aseXML SCHEMA CHANGE REQUEST

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DOCUMENT REF:	CR55
VERSION:	1.5
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DRAFT/FINAL	DRAFT

Version Release History

Version	Date	By	Changes
1.0	17/4/2013	Scott Maskiel	Deprecation of the MMSWindAvailabilityRequest transaction Creation of the MMSIntermittentGenAvailabilityRequest transaction
1.2	10/10/13	Pius Kurian	Modified CR with new diagrams and text.
1.3	14/10/13	Pius Kurian	Modified text related to Schema file Events
1.4	8/11/13	Pius Kurian	Modified section 2.1.4
1.5	5/12/13	Pius Kurian	Modified Impact summary as suggested by Bevan Cole

Glossary

Abbreviation	Description
MMS	Market Management System is the name given to the system used by AEMO as part of the National Electricity Market
NEM	National Electricity Market

Contents

1 Change Proposal

This Change Proposal consists of three independent changes. A brief background of the three is provided below.

(1) A requirement of the Solar Forecasting project is that participants in the NEM are able to provide availability forecast data for intermittent generators by file rather than by existing web screens. AEMO has taken the view that such new file formats should reflect the industry strategy and follow the aseXML format, building on previous work done in this area.

1.1 Description of the proposed change

The proposed changes are listed in the following table.

Item#	Change Description	Change Type[1]
1	Deprecated Complex Types **MMSMtPasaWindAvailability** **MMSClusterWindAvailability** **MMSUpperLimitsWindAvailability** **MMSWindAvailabilityRequest** New Complex Types **MMSMtPasaIntermittentGenAvailability** **MMSClusterIntermittentGenAvailability** **MMSUpperLimitsIntermittentGenAvailability** **MMSIntermittentGenAvailabilityRequest**	New

Table 1-1, Proposed Changes

1.1.1 First change description

Replace the existing MMSWindAvailabilityRequest transaction and associated complex types with the more generic MMSIntermittentGenAvailabilityRequest transaction and associated complex types.

1.2 Reason for Change

1. The NEM requires forecast wind plant production (MW) in a range of future timeframes from 5 minutes to 2 years. In order to get sufficient accuracy two items of forecast plant availability are required from the wind farm owner, the number of turbines available for generation, and the possibility of wind farm upper limit.
   This data can be supplied to AEMO via a web screen that forces the plant owner to enter the data twice, once into their internal planning system and once into the MMS. To improve the efficiency by entering once and allowing bulk data transfers a file format is needed. This new transaction will allow for entering the forecast data by period (half hour) and by day.

[1] Change Type can be one of
- New
- Enhancement, or
- Bug Fix

1.3 Supplied Documents

1.3.1 Business process definition

1.3.1.1 First Change:- The data flow is from a participant to the MMS. The wind availability data is in the form of an MMSWindAvailabilityRequest which is an aseXML Transaction. This is in the normal aseXML envelop with header and zipped into a file.

The intention is to use the AEMO Participant Batcher to do the message sending and reception via the electricity B2B hub with the participant id of the target being MMS. The acceptance of the wind availability data will be via the normal transaction acknowledgement mechanism. Refer to the aseXML Guidelines for a fuller discussion of the transaction sending and reception mechanism (http://www.aemo.com.au/asexml/guidelines.html).

Further details on usage will be provided as part of the MMS release cycle in change notice(s). In particular the nature of event codes, expected performance and sample gateway configuration.

1.3.2 Other

aseXML_r33.zip

1.4 Baseline Schema

The schema used as a basis for this proposal **aseXML_r32.zip**

2 Approval Proposal

2.1 Proposed Change #1[2]

2.1.1 Draft schema

Please refer to the draft schema mentioned above attached to this change request. The base schema is aseXML_r32 and the files as detailed in the next section have been changed.

2.1.2 Change log

The following changes have been implemented in this draft:

Chg #	Item #	Description of change	Filename
1	1	Removed MMSWindAvailabilityRequest from the list of Transactions. Added MMSIntermittentGenAvailabilityRequest to the list of Transactions.	Transactions_r33.xsd
2	1	ElectricityMMS_r28.xsd modified to contain new transaction and specific complex types	ElectricityMMS_r33.xsd
3	1	Updated schema namespace to urn:aseXML:r33, new include to refer to the file added, and changed the version numbers of modified files.	aseXML_r33.xsd
4	1	Add new type r33 for new schema version	Events_r33.xsd

[2] This section may be repeated if more than one option is considered

Table 2-1 Change Log

2.1.3 Schema change description

2.1.3.1 Schema File Transactions

… unmodified text removed for brevity …
~~<xsd:element name="MMSWindAvailabilityRequest" type="MMSWindAvailabilityRequest"/>~~
<xsd:element name="MMSIntermittentGenAvailabilityRequest" type="MMSIntermittentGenAvailabilityRequest"/>

2.1.3.2 Schema File ElectricityMMS_r33.xsd

This is a new file containing the definitions for intermittent gen availability.

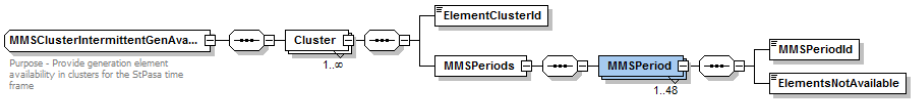

Figure 2-1 MMSClusterIntermittentGenAvailability

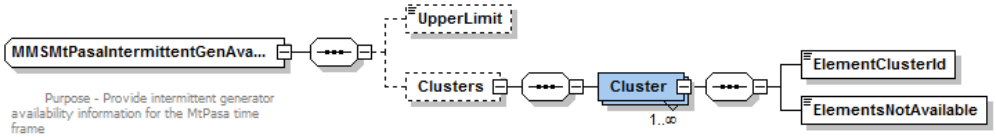

Figure 2-2 MMSMtPasaIntermittentGenAvailability

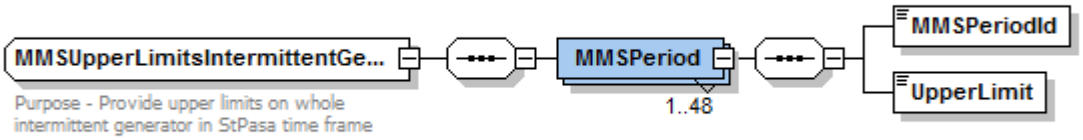

Figure 2-3 MMSUpperLimitsIntermittentGenAvailability

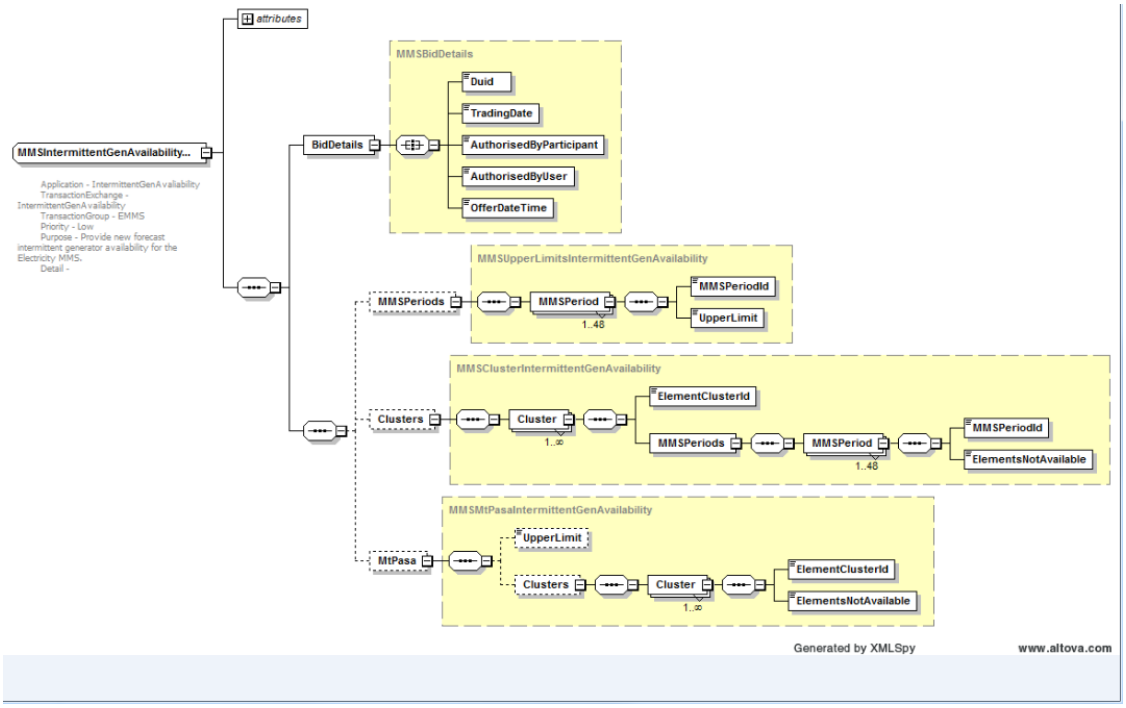

Figure 2-4 MMSIntermittentGenAvailabilityRequest

2.1.3.2.1 Text View

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:annotation>
    <xsd:documentation>
      This schema file is part of the aseXML schema set, and is subject to the terms
      and conditions that are detailed in the aseXML_r*.xsd schema file with which this file is
      used
    </xsd:documentation>
  </xsd:annotation>
  <xsd:annotation>
    <xsd:documentation>
~~Purpose - Define the transaction exchanges needed by the "EMMS Wind Availibility Loader" application~~
~~Detail - This schema contains the necessary transaction exchange to support a request~~
~~to change the forecast wind farm availability.~~

~~The essential information is in BidDetails and identifies the wind farm by "Duid" and the time frame by~~
~~"TradingDate". The other tags are essential.~~

~~The rest of the win availability is in three sections, all and any can occur. Periods allows the half hourly~~
~~upper limits on the wind farm to be specified. Clusters allows the half hourly number of turbines out of service~~
~~in each cluster of the wind farm. A cluster is usually a set of turbines of the same tytpe and a wind farm can~~
~~have more than one cluster.~~
      Purpose - Define the transaction exchanges needed by the "EMMS IntermittentGen Availibility Loader" application
      Detail - This schema contains the necessary transaction exchange to support a request
      to change the forecast wind farm availability.

      The essential information is in BidDetails and identifies the intermittent generator by "Duid" and the time frame by
      "TradingDate". The other tags are essential.

      The rest of the intermittent gen availability is in three sections, all and any can occur. Periods allows the half
hourly
      upper limits on the intermittent generator to be specified. Clusters allows the half hourly number of cluster
elements out of service
      in each cluster of the intermittent generator. A cluster is usually a set of generation elements of the same type and
an
      intermittent generator can have more than one cluster.

      The MtPasa section defines the same information defined for one market day.

    </xsd:documentation>
  </xsd:annotation>
  <!--MMS Types-->
~~<xsd:complexType name="MMSMtPasaWindAvailability">~~
  <xsd:complexType name="MMSMtPasaIntermittentGenAvailability">
```

```
    <xsd:annotation>
      <xsd:documentation>
~~Purpose - Provide wind availability information for the MtPasa time frame~~
        P**urpose - Provide intermittent generator availability information for the MtPasa time frame**
      </xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
      <xsd:element name="UpperLimit" type="UpperLimit" minOccurs="0"/>
      <xsd:element name="Clusters" minOccurs="0">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:element name="Cluster" minOccurs="1"  maxOccurs="unbounded">
              <xsd:complexType>
                <xsd:sequence>
~~                  <xsd:element name="TurbineClusterId" type="TurbineClusterId"/>~~
~~                  <xsd:element name="TurbinesNotAvailable" type="TurbinesNotAvailable"/>~~
                  <xsd:element name="ElementClusterId" type="ElementClusterId"/>
                  <xsd:element name="ElementsNotAvailable" type="ElementsNotAvailable"/>
                </xsd:sequence>
              </xsd:complexType>
            </xsd:element>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
~~<xsd:complexType name="MMSClusterWindAvailability">~~
  <xsd:complexType name="MMSClusterIntermittentGenAvailability">
    <xsd:annotation>
~~<xsd:documentation>Purpose - Provide wind turbine availability in clusters for the StPasa time frame</xsd:documentation>~~
      <xsd:documentation>Purpose - Provide generation element availability in clusters for the StPasa time
frame</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
      <xsd:element name="Cluster" maxOccurs="unbounded">
        <xsd:complexType>
          <xsd:sequence>
~~            <xsd:element name="TurbineClusterId" type="TurbineClusterId"/>~~
            <xsd:element name="ElementClusterId" type="ElementClusterId"/>
            <xsd:element name="MMSPeriods">
              <xsd:complexType>
                <xsd:sequence>
                  <xsd:element name="MMSPeriod" nillable="false" maxOccurs="48">
                    <xsd:complexType>
                      <xsd:sequence>
                        <xsd:element name="MMSPeriodId" type="MMSPeriodId"/>
~~                          <xsd:element name="TurbinesNotAvailable" type="TurbinesNotAvailable"/>~~
                        <xsd:element name="ElementsNotAvailable" type="ElementsNotAvailable"/>
                      </xsd:sequence>
                    </xsd:complexType>
                  </xsd:element>
                </xsd:sequence>
              </xsd:complexType>
            </xsd:element>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
~~<xsd:complexType name="MMSUpperLimitsWindAvailability">~~
  <xsd:complexType name="MMSUpperLimitsIntermittentGenAvailability">
    <xsd:annotation>
      <xsd:documentation>Purpose - Provide upper limits on whole intermittent generator in StPasa time
frame</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
      <xsd:element name="MMSPeriod" maxOccurs="48">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:element name="MMSPeriodId" type="MMSPeriodId"/>
            <xsd:element name="UpperLimit" type="UpperLimit"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="MMSBidDetails">
    <xsd:annotation>
```

~~<xsd:documentation>Purpose - Defines the market day and wind farm and other essential details for bid</xsd:documentation>~~
<xsd:documentation>Purpose - Defines the market day and intermittent generator and other essential details for bid</xsd:documentation>
</xsd:annotation>
<xsd:all>
<xsd:element name="Duid" type="Duid" nillable="false"/>
<xsd:element name="TradingDate" type="xsd:date" nillable="false"/>
<xsd:element name="AuthorisedByParticipant" type="AuthorisedByParticipant" nillable="false"/>
<xsd:element name="AuthorisedByUser" type="AuthorisedByUser" nillable="false"/>
<xsd:element name="OfferDateTime" type="xsd:dateTime" nillable="false"/>
</xsd:all>
</xsd:complexType>
<!-- Transaction Types -->
~~<xsd:complexType name="MMSWindAvailabilityRequest">~~
<xsd:complexType name="MMSIntermittentGenAvailabilityRequest">
<xsd:annotation>
<xsd:documentation>
~~Application - WindAvaliability~~
~~TransactionExchange - WindAvailability~~
~~TransactionGroup - EMMS~~
~~Priority - Low~~
~~Purpose - Provide new forecast wind availability for the Electricity MMS.~~
~~Detail -~~
Application - IntermittentGenAvaliability
TransactionExchange - IntermittentGenAvailability
TransactionGroup - EMMS
Priority - Low
Purpose - Provide new forecast intermittent generator availability for the Electricity MMS.
Detail -
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BidDetails" type="MMSBidDetails"/>
<xsd:sequence>
~~<xsd:element name="MMSPeriods" type="MMSUpperLimitsWindAvailability" minOccurs="0"/>~~
~~<xsd:element name="Clusters" type="MMSClusterWindAvailability" minOccurs="0"/>~~
~~<xsd:element name="MtPasa" type="MMSMtPasaWindAvailability" minOccurs="0"/>~~
<xsd:element name="MMSPeriods" type="MMSUpperLimitsIntermittentGenAvailability" minOccurs="0"/>
<xsd:element name="Clusters" type="MMSClusterIntermittentGenAvailability" minOccurs="0"/>
<xsd:element name="MtPasa" type="MMSMtPasaIntermittentGenAvailability" minOccurs="0"/>
</xsd:sequence>
</xsd:sequence>
~~<xsd:attribute name="version" type="r28" use="optional" default="r28"/>~~
<xsd:attribute name="version" type="r33" use="optional" default="r33"/>
</xsd:complexType>
<xsd:simpleType name="Duid">
<xsd:annotation>
<xsd:documentation>
Id for windfarm
</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="AuthorisedByParticipant">
<xsd:annotation>
<xsd:documentation>
Participant providing authorisation
</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="AuthorisedByUser">
<xsd:annotation>
<xsd:documentation>
User providing authorisation
</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
~~<xsd:simpleType name="TurbineClusterId">~~
<xsd:simpleType name="ElementClusterId">
<xsd:annotation>
<xsd:documentation>
~~Id for turbine clusters of windfarms~~
Id for element clusters of intermittent generators
</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>

```
  </xsd:simpleType>
  <xsd:simpleType name="UpperLimit">
    <xsd:annotation>
      <xsd:documentation>
~~          Upper limit on the output turbines~~
        Upper limit on the output elements
      </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:integer">
      <xsd:minInclusive value="-1"/>
    </xsd:restriction>
  </xsd:simpleType>
~~<xsd:simpleType name="TurbinesNotAvailable">~~
  <xsd:simpleType name="ElementsNotAvailable">
    <xsd:annotation>
      <xsd:documentation>
~~          To specify number of turbines which are not available~~
        To specify number of generation elements which are not available
      </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:integer">
      <xsd:minInclusive value="0"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="MMSPeriodId">
    <xsd:annotation>
      <xsd:documentation>
        Id for half hourly interval of the day. The term period is MMS is deeply ingrained in MMS nomenclature.
      </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:integer">
      <xsd:minInclusive value="1"/>
      <xsd:maxInclusive value="48"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:schema>
```

2.1.3.3 Schema File aseXml

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns="urn:aseXML:r33" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
targetNamespace="urn:aseXML:r33">
        <xsd:annotation>
                <xsd:documentation>
Purpose — Top level aseXML schema

… unmodified text removed for brevity …

</xsd:documentation>
        </xsd:annotation>
~~      <xsd:include schemaLocation="Events_r32.xsd">~~
        <xsd:include schemaLocation="Events_r33.xsd">
                <xsd:annotation>
                        <xsd:documentation>
Purpose — Include data types for status reporting
        </xsd:documentation>
                </xsd:annotation>
        </xsd:include>

… unmodified text removed for brevity …
~~<xsd:include schemaLocation="ElectricityMMS_r28.xsd">~~
<xsd:include schemaLocation="ElectricityMMS_r33.xsd">
                <xsd:annotation>
                        <xsd:documentation>
    Purpose - Include data types for Electricity MMS transactions
  </xsd:documentation>
                </xsd:annotation>
        </xsd:include
Purpose - Include data types for gas market wholesale functionality.
… unmodified text removed for brevity …

~~<xsd:include schemaLocation="Transactions_r28.xsd">~~
<xsd:include schemaLocation="Transactions_r33.xsd">
                <xsd:annotation>
                        <xsd:documentation>
```

Purpose - Include data types for carrying transactions within aseXML
</xsd:documentation>
</xsd:annotation>
</xsd:include>

… unmodified text removed for brevity …

2.1.3.4 Schema File Events

Text added is given in bold:

… unmodified text removed for brevity …

<xsd:simpleType name="r33">

<xsd:annotation>

<xsd:documentation>Purpose - Release r33 identifier.</xsd:documentation>

</xsd:annotation>

<xsd:restriction base="ReleaseIdentifier">

<xsd:enumeration value="r33"/>

</xsd:restriction>

</xsd:simpleType>

2.1.4 Impact Summary

The change for Intermittent Gen Availability is an addition of a completely new Transaction, and the removal of an existing Transaction. However, the change will have no impact as the existing Transaction is not in active use by participant or AEMO systems. AEMO has never and will not accept Transactions of the existing MMSWindAvailabilityRequest type.

Modified type	Derived types	Versioned types affected	Transactions potentially affected	Schema files affected
Deprecated Complex Types MMSMtPasaWindAvailability MMSClusterWindAvailability MMSUpperLimitsWindAvailability MMSWindAvailabilityRequest New Complex Types MMSMtPasaIntermittentGenAvailability MMSClusterIntermittentGenAvailability MMSUpperLimitsIntermittentGenAvailability MMSIntermittentGenAvailabilityRequest			MMSWindAvailabilityRequest	ElectricityMMS_r33.xsd
Deprecated Complex Types MMSWindAvailabilityRequest New Complex Types MMSIntermittentGenAvailabilityRequest			MMSIntermittentGenAvailability Request	Transactions_r33.xsd

2.1.5 Developer Test

2.1.5.1 Test Platforms

The new schema has been tested using the following platforms as advised by ASWG:

- XMLSpy 2011
- MSXML6 SP1
- Xerces 2.9.1 and 2.2.1

2.1.5.2 Test Cases

Valid Files

NEMWholesale_MMSIntermittentAvailability_01_r33.xml

➔ Valid Transaction

NEMWholesale_MMSIntermittentAvailability_02_r33.xml

➔ Valid Transaction without clusters sub-element of MT PASA

NEMWholesale_MMSIntermittentAvailability_03_r33.xml

➔ Valid transaction without upper limit sub-element of MT PASA

NEMWholesale_MMSIntermittentAvailability_big_r33.xml

➔ Valid transaction without many transactions

Invalid Files

NEMWholesale_MMSIntermittentAvailabilityRequest_Missing_ClusterID_Invalid_r33.xml

➔ Invalid missing Cluster ID

NEMWholesale_MMSIntermittentAvailabilityRequest_Corrupt_Invalid_r33.xml

➔ Invalid corrupted file

3 Proposal Assessment

3.1 Test

The ASWG ensures that all recommended parsers on relevant platforms can successfully validate the proposed schema.

3.1.1 Test Platforms

Supplied samples have been tested using the following parsers:

- MSXML 6.0 SP1
- Xerces 2.9.1
- Xerces 2.2.1
- XMLSpy 2004

3.1.2 Test Cases

As per section 2.1.5.2

3.1.3 Test Results

<All OK… or note issues>

3.2 Conformance Report

The ASWG completes the conformance report validating each proposed new schema file against the published aseXML guidelines.

Schema Filename	Impacted by Item #	Conformance Details
aseXML_r33.xsd	1	<Conforms… or note non-conformance>
ElectricityMMS_r28.xsd	1	
Events_r28.xsd	1 and 2	
Transactions_r28.xsd	1	
Header_r28.xsd	1	

Table 3-1, Change Proposal Conformance Details

4 Issue Register

This section describes any issues that have arisen and any modifications that are made to the original proposal during the Change Process

4.1 Status of Issues

Issue#	Item#	Description and Discussion	Status[3]	Resolution
1	1			

Table 4-1, Issues list

5 Resolution

The ASWG votes for endorsement of the options identified in section 2, and the voting results are forwarded to AEMO for approval. When 75% of those ASWG members who voted endorse a specific option, this represents an ASWG Recommendation for that option. AEMO will not reject an ASWG Recommendation without first consulting with the ASWG.

5.1 ASWG Endorsement

Please refer to the Schema Release Notes r33.

[3] Either 'Open' or 'Closed'