status</p> <ul style="list-style-type: none"> • Draft • Submitted • Implemented • Completed
PriorityCode	Enumerated String	1	<p>Submitted/Assigned outage priority code</p> <p>See <u>Outage Priority Code</u>:</p> <ul style="list-style-type: none"> • Forced • Opportunity • Urgent • Planned • Informational • Forced Extended <p>The ForcedExtended PriorityCode is a system generated PriorityCode when an the planned end date has been extended on a Planned, Opportunity or Informational Outage in the Implemented state.</p>
PriorityDate	DateTime	1	<p>IESO OCSS System set priority date</p> <p>PriorityDate will be the time of submission on initial submission. It is only updated when change to a critical field is made.</p> <p>YYYY-MM-DDThh:mm:ss</p> <ul style="list-style-type: none"> • YYYY indicates the year • MM indicates the month • DD indicates the day • T indicates the start of the required time section • hh indicates the hour • mm indicates the minute • ss indicates the second
HasConflict	Boolean	1	<p>True of this outage request conflicts with other outage requests in the OCSS system.</p>

Field	Type	Cardinality	Examples/Explanations
			<p>The list of outage requests that it conflicts with will be included in the WarningCodes section.</p> <p>“607 - The following conflict(s) exist for this outage request:”</p>
Warning	<u>ErrorWarning Code</u>	0..*	<p>Warning will be the positive error codes described in <u>ErrorWarningCode</u>.</p> <p>Warning are for reference only, and do not imply a submission failure.</p>

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	<p>FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u>.</p>

Business/Validation Rules

1. If PriorityCode = Forced outage must contain an Actual start date
2. PriorityDate will be the time of submission on initial submission. It is only updated when change to a critical field is made.
3. The ForcedExtended PriorityCode is a system generated PriorityCode when an time extension has been requested on a Forced Outage.
4. If the OutageID is provided then it is a Replace/Update operation, if OutageID is not provided then it's a Create operation.
5. Each **OutagePeriod** must contain all equipment in the OutageRequest, if an equipment is not on outage during all **OutagePeriods** of the OutageRequest, submitter may use the In Service(**IS**) **ConstraintCode**.
6. The required low impact questions based on the **Low Impact Questions Conditions** must be answered, however if user answers more than the required number of low impact questions, those answers will be ignored and will not cause an error.
7. Note: RevisionNumber may increase by more than 1 with each submission depending on the fields that are updated. IESO's vendor software seperates data updates in different operations (i.e. if user updates the MarketParticipantComment along with providing an ActualStart date/time for the outage period, two operations will be called in IESO vendor's web service, one to update the comment, one to update the actual time)

2.3 Operation : RetrieveOutage

Description

The RetrieveOutage operation allows for retrieval of OutageRequest information. The RetrieveOutage operation only provides the list of AttachmentIDs associated with the requested OutageRequest, attachment data retrieval should be performed under [RetrieveAttachment](#).

Request

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	Retrieval of outage requests requires the OutageID

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	IESO OCSS system generated outage ID
RemoteSystemOutageID	String	0..1	For MP usage only. Information not consumed by the IESO
RevisionNumber	Numeric	1	Revision number of the outage request
OutageDescription	String	0..1	Description of the outage request
Recurrence	Enumerated String	1	Recurrence of the outage periods: <ul style="list-style-type: none"> • Continuous • Noncontinuous • Return Evenings • Return Weekends • Return Evenings And Weekends • Return Sat - Mon • Return Fri - Sun Return Fri - Mon
PlannedStart	DateTime	0..1	YYYY-MM-DDThh:mm:ss PlannedStart not required for Forced Outages.
PlannedEnd	DateTime	1	YYYY-MM-DDThh:mm:ss
ActualOutagePeriods	<u>ActualOutage Period</u>	0..*	ActualStart and ActualEnd times of the latest period.

Field	Type	Cardinality	Examples/Explanations
			Historical periods' values do not need to be resubmitted.
MaxRecall	Numeric	0..1	e.g. 1, 15, 30
MaxRecallUnit	Enumerated String	1	See <u>Max Recall Time Units</u>
RecallComments	String	0..1	Description of the outage recall
PurposeCode	String(3)	1	<ul style="list-style-type: none"> • Maintenance • Repair • Replacement • Commissioning • Testing • SMO • Other
PurposeDescription	String(32000)	0..1	Multi-line text field which holds a description of the purpose of the outage request.
PriorityCode	Enumerated String	1	<p>Submitted/Assigned outage priority code</p> <p>See <u>Outage Priority Code:</u></p> <ul style="list-style-type: none"> • Forced • Opportunity • Urgent • Planned • Informational <p>Forced Extended</p>
PriorityDate	DateTime	1	<p>IESO OCSS System set priority date</p> <p>PriorityDate will be the time of submission on initial submission. It is only updated when change to a critical field is made.</p> <p>YYYY-MM-DDThh:mm:ss</p> <ul style="list-style-type: none"> • YYYY indicates the year • MM indicates the month • DD indicates the day • T indicates the start of the required time section • hh indicates the hour

Field	Type	Cardinality	Examples/Explanations
			<ul style="list-style-type: none"> mm indicates the minute ss indicates the second
OutagePeriods	OutagePeriod	1..*	<p>OutagePeriods cannot overlap one other.</p> <p>All OutagePeriods must contain the same set of equipment.</p> <p>Only one period needs to be specified for non-recurring outages.</p>
MarketParticipantComment	String	0..1	Market Participant's comment on the outage assessment/result
IESOComment	String	0..1	IESO's comment on the outage study/assessment
RequestWeeklyAdvancedApproval	Boolean	1	<p>If Market Participant requires outage to be assessed in the weekly advanced approval process then select "True"</p> <ul style="list-style-type: none"> True False
Approvals	Approval	0..2	<p>Each outage can have up to 2 approvals, AdvancedApproval or FinalApproval.</p> <p>For the list of all possible types of each approval mentioned above, see <u>Approval</u>.</p>
LossOfRedundancy	Boolean	0..1	Low impact question
AdjacentBreakerOOS	Boolean	0..1	Low impact question
CTsOnBothSides	Boolean	0..1	Low impact question
SuppliesTransformerCooling	Boolean	0..1	Low impact question
RTUorHUBaffected	Boolean	0..1	Low impact question
TelemetryScalingImpact	String	0..1	<p>Telemetry Scaling Impact question</p> <p>Values returned:</p> <ul style="list-style-type: none"> - Yes - No - No value returned for 'NA or Unknown' option
FinalApprovalInAdvance	Boolean	0..1	Read only boolean flag which indicates whether or not to automatically move the outage request into the Final

Field	Type	Cardinality	Examples/Explanations
			Approved status at 00:00:00 EST on the first day that the overall outage request starts.
OutageStatus	Enumerated String	1	See list of <u>Outage Status Configuration</u> : <ul style="list-style-type: none"> • Draft • Submitted • Study • Negotiate • AtRisk • AdvanceApproved • FinalApproved • Implemented • Rejected • Cancelled • Revoked • Recalled • Completed
CreatedBy	<u>Person</u>	1	Person who originally submitted the outage request
CreatedOn	DateTime	1	The outage request created on date
OutageStatusUpdatedBy	<u>Person</u>	1	Person who's change to the Outage Request caused the last outage status change.
OutageStatusUpdatedWhen	DateTime	1	When the last outage status change occurred. YYYY-MM-DDThh:mm:ss
LastUpdatedBy	<u>Person</u>	1	Person who made the last change on the outage request
LastUpdatedOn	DateTime	1	When the outage request was last modified on
MarketParticipant	String	1	Registered Market Participant Short Name
HasConflict	Boolean	1	True of this outage request conflicts with other outage requests in the OCSS system. The list of outage requests that it conflicts with will be included in the WarningCodes section.

Field	Type	Cardinality	Examples/Explanations
			“607 – The following conflict(s) exist for this outage request:”
ConflictRationale	String	0..1	<p>If a conflict is found upon submission, a fault will be returned with an error indicating that the outage is causing a conflict.</p> <pre><errorCode>-846</errorCode> <errorDescription>Conflict present, please provide a conflict rationale.</errorDescription></pre> <p>Submitter must fill out the ConflictRationale field for submission to go through.</p> <p>Once submission goes through, the error will become a warning message</p> <p>(Pending SE109 meeting agreement)</p>
AttachmentIDs	Integer	0..*	See <u>OutageScheduling.AddAttachment</u> and list of <u>Outage Action Types</u> used by the IESO for operations associated to attachments.
Warning	<u>ErrorWarning Code</u>	0..*	<p>Warning will be the positive error codes described in <u>ErrorWarningCode</u>.</p> <p>Warning are for reference only, and do not imply a submission failure.</p>

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u> .

Business/Validation Rules

1. Outage retrieval will only contain equipment data and fields of which the retriever has viewing permissions to. (i.e. if outage contains multiple equipment and the retriever only has rights to view a subset of the equipment, the only those equipment will be retrieved).

2.4 Operation : RetrieveUpdatedOutageIDs

Description

The RetrieveUpdatedOutageIDs operation provides a list of OutageIDs of OutageRequests that have been updated within the specified time period.

Request

Field	Type	Cardinality	Examples/Explanations
UpdateStart	DateTime	1	
UpdateEnd	DateTime	0..1	<ul style="list-style-type: none"> • System (Default) <p>If UpdateEnd is blank, current time is used</p>

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	0..*	<p>A list of OutageIDs of outage requests that were updated between the specified timeframe of the specified market participant.</p> <p>To retrieve the details of each outage request, use the <u>RetrieveOutage</u> operation.</p>
Warning	<u>ErrorWarning Code</u>	0..*	<p>Warning will be the positive error codes described in <u>ErrorWarningCode</u>.</p> <p>Warning are for reference only, and do not imply a submission failure.</p>

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	<p>FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u>.</p>

Business/Validation Rules

1. The RetrieveUpdatedOutageIDs operation is expected to be used by the users at the agreed frequency for retrieval. IESO reserves the rights to take actions if unusual or undue stress is exerted onto the OCSS Web Service.

2.5 Operation : CancelOutage

Description

The CancelOutage operation allows for cancellation of a submitted outage request.

Request

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	The OutageID of the outage request the Market Participant wishes to cancel.
CancellationType	Enumerated String	1	For recurring outages, specify whether to Cancel the next period or entire outage. See <u>Cancellation Type</u>
CancellationCode	Enumerated String	1	See <u>Outage Cancellation Code</u>
CancellationNote	String	0..1	

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	
RevisionNumber	Numeric	1	
OutageStatus	Enumerated String	1	<ul style="list-style-type: none"> Cancelled
Warning	<u>ErrorWarning Code</u>	0..*	<p>Warning will be the positive error codes described in <u>ErrorWarningCode</u>.</p> <p>Warning are for reference only, and do not imply a submission failure.</p>

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u> .

Business/Validation Rules

1. Cancelling means cancellation of an entire outage, cancellation of segments should be done using SubmitOutage(Replace/Update)
2. Cancelled outages cannot be resubmitted.

2.6 Operation : SubmitAttachment

Description

The SubmitAttachment operation allows for an attachment to be added or updated on an outage request.

Request

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	
FileName	String	1	The filename of the attached file. File must be of an authorized file format. e.g. doc, docx, xls, xlsx, csv, pdf, ppt, pptx, psd, gif, jpg, jpeg, png, txt, xml, html, msg, xsl, xslt, wav, mp3
FileDescription	String	1	Brief description of the file
FileData	Byte Array	1	The data of the attachment file should be provided to this method as a byte array. Attachment must be within a specified file size (size TBD).

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	
AttachmentID	Integer	1	Upon submission of the attachment, and AttachmentID will be created.

Field	Type	Cardinality	Examples/Explanations
			This unique ID will be used for retrieval/update/remove of attachments. See <u>Attachment</u>
Warning	<u>ErrorWarning Code</u>	0..*	Warning will be the positive error codes described in <u>ErrorWarningCode</u> . Warning are for reference only, and do not imply a submission failure.

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u> .

Business/Validation Rules

1. AttachmentID will be generated by the IESO system upon submission.
2. Attachments must be of an authorized file format and size.

2.7 Operation : RetrieveAttachment

Description

The RetrieveAttachment operation allows for retrieval of an existing attachment on an outage request.

Request

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	
AttachmentID	Integer	1	Upon submission of the attachment, and AttachmentID will be created. This unique ID will be used for retrieval/update/remove of attachments. See <u>Attachment</u> .

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	
AttachmentID	Integer	1	
Attachment	<u>Attachment</u>	1..*	See <u>Attachment</u>
Warning	<u>ErrorWarning Code</u>	0..*	Warning will be the positive error codes described in <u>ErrorWarningCode</u> . Warning are for reference only, and do not imply a submission failure.

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u> .

Business/Validation Rules

1. None

2.8 Operation : DeleteAttachment

Description

The DeleteAttachment operation allows for removal of an existing attachment on an outage request.

Request

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	
AttachmentID	Integer	1	

Response

Field	Type	Cardinality	Examples/Explanations
OutageID	String(15)	1	

Field	Type	Cardinality	Examples/Explanations
Warning	<u>ErrorWarning Code</u>	0..*	Warning will be the positive error codes described in <u>ErrorWarningCode</u> . Warning are for reference only, and do not imply a submission failure.

Fault

Field	Type	Cardinality	Examples/Explanations
FaultMessage	<u>ErrorWarning Code</u>	0..*	FaultMessage will be the negative error codes described in <u>ErrorWarningCode</u> .

Business/Validation Rules

1. None

– End of Section –

3 Complex Elements

3.1 Web Service Operation Specific Complex Elements

Approval

Field	Type	Cardinality	Examples/Explanations
ApprovalType	String	1	Can be one of the following AdvancedApproval types: <ul style="list-style-type: none"> • Quarterly AA • Weekly AA • 3 Day AA • 1 Day AA • Auto AA • Advanced Approval • Final Approval • Rejection It can also return an <i>empty (null) string</i> if there is no Approval on the outage.
ApprovedBy	<u>Person</u>	1	
ApprovedWhen	DateTime	1	YYYY-MM-DDThh:mm:ss

Attachment

Field	Type	Cardinality	Examples/Explanations
FileName	String	1	The filename of the attached file
FileDescription	String	1	Brief description of the file
FileData	Byte Array	1	The data of the attachment file should be provided to this method as a byte array.
AttachmentID	Integer	1	The database assigned ID of the attachment
AddedBy	<u>Person</u>	1	The user that added the attachment
AddedWhen	DateTime	1	The Date/time that the attachment was added on.

ActualOutagePeriod

Field	Type	Cardinality	Examples/Explanations
ActualStart	DateTime	0..1	If PriorityCode = Forced, outage must contain an ActualStart date

Field	Type	Cardinality	Examples/Explanations
			<p>YYYY-MM-DDThh:mm:ss</p> <p>Only submit one ActualStart or ActualEnd time. Historical values that have been submitted before should not be resubmitted.</p> <p>To Implement an outage provide: OutageID & ActualStart date</p>
ActualEnd	DateTime	0..1	<p>To Complete an outage provide: OutageID & ActualEnd date</p> <p>YYYY-MM-DDThh:mm:ss</p> <p>Only submit one ActualStart or ActualEnd time. Historical values that have been submitted before should not be resubmitted.</p>

OutagePeriod

Field	Type	Cardinality	Examples/Explanations
Equipment	<u>Equipment</u> <u>OutageProfile</u>	1..*	
PlannedStart	DateTime	0..1	<p>YYYY-MM-DDThh:mm:ss</p> <p>Only used if the outage is non-continuous.</p> <p>The PlannedStart datetime of the first outage period must match the PlannedStart datetime of the entire outage request.</p>
PlannedEnd	DateTime	0..1	<p>YYYY-MM-DDThh:mm:ss</p> <p>Only used if the outage is non-continuous.</p> <p>The PlannedEnd datetime of the last outage period must match the</p>

Field	Type	Cardinality	Examples/Explanations
			PlannedEnd datetime of the entire outage request.
PeriodStatus	String	0..1	<p>Field not required for SubmitOutage operation.</p> <p>Each period has its own corresponding status. By default, the PeriodStatus is the same as the OutageStatus, however each PeriodStatus can be changed.</p> <ul style="list-style-type: none"> • Draft • Submitted • Negotiate • Study • Adv Approved • Final Approved • Rejected • Cancelled • Implemented • Completed • Recalled • Revoked • At Risk
StatusUpdatedBy	<u>Person</u>	0..1	<p>Field not required for SubmitOutage operation.</p> <ul style="list-style-type: none"> • The user that updated the status
StatusUpdatedWhen	DateTime	0..1	<p>Field not required for SubmitOutage operation.</p> <ul style="list-style-type: none"> • The Date/time that the status was updated
ReasonCode	String	0..1	<p>Field not required for SubmitOutage operation.</p> <ul style="list-style-type: none"> • Only required if canceling a particular period within a recurring outage • See <u>ReasonCodeConfiguration</u>
ReasonComment	String	0..1	Field not required for SubmitOutage operation.

Field	Type	Cardinality	Examples/Explanations
			<ul style="list-style-type: none"> Only required if ReasonCode is provided

EquipmentOutageProfile

Field	Type	Cardinality	Examples/Explanations
ActualOutagePeriod	<u>ActualOutagePeriod</u>	0..1	ActualStart and ActualEnd times of this period For RetrieveOutage operation only, will be ignored for SubmitOutage
EquipmentName	String(255)	1	
EquipmentDescription	String(255)	0..1	Description is required when the following ConstraintCodes are selected: <ul style="list-style-type: none"> ProtOOS BFProtOOS AVRPSSOOS ASPOOS OtherMiscellaneousEquipment
EquipmentClass	Enumerated String	1	<ul style="list-style-type: none"> Line LineSection Breaker DisconnectSwitch Bus Transformer Reactor Capacitor StaticVARCompensator Converter Filter PhaseShifter VoltageRegulator UFLSRelay SynchronousCondenser Generator Load ACDCStationService SpecialProtectionSystem

Field	Type	Cardinality	Examples/Explanations
			<ul style="list-style-type: none"> • ToneCommunicationChannels • RTUICCPHUBEquipment • OtherCommunicationEquipment • OtherMiscellaneousEquipment
FacilityClass	Integer	0..1	<p>A read-only numerical value for <i>RetrieveOutage</i> operation that represents the impact level of the Equipment as follows:</p> <p>1 = Critical 2 = Non-Critical 3 = Low-Impact</p>
Stations	Station	0..2	<ul style="list-style-type: none"> • Station the equipment belongs to, or • Terminating stations if it's a line/line section.
ConstraintCode	Enumerated String	1	<p>The equipment ConstraintCode must be consistent for the same piece of equipment across all OutagePeriods</p> <ul style="list-style-type: none"> • OOS • IS • DRATE • HOLDOFF • Mustrun • BTCT • PROTOOS • BFPROTOOS • AVRPSOOS • ASPOOS • INFO • ABNO <p>The Equipment Constraint Values, where applicable the user will also enter a Derated-To or Must Run At value</p> <p>Not all ConstraintCodes are applicable for each EquipmentClass, see Sections A.2 Outage Priority and Constraint Configuration and A.3 Equipment Class and Valid Constraint Types for business rule validation</p>

Field	Type	Cardinality	Examples/Explanations
DeratedToAmount	Numeric	0..1	<ul style="list-style-type: none"> Used with constraints: DRATE and Mustrun
DeratedToUnit	Numeric	0..1	<p>Used with constraints: DRATE and Mustrun</p> <ul style="list-style-type: none"> MW MVARIn MVAROut <p>Not all DeratedToUnit are applicable for each EquipmentClass, see section A.6 DRATE & Mustrun Measurement Unit/Equipment Class Matrix for business rule validations</p>

Station

Field	Type	Cardinality	Examples/Explanations
StationName	String(255)	1	<ul style="list-style-type: none"> Station the equipment belongs to, or Terminating stations if it's a line/line section.
TerminalType	Enumerated String	0..1	<p>Terminal Type is required when more than one Station is provided.</p> <ul style="list-style-type: none"> From To

ErrorWarningCode

Field	Type	Cardinality	Examples/Explanations
Code	Integer	1	<p>The error code ID.</p> <p>A code ID that is a negative integer indicates that it is an error message. The action requested has failed.</p> <p>Only negative error codes will be returned in a Fault.</p> <p>A code ID that is a positive integer indicates that it is a warning message.</p>

Field	Type	Cardinality	Examples/Explanations
			The action requested was successful with warnings. Only positive error codes will be returned in a Warning.
Description	String	1	A text description of the error code.

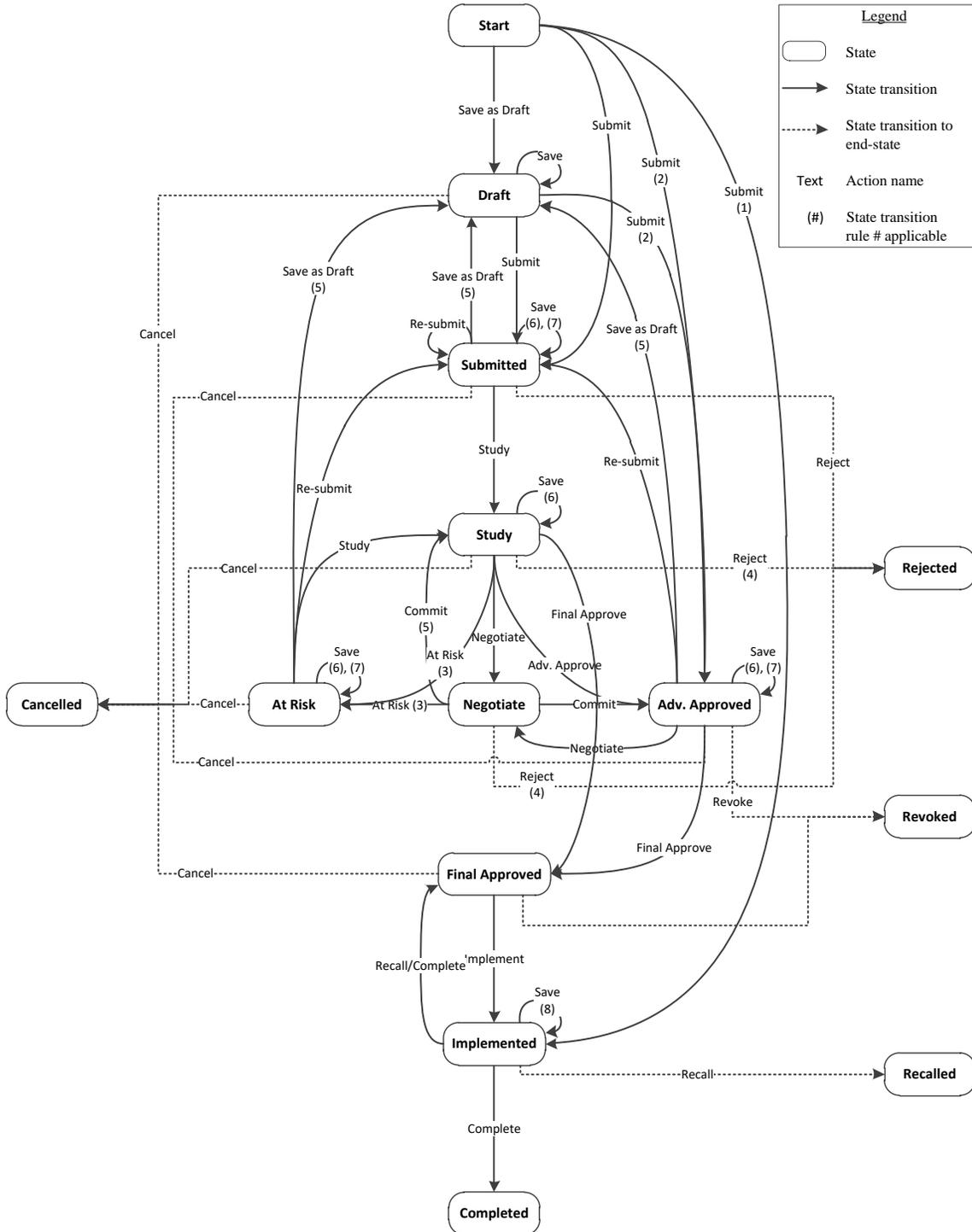
Person

Field	Type	Cardinality	Examples/Explanations
FirstName	String	1	
LastName	String	1	
Email	String	1	
Phone	String	1..4	
Company	String	1	

– End of Section –

Appendix A: Outage Submission Process Business Rules

A.1 Outage Request State Transition



From Status	To Status	Action Name	Rules and Notes
None (“Start” in diagram above)	Draft	Save as Draft	No priority date is set
None (“Start” in diagram above)	Submitted	Submit	NOTE: The Priority Date will be set when this state transition takes place whether or not a significant change has been made to the outage request. <u>Submission lead time rules apply.</u> State transition rule number(s) applied: <u>10</u>
None (“Start” in diagram above)	Adv Approved	Submit	NOTE: The Priority Date will be set when this state transition takes place whether or not a significant change has been made to the outage request. State transition rule number(s) applied: <u>2</u> and <u>10</u>
None (“Start” in diagram above)	Implemented	Implement	NOTE: The Priority Date will be set when this state transition takes place whether or not a significant change has been made to the outage request. State transition rule number(s) applied: <u>1</u> and <u>10</u>
Draft	Submitted	Submit	NOTE: The Priority Date will be set when this state transition takes place whether or not a significant change has been made to the outage request. <u>Submission lead time rules apply.</u> State transition rule number(s) applied: <u>10</u>
Draft	Adv Approved	Submit	NOTE: The Priority Date will be set when this state transition takes place whether or not a significant change has been made to the outage request. State transition rule number(s) applied: <u>2</u> and <u>10</u>
Draft	Cancelled	Cancel	No priority date is set
Draft	Draft	Save	No priority date is set
Submitted	Cancelled	Cancel	
Submitted	Submitted	Re-submit	Priority Date is set if changes to significant fields on the outage request are made <u>Submission lead time rules apply.</u>

From Status	To Status	Action Name	Rules and Notes
			State transition rule number(s) applied: <u>10</u>
Submitted	Submitted	Save	State transition rule number(s) applied: <u>6</u> and <u>7</u>
Submitted	Draft	Save as Draft	State transition rule number(s) applied: <u>5</u>
Study	Cancelled	Cancel	
Adv Approved	Cancelled	Cancel	
Adv Approved	Submitted	Re-submit	Priority Date is set if changes to significant fields on the outage request are made <u>Submission lead time rules apply.</u>
Adv Approved	Adv Approved	Save	State transition rule number(s) applied: <u>6</u> and <u>7</u>
Adv Approved	Draft	Save as Draft	State transition rule number(s) applied: <u>5</u>
Negotiate	Study	Commit	See: <u>Exception for Outage Requests in the “Negotiate” status</u> for notes on how this state transition is calculated.
Negotiate	Adv Approved	Commit	See: <u>Exception for Outage Requests in the “Negotiate” status</u> for notes on how this state transition is calculated.
At Risk	At Risk	Save	State transition rule number(s) applied: <u>6</u> and <u>7</u>
At Risk	Cancelled	Cancel	
At Risk	Submitted	Re-submit	NOTE: <u>Click here to see a Priority Date setting rule to be aware of in this case.</u> State transition rule number(s) applied: <u>10</u>
At Risk	Draft	Save as Draft	State transition rule number(s) applied: <u>5</u>
Final Approved	Cancelled	Cancel	
Final Approved	Implemented	Implement	
Implemented	Completed	Complete	Completing either the current active outage period of an outage request (when there are <u>no</u> other future pending outage periods) or electing to Complete the 'Entire' outage.

From Status			
Implemented	Final Approved	Complete	Completing an outage period (where there are other future pending outage periods) but not the entire outage request
Implemented	Implemented	Save	State transition rule number(s) applied: <u>8</u>

A.2 Outage Priority and Constraint Configuration

ID	Name	Purpose Codes	Constraint Name	Constraint Abbreviation	Causes Conflicts	Constraint Classes
4	Forced	ARFS, ENV, EQ, FTS, MRFS, OTH, REG, SAF	Out of Service	OOS	Y	Business Unit, Power System Equipment, Station
			Derated To	DRATE	Y	Business Unit, Power System Equipment, Special Protection System, Station
			Hold-Off	HOLDOFF		Circuit, Station Equipment
			Must Run At	MUSTRUN	Y	Generator, Station
			In Service	IS	Y	
			Protection Out of Service	PROT OOS	Y	
			Automatic Voltage Regulator / Power System Stabilizer Out of Service	AVR/PSS OOS	Y	
			Breaker Fail Protection Out of Service	BF PROT OOS	Y	
			Ancillary Service Out of Service	ASP OOS	Y	

ID						
			Breaker Trip Coil Test	BTCT	Y	
5	Opportunity	COM, ERTS, FAM, FGOC, FTOC, OTH, SMO, TEST	Out of Service	OOS	Y	Business Unit, Power System Equipment, Station
			Derated To	DRATE	Y	Business Unit, Power System Equipment, Special Protection System, Station
			Hold-Off	HOLDOFF		Circuit, Station Equipment
			Must Run At	MUSTRUN	Y	Generator, Station
			In Service	IS	Y	
			Protection Out of Service	PROT OOS	Y	
			Automatic Voltage Regulator / Power System Stabilizer Out of Service	AVR/PSS OOS	Y	
			Breaker Fail Protection Out of Service	BF PROT OOS	Y	
			Ancillary Service Out of Service	ASP OOS	Y	
			Breaker Trip Coil Test	BTCT	Y	
6	Urgent	ENV, EQ, FTS, OTH,	Out of Service	OOS	Y	Business Unit, Power System Equipment, Station
			Derated To	DRATE	Y	Business Unit,

ID	Name	Purpose Codes	Constraint Name	Constraint Abbreviation	Causes Conflicts	Constraint Classes
		REG, SAF				Power System Equipment, Special Protection System, Station
			Hold-Off	HOLDOFF		Circuit, Station Equipment
			Must Run At	MUSTRUN	Y	Generator, Station
			In Service	IS	Y	
			Protection Out of Service	PROT OOS	Y	
			Automatic Voltage Regulator / Power System Stabilizer Out of Service	AVR/PSS OOS	Y	
			Breaker Fail Protection Out of Service	BF PROT OOS	Y	
			Ancillary Service Out of Service	ASP OOS	Y	
			Breaker Trip Coil Test	BTCT	Y	
7	Planned	COM, M, OTH, RPL, RPR, TEST	Out of Service	OOS	Y	Business Unit, Power System Equipment, Station
			Derated To	DRATE	Y	Business Unit, Power System Equipment, Special Protection System, Station
			Hold-Off	HOLDOFF		Circuit, Station Equipment
			Must Run At	MUSTRUN	Y	Generator,

ID	Name	Purpose Codes	Constraint Name	Constraint Abbreviation	Causes Conflicts	Constraint Classes
						Station
			In Service	IS	Y	
			Protection Out of Service	PROT OOS	Y	
			Automatic Voltage Regulator / Power System Stabilizer Out of Service	AVR/PSS OOS	Y	
			Breaker Fail Protection Out of Service	BF PROT OOS	Y	
			Ancillary Service Out of Service	ASP OOS	Y	
			Breaker Trip Coil Test	BTCT	Y	
10	Informational	OTH	Informational	INFO		
			Available But Not Operating	ABNO		

A.3 Equipment Class and Valid Constraint Types

Equipment Class	Constraint Code											
	OOS	IS	DRA TE	MUS TRU N	HOL DOF F	AVR/ PSS OOS	ASP OOS	PRO T OOS	BF PRO T OOS	BTC T	INFO	ABN O
Line	x	x			x			x			x	
Line Section	x	x			x			x			x	
Breaker	x	x							x	x	x	
Disconnect Switch	x	x									x	
Bus	x	x						x			x	
Transformer	x	x						x			x	
Reactor	x	x	x					x			x	
Capacitor	x	x	x					x			x	
SVC	x	x	x	x				x			x	
Converter	x	x	x	x				x			x	
Filter	x	x	x					x			x	

Equipment Class	Constraint Code											
	OOS	IS	DRA TE	MUS TRU N	HOL DOF F	AVR/ PSS OOS	ASP OOS	PRO T OOS	BF PRO T OOS	BTC T	INFO	ABN O
Phase Shifter	x	x						x			x	
Voltage Regulator	x	x						x			x	
UFLS Relay	x	x									x	
Synchronous Condenser	x	x	x	x				x			x	
Generator	x	x	x	x		x	x	x			x	x
Load	x	x	x	x			x	x			x	
AC/DC Station Service	x	x									x	
SPS	x	x									x	
Tone Communication Channels	x	x									x	
RTU/ICCP/HUB Equipment	x	x									x	
Other Communication Equipment	x	x									x	
Other Miscellaneous Equipment	x	x									x	

A.4 Purpose Code Priority Code Validation

Code	Description	Valid Priorities
ARFS	Automatically Removed From Service	Forced
CYB	Cyber Asset Change	Planned
COM	Commissioning	Planned, Opportunity
ENV	Environmental Concerns	Urgent, Forced
EQ	Equipment Concerns	Urgent, Forced
ERTS	Expedite Return to Service	Opportunity
FAM	Favourable Adequacy Margin	Opportunity
FGOC	Favourable Generation Outage Condition	Opportunity
FTOC	Favourable Transmission Outage Condition	Opportunity
FTS	Failed To Sync	Urgent, Forced

Code	Description	Valid Priorities
MRFS	Manually Removed From Service	Forced
MTCE	Maintenance	Planned
OTH	Other	Planned, Urgent, Opportunity, Informational, Forced
REG	Regulatory Concerns	Urgent, Forced
RPL	Replacement	Planned
RPR	Repair	Planned
RSET	Relay Setting Change	Planned
SAF	Safety Concerns	Urgent, Forced
SMO	Segregated Mode of Operation	Opportunity
SWCH	Switching	Urgent, Planned, Opportunity
TED	Transmission Equipment Derating	Informational
TELC	Telco Third Party Threat	Planned, Urgent
TEST	Testing	Planned, Opportunity

A.5 Low Impact Questions

Question	Conditions (rows are OR relationships while columns are AND)	
	Equipment Class	Constraint Type
Only a Loss of Redundancy?	<ul style="list-style-type: none"> Generators 	<ul style="list-style-type: none"> AVR/PSS OOS
	<ul style="list-style-type: none"> Any (for which the constraint type applies) 	<ul style="list-style-type: none"> PROT OOS
	<ul style="list-style-type: none"> SPS AC/DC Station Service Tone Communication Channels RTU/ICCP/HUB Equipment Other Communication Equipment Other Miscellaneous Equipment 	<ul style="list-style-type: none"> OOS
	<ul style="list-style-type: none"> Breaker 	<ul style="list-style-type: none"> BF PROT OOS BTCT
Adjacent Breakers OOS?	<ul style="list-style-type: none"> Breaker 	<ul style="list-style-type: none"> BF PROT OOS BTCT
CTs on Both Sides of the Breaker?	<ul style="list-style-type: none"> Breaker 	<ul style="list-style-type: none"> BF PROT OOS

Question	Conditions (rows are OR relationships while columns are AND)	
	Equipment Class	Constraint Type
Does the SS Supply Transformer Cooling?	<ul style="list-style-type: none"> AC/DC Station Service 	<ul style="list-style-type: none"> OOS
RTU or HUB Affected?	<ul style="list-style-type: none"> Tone Communication Channels 	<ul style="list-style-type: none"> OOS

A.6 DRATE & Mustrun Measurement Unit/Equipment Class Matrix

Equipment Class	MW	MVAR In	MVAR Out
Reactor		x	
Capacitor			x
SVC		x	x
Converter	x	x	x
Filter		x	x
Synchronous Condenser		x	x
Generator	x	x	x
Load	x	x	x

– End of Section –

Appendix B: Equipment Label Naming Convention

Equipment Class (CROW typeName)	Equipment Label	Example Label	Equipment Name	station_name / from_station	to_station
Line (Line)	equipment_name + ' ' + from_station + ' x ' + to_station	56M1: NIPIGON JCT x RED ROCK DS	56M1	NIPIGON JCT	RED ROCK DS
LineSection (LineSection)	equipment_name	C15L.SCXSH	C15L.SCXSH	SHEPPARD TS	SCARBORO JCT
Breaker (Breaker)	station_name + ' ' + equipment_name	Pickering A GS T2K	T2K	Pickering A GS	
DisconnectSwitch (Disconnect)	station_name + ' ' + equipment_name	Same as breaker			
Bus (Bus)	station_name + ' ' + equipment_name	Same as breaker			
Transformer (PowerTransformer)	station_name + ' ' + equipment_name	Same as breaker			
Reactor (Reactor)	station_name + ' ' + equipment_name	Same as breaker			
Capacitor (Capacitor)	station_name + ' ' + equipment_name	Same as breaker			
StaticVARCompensator (SVC)	station_name + ' ' + equipment_name	Same as breaker			
Converter (Converter)	station_name + ' ' + equipment_name	Same as breaker			
Filter (FilterBank)	station_name + ' ' + equipment_name	Same as breaker			

Equipment Class (CROW typeName)	Equipment Label	Example Label	Equipment Name	station_name / from_station	to_station
PhaseShifter (PhaseShifter)	station_name + '' + equipment_name	Same as breaker			
VoltageRegulator (VoltageRegulator)	station_name + '' + equipment_name	Same as breaker			
UFLSRelay (UFLS)	station_name + '' + equipment_name	Same as breaker			
SynchronousCondenser (SynchronousCondenser)	station_name + '' + equipment_name	Same as breaker			
Generator (GeneratingUnit)	station_name + '' + equipment_name	Same as breaker			
Load (Load)	station_name + '' + equipment_name	Same as breaker			
ACDCStationService (StationService)	station_name + '' + equipment_name	Pickering A GS AC/DC SS 1 Pickering A GS AC/DC SS 2 Pickering A GS AC/DC SS 3 Pickering A GS AC/DC SS 4	AC/DC SS 1 AC/DC SS 2 AC/DC SS 3 AC/DC SS 4	Pickering A GS	
SpecialProtectionSystem (SpecialProtectionSystem)	equipment_name	Atikokan G/R SPS	Atikokan G/R SPS		
ToneCommunicationChannels (ToneCommunicationChannel)	station_name + '' + equipment_name	Pickering A GS Tone Comm 1 Pickering A GS Tone Comm 2 Pickering A GS Tone Comm 3 Pickering A GS Tone Comm 4	Tone Comm 1 Tone Comm 2 Tone Comm 3 Tone Comm 4	Pickering A GS	
RTUICCPHUBEquipment (RTU_ICCP_HUB)	station_name + '' + equipment_name	Pickering A GS RTU/ICCP/HUB 1	RTU/ICCP/HUB 1	Pickering A GS	

Equipment Class (CROW typeName)	Equipment Label	Example Label	Equipment Name	station_name / from_station	to_station
		Pickering A GS RTU/ICCP/HUB 2 Pickering A GS RTU/ICCP/HUB 3 Pickering A GS RTU/ICCP/HUB 4	RTU/ICCP/HUB 2 RTU/ICCP/HUB 3 RTU/ICCP/HUB 4		
OtherCommunicationEquipment (CommEquip)	station_name + ' ' + equipment_name	Pickering A GS Comm 1 Pickering A GS Comm 2 Pickering A GS Comm 3 Pickering A GS Comm 4	Comm 1 Comm 2 Comm 3 Comm 4	Pickering A GS	
OtherMiscellaneousEquipment (Misc)	station_name + ' ' + equipment_name	Pickering A GS Misc 1 Pickering A GS Misc 2 Pickering A GS Misc 3 Pickering A GS Misc 4	Misc 1 Misc 2 Misc 3 Misc 4	Pickering A GS	

Appendix C: ReSubmit Outage Rules

1. If the OCSS SaveAsDraft = True, the CROW actionType = SaveProposed
2. If the OCSS OutageID = null (new outage request) and SaveAsDraft = False, then actionType = SubmitRequest
3. If the OCSS OutageID != null and OCSS is trying to figure out whether the change is significant or not, then retrieve the specified outage;
 - If OutageStatus = 'Negotiate', then actionType = CommitRequest
 - If OutageStatus = 'FinalApproved' OR OutageStatus = 'Implemented', then actionType = Save
 - Else compare the existing outage information to the submitted outage information. If the fields being changed matches any of the "significant" change provided below, then actionType = SubmitRequest, if not then actionType = Save

Definition of Significant Outage Request Fields

The following outage request fields are considered to be "significant":

- Planned Start (if changed to an earlier outage period level start date/time)
- Planned End (if changed to a later outage period level end date/time)
- Equip Requested (anything added or removed)
- Equipment Description
- Priority Code
- Constraint Information (code, value, and/or measure unit)
- Max Recall
- Changes to any responses Low Impact question
- Change to the response to the Telemetry Scaling Impact question

Appendix D: CROW Web Service Enumeration Values

D.1 Outage Action Types

Outage Action Types	Description
NotSet	Indicates the action type is not specified.
SaveProposed	Mapped to the configured action named: Save as Draft Indicates the action is to put the outage into a Draft state.
SubmitRequest	Mapped to the configured actions named: Submit or Re-submit Indicates the action is to Submit or Re-Submit the outage into a Submitted state.
CancelRequest	Mapped to the configured action named: Cancel Indicates the action is to move the outage into a Cancelled state.
ImplementOutage	Mapped to the configured action named: Implement Indicates the action is to move the outage into an Implemented state.
CompleteOutage	Mapped to the configured action named: Complete Indicates the action is to move the outage request or outage period into a Completed state.
Save	Mapped to the configured actions named: Save Indicates the action is to save the changes for the outage request.
CommitRequest	Mapped to the configured actions named: Commit Indicates an outage in Negotiate state to transition to Study or Adv Approve state

D.2 Outage Status Configuration

ID	Name
1	Draft
2	Submitted
4	Negotiate
5	Study
6	Adv Approved
7	Final Approved
8	Rejected
9	Cancelled

ID	Name
10	Implemented
11	Completed
12	Recalled
15	Revoked
18	At Risk

D.3 Reason Code Configuration

ID	Code	Name	Valid Statuses	Valid Roles
0	OTH	Other	Cancelled	
1	WEA	Weather	Cancelled	
2	CRW	Crew Availability	Cancelled	
3	SUP	Supplies / Parts not available	Cancelled	
4	REL	Reliability Risk	Cancelled	
5	CON	Work Priority Conflict	Cancelled	
6	ADM	System Administrator Need (Database/Model Maintenance)		
7	LDS	Load Security	Cancelled	
8	ADQ	Adequacy	Rejected, Recalled, Revoked	
9	SEC	Security	Rejected, Recalled, Revoked	
10	LAT	Late / No Time to Study	Rejected, Recalled, Revoked	
11	AUT	Automatic	Rejected	

D.4 Equipment Constraint Values

Value	Notes
0	OOS (Out of Service)
3	DRATE (De-rated To) - (requires a deratedToAmt and deratedToUnits value)
6	HOLDOFF (Hold-Off)
17	MUSTRUN (Must-Run At) - (requires a deratedToAmt and deratedToUnits value)
20	INFO (Informational)
21	IS (In Service)

Value	Notes
22	PROT OOS (Protection Out of Service)
23	AVR/PSS OOS (Automatic Voltage Regulator / Power System Stabilizer Out of Service)
24	BF PROT OOS (Breaker Fail Protection Out of Service)
25	ASP OOS (Ancillary Service Out of Service)
27	BTCT (Breaker Trip Coil Test)
40	ABNO

D.5 Equipment Constraint Units

Value	Notes
MW	Used with constraints: DRATE and MUSTRUN
MVAR In	Used with constraints: DRATE and MUSTRUN
MVAR Out	Used with constraints: DRATE and MUSTRUN

D.6 Max Recall Time Units

Value	Notes
None	Use this to indicate a Non-recallable outage.
Minutes	Unit of measure for the recallTime field value is minutes.
Hours	Unit of measure for the recallTime field value is hours.
Days	Unit of measure for the recallTime field value is days.
Immediate	This overrides the recallTime field value with a value of 0.

D.7 Outage Cancellation Code

Value	Notes
OTH	Other
WEA	Weather
CRW	Crew Availability
SUP	Supplies / Parts Unavailable
REL	Reliability Risk
CON	Work Priority Conflict
LDS	Load Security

D.8 Outage Recall, Reject, Revoke Code Values

Value	Notes
ADQ	Adequacy
SEC	Security
LAT	Late / No Time to Study
AUT	Automatically set. This is only used on Reject.

D.9 Outage Priority Codes

Value	Notes
4	Forced
5	Opportunity
14	Urgent
7	Planned
10	Informational
33	Forced Extended

D.10 Outage Purpose Codes

See section A.4 for the list of valid purpose codes.

D.11 Outage Recurrence Configuration

Value	Notes
Continuous	The outage request has only one outage period.
Return Evenings	The outage request has multiple outage periods, each of which return in the evening.
Return Weekends	The outage request has multiple outage periods, but is returned on the weekends.
Return Evenings And Weekends	The outage request has multiple outage periods, each of which return in the evening and periods do not occur on the weekend.
Noncontinuous	The outage request has one or more outage periods of varying schedules and lengths of time.
Return Sat - Mon	The outage request has multiple outage periods, but periods do not occur on Saturday, Sunday, or Monday.
Return Fri - Sun	The outage request has multiple outage periods, but periods do not occur on Friday, Saturday, or Sunday.
Return Fri - Mon	The outage request has multiple outage periods, but periods do not occur on Friday, Saturday, Sunday, or Monday.

D.12 Cancellation Type

Value	Notes
EntireOutageReq	Cancel all periods for the outage.
CurrentDaily	Cancel the next subsequent period.

D.13 Warning and Error Codes

D.13.1 Warning Codes

Warning Code #	Warning Code Description
1	Error searching for '<equipment>'.
1	Multiple matches found for '<equipment>'.
1	No match found for '<equipment>'.
1	Periods have not been updated due to an invalid change to the associated profile equipment.
101	The input priority value of '<input priority type>' is not applicable. The priority has been set to the corrected value '<outage priority>'.
200	Invalid outage request status(es) supplied.
200	The following invalid 'constraintTypeConcat' values were not used in the query - '<constraint names>'
200	The following invalid 'equipmentTypeConcat' values were not used in the query - '<equipment classes>');
203	Base class is person, and has created or modified data in the database or is otherwise referenced in the database.
204	Outage period(s) were supplied for a continuous outage request. The application will automatically generate the outage period(s) for continuous outage requests.
205	The Predecessor has not been completed for this 'Finish-Start' relationship.
206	The Predecessor has already been completed for this 'Run Within' relationship.
207	The Predecessor has not been started for this 'Run Within' relationship.
208	The Successor has not been completed for this 'Run Within' relationship.
400	Changes to <property name> property are ignored because of modification restrictions.
400	Ignoring value for 'deratedToAmt' as it cannot be set for <constraint type> equipment.
400	Ignoring value for 'deratedToUnits' as it cannot be set for <constraint type> equipment.
400	Ignoring value for the '<property name>' property because you cannot modify it.
400	Invalid 'outageState' value for circuit breakers, can only be 'Open' or 'Closed'.

Warning Code #	Warning Code Description																																				
400	No 'outageState' value provided for circuit breaker setting to so setting to '<outage status>'. </td></tr> <tr> <td>400</td> <td>Note: The start time for this request is outside of the allowed time window for the priority and facility class.</td> </tr> <tr> <td>400</td> <td>Note: This will be considered a late submission.</td> </tr> <tr> <td>400</td> <td>You do not have permission to add the equipment to the outage request.</td> </tr> <tr> <td>400</td> <td>Flag '<Flag Name>' is not applicable on this outage request.</td> </tr> <tr> <td>400</td> <td>Cannot Modify</td> </tr> <tr> <td>400</td> <td>You may not modify the property '<outage field>'. Changes to this property have not been applied.</td> </tr> <tr> <td>508</td> <td>You don't have the required privileges to view this Outage Request (<linked outage request number>).</td> </tr> <tr> <td>573</td> <td>You may not modify the <study type> study.</td> </tr> <tr> <td>590</td> <td>The successor does not start after the predecessor in a 'Run Within' relationship.</td> </tr> <tr> <td>591</td> <td>The successor does not end before the predecessor in a 'Run Within' relationship.</td> </tr> <tr> <td>592</td> <td>The predecessor does not end before the successor starts in a 'Start-Finish' relationship.</td> </tr> <tr> <td>599</td> <td>The predecessor does not exist.</td> </tr> <tr> <td>600</td> <td>The predecessor is already linked to another outage request.</td> </tr> <tr> <td>605</td> <td>Multiple attachments found using latest.</td> </tr> <tr> <td>606</td> <td><Date field> is in the past.</td> </tr> <tr> <td>607</td> <td>The following conflict(s) exist for this outage request:</td> </tr> <tr> <td>608</td> <td>The following linked outage request(s) exist:</td> </tr> <tr> <td>615</td> <td>Warning: Period dates do not match overall outage dates. Dates have been updated to match the specified periods.</td> </tr>	400	Note: The start time for this request is outside of the allowed time window for the priority and facility class.	400	Note: This will be considered a late submission.	400	You do not have permission to add the equipment to the outage request.	400	Flag '<Flag Name>' is not applicable on this outage request.	400	Cannot Modify	400	You may not modify the property '<outage field>'. Changes to this property have not been applied.	508	You don't have the required privileges to view this Outage Request (<linked outage request number>).	573	You may not modify the <study type> study.	590	The successor does not start after the predecessor in a 'Run Within' relationship.	591	The successor does not end before the predecessor in a 'Run Within' relationship.	592	The predecessor does not end before the successor starts in a 'Start-Finish' relationship.	599	The predecessor does not exist.	600	The predecessor is already linked to another outage request.	605	Multiple attachments found using latest.	606	<Date field> is in the past.	607	The following conflict(s) exist for this outage request:	608	The following linked outage request(s) exist:	615	Warning: Period dates do not match overall outage dates. Dates have been updated to match the specified periods.
400	Note: The start time for this request is outside of the allowed time window for the priority and facility class.																																				
400	Note: This will be considered a late submission.																																				
400	You do not have permission to add the equipment to the outage request.																																				
400	Flag '<Flag Name>' is not applicable on this outage request.																																				
400	Cannot Modify																																				
400	You may not modify the property '<outage field>'. Changes to this property have not been applied.																																				
508	You don't have the required privileges to view this Outage Request (<linked outage request number>).																																				
573	You may not modify the <study type> study.																																				
590	The successor does not start after the predecessor in a 'Run Within' relationship.																																				
591	The successor does not end before the predecessor in a 'Run Within' relationship.																																				
592	The predecessor does not end before the successor starts in a 'Start-Finish' relationship.																																				
599	The predecessor does not exist.																																				
600	The predecessor is already linked to another outage request.																																				
605	Multiple attachments found using latest.																																				
606	<Date field> is in the past.																																				
607	The following conflict(s) exist for this outage request:																																				
608	The following linked outage request(s) exist:																																				
615	Warning: Period dates do not match overall outage dates. Dates have been updated to match the specified periods.																																				

D.13.2 Error Codes

Error Code #	Error Code Description
-846	Adjacent Breakers OOS' is required and has not been specified.
-846	CTs on Both Sides of the Breaker' is required and has not been specified.
-846	Does the SS supply Transformer Cooling' is required and has not been specified.
-846	Loss Of Redundancy' is required and has not been specified.
-846	RTU or HUB Affected' is required and has not been specified.
-845	The 'Planned Start' date must be in the future.
-845	The 'Planned Start' date must be on or after the start of the next one day coverage period.

Error Code #	Error Code Description
-845	The "Planned Start" date must be on or after the start of the next three day coverage period.
-845	The "Planned Start" date must be on or after the start of the next weekly coverage period.
-843	Error accessing api method. Permission Denied.
-842	Cannot view all selected classes. Permission Denied.
-841	Cannot [create update] resource. Permission Denied.
-840	The actual start date must be within <i><number of minutes></i> minutes of the next unimplemented period.
-839	The equipment's external name is blank.
-837	Error occurred during attempted update.
-836	All profiles must refer to equipment in the requested equipment list.
-834	An abstract class cannot be saved.
-833	Resource list cannot contain duplicate resources.
-830	All <i><constraint name></i> profiles are required to have a value.
-830	All Derated To profiles are required to have a value.
-829	Outage Priority is invalid.
-829	Outage Priority is required and has not been specified.
-828	Recall Time is required and has not been specified.
-827	Another organization with the same name exists.
-826	The actual start date may not be in the future.
-826	The actual start date time value may not be greater than <i><number of minutes></i> minutes from now.
-824	The length of ' <i><input value></i> ' given for <i><property name></i> is greater than <i><maximum property length></i>
-821	The derate to value for a (previously) implemented outage request may not be changed.
-807	You may not update the start time for an implemented period.
-806	You may not update outage periods in an end state.
-774	Error setting webservicess property
-774	The value given to property <i><property name></i> is not valid.
-771	You do not have the necessary approval privileges to add <i><label></i> .
-769	You cannot link an outage request to itself.
-765	One or more requested equipment items is in the Retired state.

Error Code #	Error Code Description
-762	No outage priority has been selected.
-761	The selected outage priority does not match the available options.
-759	Another equipment record exists with the same equipment number.
-752	You do not have permission to update the outage request.
-750	You may not remove equipment <i><equipment label></i> .
-748	<i><Input value></i> is not valid value for <i><property name></i>
-747	Missing systemElement for input RequestedEquipment object
-746	Input outage period not found.
-745	The submitted user must have the same employer as the login user.
-744	No valid filename was passed.
-743	Unknown file format specified: unable to continue import.
-739	Unable to add new station: Either the Name or the Abbreviation is blank
-734	Cannot save an outage request that has a status of NotSet
-723	You may not add a change request/cancellation request to a change request/cancellation request
-722	Another <i><class type name></i> exists with the same name. The <i><class type name></i> name was not updated.
-721	Invalid code provided.
-720	You cannot submit this request through the Web Services API, because the start time is outside of the allowed time window for the given priority and facility class.
-704	The MW value cannot be 0.
-702	All MW amounts must be to either be null or have values.
-701	All MW amounts must be null.
-700	All MW amounts are required.
-699	You cannot set outage request start date to a different day
-692	Error setting property <i><property name></i> . Property does not exist.
-691	Error updating PowerSystemEquipment
-690	An outage period has a reason code of 'OTHER', but no reason comments.
-689	An outage period has an invalid reason code.
-689	An outage period has an invalid reason subcode.
-689	An outage period is missing a reason subcode.
-675	You may not have a <i><Planned Start/Planned End></i> in the past.
-674	The data parameter can not be null.

Error Code #	Error Code Description
-674	The fileName parameter can not be null or empty.
-674	You may not modify attachments.
-673	You may not view attachments.
-673	You may not view the matching attachment.
-671	Could not find a matching attachment.
-670	Error setting field. Permission Denied.
-669	Could not link outage request. Outage Request must be active.
-668	Could not link outage request. Permission Denied
-668	Could not unlink outage request. Permission Denied.
-667	Error updating linked outage request.
-666	Equipment for which an outage has been implemented cannot be removed.
-666	Equipment for which an outage has been implemented, or is contained in an end-state period, cannot be removed.
-665	Cannot remove Requested Equipment. Index out of bounds.
-665	Index out of bounds
-664	The file size exceeds the maximum file size.
-663	You cannot upload files with the file type <file type extension>.
-657	The value for the In-Service Date property is required.
-656	The value for the Fuel Type property is required.
-653	The value for the External Name property is required.
-652	The value for the Asset Long Name property is required.
-650	The value for the Equipment Number property is required.
-648	Invalid relationship supplied.
-641	The "Operated By" relationships do not match those of the associated Station.
-639	The category of the request cannot be changed.
-636	The user does not have permission to created the outage request type
-635	You have not selected any outage periods to cancel.
-634	The outage complete time you have entered is in the future. The outage request cannot be completed.
-633	There is no 'Reason for Denial' entered.
-632	An error occurred while updating event type permissions.
-631	An error occurred while clearing existing event type permissions.

Error Code #	Error Code Description
-630	An error occurred while updating asset permissions.
-629	An error occurred while clearing existing asset permissions.
-628	An error occurred while updating user permissions.
-627	An error occurred while clearing existing user permissions.
-626	An error occurred while updating a role.
-625	An error occurred while clearing existing roles.
-623	The user's email address is blank.
-622	The user's password is not valid.
-621	The confirmation password does not match the password.
-620	No employer is selected for the person.
-619	The person's first name is blank.
-618	The person's last name is blank.
-617	Invalid instance ID.
-616	The property can't be updated because it has been updated by another user or process since it was read.
-615	State property can't be set to "Deleted", "Removed", or "Retired"
-614	Error updating the Label property
-613	You can't add a person to this location
-612	The person record wasn't found. It may have been deleted by another user.
-611	Another person record exists with the same employee ID.
-610	A period exists that does not contain any profiles.
-609	The user does not have privileges over the selected station
-601	User credentials could not be mapped to a CROW user.
-600	Outage Request cannot be updated because the predecessor is already linked to another outage request.
-600	The Predecessor is already linked to another outage request.
-599	Outage Request cannot be updated because the predecessor does not exist.
-599	The Predecessor does not exist.
-598	The Predecessor references the current outage request.
-597	The outage request has overlapping outage periods.
-596	The outage request planned end date is after the equipment retirement date.
-596	The 'Planned End' is after the equipment Out of Service Date.

Error Code #	Error Code Description
-595	The outage request planned start date is before the equipment in service date.
-595	The 'Planned Start' is before the equipment In Service Date.
-594	A profile's 'Actual Complete' date must be in the past
-594	A profile's 'Actual Start' date must be in the past
-594	The 'Actual Complete' date must be in the past.
-594	The 'Actual Start' date must be in the past
-594	The outage request planned end date is too far in the future.
-594	The 'Planned End' date is too far in the future.
-593	The outage request planned start date is too far in the future.
-593	The 'Planned Start' date is too far in the future.
-592	Outage Request cannot be updated because the predecessor does not end before the successor starts in a 'Start-Finish' relationship.
-591	Outage Request cannot be updated because the successor does not end before the predecessor in a 'Run Within' relationship.
-590	Outage Request cannot be updated because the successor does not start after the predecessor in a 'Run Within' relationship.
-589	The user does not have sufficient privileges to update the instance.
-588	Invalid value given for webservice object property.
-587	The requested equipment cannot belong to a request of the given category.
-586	Equipment '<equipment label>' in Outage Periods must exist in the Outage Request's Requested Equipment list.
-585	The Constraint Type of an Outage Profile must be the same as the Requested Equipment.
-584	Invalid 'outageState' value for circuit breakers, can only be 'Open' or 'Close'.
-583	There are no 'Outage Periods' entered.
-581	The restorationComplete property needs to have a valid date.
-580	The <property name> property cannot be a null date.
-580	The <property name> property needs to have a date greater than <datetime>
-580	The <property name> property needs to have a date less than <datetime>
-578	You do not have permission to run the Outage Profile Query.
-575	You cannot remove Transmission Equipment from an Outage Profile.
-574	You do not have write access to this outage study.
-573	Outage study at this state cannot be updated.

Error Code #	Error Code Description
-571	You cannot have multiple instances of the same outage study type.
-570	Invalid outage study type.
-569	Invalid value for '<property name>' should be 'Day(s)', 'Hour(s)', 'Min(s)' or 'None'.
-568	Recall Time should be a positive number.
-568	The number needs to be a positive number for property '<property name>'
-567	Another instance exists with the same name.
-567	Invalid 'deratedToAmt' value '<derated to value>' for requested equipment must not have more than <number of digits> digit after the decimal point.
-567	Invalid 'deratedToAmt' value for requested equipment.
-566	A cause code is required.
-566	A 'Purpose Code' is required.
-566	Invalid 'deratedToUnits' value for requested equipment.
-565	You do not have permission to add the equipment to the outage request.
-564	All Requested Equipment should have Constraint specified.
-564	Invalid Constraint <constraint type>.
-564	Invalid PortionOutType specified.
-562	One of the Stations has been incorrectly specified
-561	Error binding SID to Directory Entry.
-560	Unable to establish account state.
-559	Problem executing Directory Services Search.
-558	Problem determining user's security group membership.
-557	The specified user object is not valid or the Security Group is missing.
-555	Unable to validate user.
-533	The Property was not found.
-532	Another person exists with the same email address.
-530	The same business unit appears twice in the "Owned By" relationship.
-529	Invalid relationship_id.
-528	State property can't be set -- instance can't be undeleted because its parent object(s) are currently deleted.
-527	The input instance was not found
-525	The input organization was not found
-524	There are other instances in child relationships with this instance

Error Code #	Error Code Description
-523	Instances of this class or its subclasses exist
-522	The property cannot be added because the property doesn't exist
-521	Another relationship with the same EPRI name exists
-520	There are instances that use this relationship; it can't be deleted
-519	Remove would mean that the equipment would not have an "owned by", "operated by", or "maintained by" relationship.
-518	Object already exists in same relationship with same parent
-517	Duplicate abbreviation found
-516	The Role was not found
-515	The Power System Equipment was not found
-511	The Substation was not found
-508	You don't have the required privileges to view this Outage Request (<request number>).
-506	The Equipment Group was not found.
-505	The Person was not found.
-504	The Business Unit was not found.
-502	Invalid state transition
-502	The profile actual complete time must be later than the actual start time.
-502	The request actual complete time must be later than the actual start time.
-502	You cannot cancel an entire outage request while in the <Implemented> state.
-502	You may not perform the requested action on the outage request.
-502	You may not use this method to perform this state transition.
-502	You may only Cancel the entire outage request.
-502	You may only 'Complete' the current outage period.
-502	You must specify the outage request return type.
-501	Invalid 'Purpose Code' for outage priority.
-501	Invalid 'Purpose Code'.
-501	No priority has been selected.
-501	The priority '<priority name>' is not valid.
-501	You can not submit this request, because the start time is outside of the allowed time window for the given priority and facility class.
-501	You do not have the correct privileges to change the 'Priority' to '<priority name>'.
-501	You do not have the privileges to set the 'Purpose Code' to '<data>'.

Error Code #	Error Code Description
-501	You do not have the privileges to update a outage request with the 'Purpose Code' set to '<purpose code>'.
-414	Station equipment cannot have "Station Equipment" as an equipment type.
-413	Line equipment requires that at least two stations are specified.
-412	The station operator business unit was not found in the equipments collection of ""Operated By"" relationships.
-411	The station owner business unit was not found in the equipments collection of ""Owned By"" relationships.
-410	The value for the Voltage Class property is required.
-402	The outage request data has been modified but not saved.
-401	This is not the current revision.
-400	The user does not have sufficient privileges to update outage requests.
-365	Could not locate listingForConcat item: <equipment name>
-357	Invalid 'listingForClass' value
-352	Invalid '<field name>' value.
-347	There is no 'Reason for Cancellation' entered.
-342	One or more System Elements appears more than once in the 'Requested Equipment' list.
-328	The 'Equipment Requested' contains string values that exceed the maximum length.
-327	There is no 'Reason/Priority'/ 'Location' entered.
-326	There is no 'Primary Requester' entered.
-324	The 'Notifications' list has notification requests where there is no control center selected to notify.
-323	The 'Notifications' list has notification requests where there is no person/group entered to notify.
-322	The 'Notifications' list has notification requests where there is no 'Notification Type' selected.
-321	The 'Planned End' date of the last outage period of 'Daily Outages' list should be the same as the request's 'Planned End' date.
-315	The 'Daily Outages' list has outage periods where the 'Planned End' date is after the request's 'Planned End' date.
-314	The 'Daily Outages' list has outage periods where the 'Planned Start' date is before the request's 'Planned Start' date.
-314	The 'Planned Start' date of the first outage period of 'Daily Outages' list should be the same as the request's 'Planned Start' date.

Error Code #	Error Code Description
-313	The 'Daily Outages' list has outage periods where the 'Planned Start' date is after the 'Planned End' date.
-312	The 'Daily Outages' list has outage periods where there are no 'Planned Start' or 'Planned End' dates entered.
-307	There are no 'Approvals' entered.
-306	<recurrence type> is not a valid 'Continuous/Daily' option for this request.
-306	There is no 'Continuous/Daily' option entered.
-305	'Outage Duration' must be 'Exactly' or 'Window'.
-304	There is no 'Outage Duration' entered.
-303	The 'Planned Start' date is after the 'Planned End' date.
-302	There is no 'Planned End' date entered.
-302	There is no 'Planned Start' date entered.
-301	Cannot find study type <study type ID> in study list.
-301	There is no 'Circuit Requested' entered.
-301	There is no 'Requested Equipment' entered.
-201	User does not have access privileges to update this request.
-201	User does not have access privileges to update this study.
-119	Another outage/derating exists on the same circuit/equipment for overlapping dates/times.
-110	Invalid Notification Request Type: <notification type>
-110	This device is missing a device number.
-108	Missing "'Operated By'". You must select at least one operator for this circuit/equipment.
-107	A Outage Request matching the given Remote System and number was not found.
-107	Missing "'Owned By'". You must select at least one owner for this circuit/equipment.
-107	The input Outage Request Number, Revision Number, or Change Request Number was not found.
-106	Invalid Outage ObjectId
-106	The instance name is blank.
-105	Outage Request cannot be updated because the input 'Remote System Name' and 'Remote System Outage Number' already exist in another Outage Request.
-105	You can't add this instance class to this location.
-104	Outage Request cannot be updated because it is been modified by another user since you have last loaded it.

Error Code #	Error Code Description
-104	The station abbreviation is blank.
-103	The parent Outage Request cannot be cancelled.
-103	The station name is blank.
-102	Outage Request cannot be deleted because it is linked to requests:
-101	Login Failed
-101	Notification Request requires the notifyWho property to be set to a valid person.
-101	Outage Request cannot be deleted because it has been deleted by another user.
-101	Outage Request cannot be updated because it has been deleted by another user since you have last loaded it.
-101	The Daily Review cannot be updated because another user has updated the Outage Request since it was loaded.
-101	The input Outage Request number (<request number>) was not found.
-2	Outage Request cannot be deleted.
-1	An error occurred while inserting a requested_notification record.
-1	An error occurred while inserting an outage_attachment record.
-1	An error occurred while inserting an outage_period record.
-1	An error occurred while loading previous revision.
-1	An error occurred while updating a requested_notification record.
-1	An outage request with a completed period may not be converted to continuous.
-1	An outage request with implemented weekend periods may not be Return Evenings and Weekends or Return Weekends.
-1	At least one outage period is required.
-1	Cannot set value for read-only flag <flag name>.
-1	Could not find period to cancel.
-1	Could not find property name <property name>
-1	Could not map parameter name <parameter name> to a database column name.
-1	Error processing value given to property <property name>.
-1	Inconsistent linkedOutageRequests specified
-1	Invalid sort order
-1	Invalid study type supplied: <study type>
-1	No changes have been made to the outage request.
-1	No period to implement found.
-1	No Station/Circuit/Equipment selected for Requested Equipment object.

Error Code #	Error Code Description
-1	Null input parameter provided.
-1	Outage periods contain a period eligible for implementation which is before an already implemented period.
-1	Period specification invalid on bulk actions.
-1	The actual start date must be specified.
-1	Unspecified Error
-1	You cannot update the Daily Review until you have saved the Outage Request.
-1	You do not have update permission for all the items that you are attempting to add to the 'Equipment Requested' list.
<error number >	An error occurred while updating the Daily Review.
<error number >	An error occurred while updating the Required Approvals for the parent Outage Request.
<error number >	Error # <error number> was returned while inserting a requested_equipment record.
<error number >	Error # <error number> was returned while inserting an outage study record.
<error number >	Outage Request cannot be deleted because an unknown error occurred.

– End of Section –

References

Document Name	Document ID

– End of Document –