

**IMPACT & IMPLEMENTATION REPORT – SUMMARY SECTION**
*(For AEMO to complete and administer)*

<b>Issue Number</b>	IN023/14		
Impacted Jurisdiction (s)	VIC, QLD, SA and WA		
Proponent	Tim Sheridan	Company	AEMO
Affected Gas Markets(s)	Retail	Consultation process (Ordinary or Expedited)	Expedited
Industry Consultative forum(s) used	GRCF, ITDF/TWG, REMCo RCC	Date Industry Consultative forum(s)consultation concluded	11 December 2014
Short Description of change(s)	Documentation changes for the FRC Hub Upgrade		
Procedure(s) or Documentation impacted	<ul style="list-style-type: none"> <li>• FRC Hub Operational Terms and Conditions</li> <li>• Participant Build Pack 3: FRC B2B System Architecture</li> <li>• Participant Build Pack 3: FRC B2B System Specifications</li> <li>• Specification Pack: Usage Guide</li> <li>• Specification Pack: FRC B2B Hub System Architecture</li> <li>• Specification Pack: FRC B2M-B2B Hub System Specifications</li> </ul>		
Summary of the change(s)	The proposed changes are documentation only changes to the technical artefacts referred to above as a result of the FRC Hub upgrade.		
I&IR Prepared By	Tim Sheridan	Approved By	Roy Kaplan
Date I&IR published	9 January 2015	Date Consultation under 135EE or 135EF concludes	3 February 2015
Contact address for written responses	Tim Sheridan, Australian Energy Market Operator, GPO Box 2008, Melbourne VIC 3001		
Email Address for Responses	<a href="mailto:grcf@aemo.com.au">grcf@aemo.com.au</a>		
Other key contact information	<a href="mailto:tim.sheridan@aemo.com.au">tim.sheridan@aemo.com.au</a>		

## IMPACT & IMPLEMENTATION REPORT – DETAILED REPORT SECTION

### CRITICAL EXAMINATION OF PROPOSAL

1. Description of change(s) and reasons for change(s)

This Impact and Implementation Report (IIR) has been developed by AEMO and details documentation changes to the following technical artifacts:

- FRC Hub Operational Terms and Conditions
- Participant Build Pack 3: FRC B2B System Architecture
- Participant Build Pack 3: FRC B2B System Specifications
- Specification Pack: Usage Guide
- Specification Pack: FRC B2B Hub System Architecture
- Specification Pack: FRC B2M-B2B Hub System Specifications

For Victoria, Queensland and South Australia, these technical artifacts are prescribed documents under the Retail Market Procedures.

For Western Australia, these technical artifacts are prescribed documents under the Retail Market Rules.

These documentation changes are necessary as a result of the Gas FRC Hub (the Hub) upgrade.

#### **Background**

The Hub is a technology platform operated by AEMO that facilitates retail gas market transactions between businesses (Business to Business or B2B) and between businesses and the market operator (Business to Market or B2M).

The Hub is used by participants in Victoria, Queensland, South Australia and Western Australia.

From November 2014 to May 2015, AEMO will be upgrading the Hub to implement an enterprise-class messaging system.

The Hub upgrade is required for two main reasons:

1. To increase the capacity of the Hub to meet the expected increase in market transaction volumes following the expansion of the Hub into the NSW/ACT retail gas market.
2. The Hub currently operates on webMethods software (version 6.5) that is at the end of its lifecycle.

#### **Hub Upgrade**

The Hub upgrade will involve the implementation of webMethods software (version 9.6) that:

- Supports current interfaces, meaning participants are not required to make any functional changes to their systems.
- Is a scalable platform, which can support future market expansion if required (i.e. NSW/ACT retail gas market).

The target go-live date for the new Hub is 17 May 2015.

<p>2. Reference documentation</p> <ul style="list-style-type: none"> <li>• Procedure Reference</li> <li>• GIP/Specification Pack Reference</li> <li>• Other Reference</li> </ul>	<ul style="list-style-type: none"> <li>• FRC Hub Operational Terms and Conditions</li> <li>• Gas Interface Protocol (VIC and QLD) <ul style="list-style-type: none"> <li>○ Participant Build Pack 3: FRC B2B System Architecture</li> <li>○ Participant Build Pack 3: FRC B2B System Specifications</li> </ul> </li> <li>• Specification Pack (SA and WA) <ul style="list-style-type: none"> <li>○ Specification Pack: Usage Guide</li> <li>○ FRC B2B Hub System Architecture</li> <li>○ FRC B2M-B2B Hub System Specifications</li> </ul> </li> </ul>
<p>3. The high level details of the change(s) to the existing Procedures</p> <p>This includes:</p> <ul style="list-style-type: none"> <li>• A comparison of the existing operation of the Procedures to the proposed change to the operation of the Procedures</li> <li>• A marked up version of the Procedure change</li> </ul>	<p>Below is a summary of the high-level changes that have been made to each document.</p> <ul style="list-style-type: none"> <li>• FRC Hub Operational Terms and Conditions: <ul style="list-style-type: none"> <li>○ Removal of “Recitals” section.</li> </ul> <p><i>[Note: based on participant feedback to the Proposed Procedure Change (PPC), AEMO has retained recitals 1.1 and 1.2, while recitals 1.3, 1.4 and 1.5 have been relocated to other parts of the document.]</i></p> <ul style="list-style-type: none"> <li>○ Removal of specifics on average throughput of the Hub</li> <li>○ Implementation of recovery point objective (RPO) and recovery time objective (RTO) targets for the Hub.</li> </ul> <p><i>[Note: based on participant feedback to the PPC, AEMO has removed the RPO and RTO targets for Subscribers.]</i></p> <ul style="list-style-type: none"> <li>○ Removal of previous subsequent statements that cover disaster recovery and fail-over.</li> </ul> <p><i>[Note: based on participant feedback to the PPC, AEMO has retained clause 1.3.7 which requires AEMO to periodically test production fail over to and from back up from disaster recovery.]</i></p> <ul style="list-style-type: none"> <li>○ Removal of item stating that AEMO will not open message payload. This is required for aseXML validation on the Hub.</li> <li>○ Removal of statements which outline environments such as testing and development. These statements are not required in FRC Hub Operational Terms and Conditions.</li> <li>○ Removal of specifics on certificates that will be provided to Subscribers.</li> <li>○ Added availability uptime, RPO and RTO tables for Subscribers.</li> </ul> <p><i>[Note: based on participant feedback to the PPC, AEMO has removed the proposed availability uptime, RPO and RTO targets for Retailers and Distributors.]</i></p> <ul style="list-style-type: none"> <li>○ Removal of automatic HUB Ping service.</li> <li>○ See <b>Attachment A</b> for the marked-up changes to the FRC Hub Operational Terms and Conditions.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Participant Build Pack 3: FRC B2B System Architecture <ul style="list-style-type: none"> <li>○ Removal of AEMO document approval and acceptance.</li> <li>○ Removal of references to Hansen’s network and associated Hansen documents.</li> <li>○ See <b>Attachment B</b> for the marked-up changes to Participant Build Pack 3: FRC B2B System Architecture.</li> </ul> </li> <li>• Participant Build Pack 3: FRC B2B System Specifications <ul style="list-style-type: none"> <li>○ Removal of AEMO document approval and acceptance.</li> <li>○ Change reference to test environment to pre-production environment.</li> <li>○ Changes to aseXML schema validation sections to move from FBS to FRC Hub</li> <li>○ Creating a default maximum transaction size of 2 MB.</li> <li>○ See <b>Attachment C</b> for the marked-up changes to Participant Build Pack 3: FRC B2B System Specifications.</li> </ul> </li> <li>• Specification Pack: Usage Guide <ul style="list-style-type: none"> <li>○ Updated to reflect new versions of FRC B2M-B2B Hub System Specifications and System Architecture documents.</li> <li>○ See <b>Attachment D</b> for the marked-up changes to the Specification Pack Usage Guide.</li> </ul> </li> <li>• Specification Pack: FRC B2B Hub System Architecture <ul style="list-style-type: none"> <li>○ Removal of references to Hansen’s network and associated Hansen documents.</li> <li>○ See <b>Attachment E</b> for the marked-up changes to Specification Pack: FRC Hub System Architecture.</li> </ul> </li> <li>• Specification Pack: FRC B2M-B2B Hub System Specifications <ul style="list-style-type: none"> <li>○ Change reference to test environment to pre-production environment.</li> <li>○ Changes to aseXML schema validation sections to move from FBS to FRC Hub.</li> <li>○ Creating a default maximum transaction size of 2 MB.</li> <li>○ See <b>Attachment F</b> for the marked-up changes to Specification Pack: FRC B2M-B2B Hub System Specifications.</li> </ul> </li> </ul> <p>The target effective for each of these documentation changes is 17 May 2015.</p>
<p>4. Explanation regarding the order of magnitude of the change</p>	<p>These proposed amendments are documentation only changes and considered to be non-material.</p>

(eg: material, non-material or non-substantial)	
<b>ASSESSMENT OF LIKELY EFFECT OF PROPOSAL</b>	
5. Overall Industry Cost / benefit (tangible / intangible / risk) analysis and/or cost estimates	<p>As prescribed in the “Approved Process”, registered participants and interested stakeholders were requested to complete submissions to the Proposed Procedure Change (PPC).</p> <p>Submissions closed on 11 December 2014. AEMO received 7 submissions from AGL, Alinta Sales, APA Group, Energy Australia, Kleenheat Gas, Origin Energy and REMCo.</p> <p>Participants were asked to complete and submit Stakeholder Assessment Forms (SAF) to provide AEMO with cost benefit data that AEMO could use, in summarised form, to develop this IIR.</p> <p><b>Estimated Costs</b></p> <p>Overall, participants were in support of the Hub upgrade. However, some concerns were raised about the cost impact of some of the proposed documentation changes to the FRC Hub Operational Terms and Conditions.</p> <p>APA Group indicated that the introduction of a 99.9% availability target during business hours for distributors would mean that APA Group would need to upgrade its gateway systems. APA Group also indicated that they would also need to provide monitoring facilities in order to meet these changed terms and conditions.</p> <p>In response to the feedback from APA Group, AEMO has decided not to introduce the proposed availability targets on distributors and retailers. This should ensure there are no participant costs for implementing any of the proposed documentation changes.</p> <p>Alinta, Energy Australia and Origin Energy provided feedback on the estimated costs for these participants to complete Window 1 certification testing with the Hub. These estimated costs ranged between \$8,000 and \$30,000.</p> <p>For AEMO, there are no additional costs to implement any of the proposed documentation changes. However, there are costs on AEMO for the Hub upgrade and completing full Window 1 and Window 2 certification for the VIC and QLD gateways.</p> <p><b>Benefits</b></p> <p>The following benefits are likely to be realised as a result of the proposed documentation changes:</p> <ul style="list-style-type: none"> <li>• The removal of redundant provisions and improved clarity of technical artefacts.</li> <li>• Updated documentation for participants that more accurately reflects the services provided by the Hub.</li> </ul> <p>The benefits of the Hub upgrade include:</p> <ul style="list-style-type: none"> <li>• Improved capacity of the Hub which is be expanded to include transactions from the NSW/ ACT retail gas market.</li> <li>• Greater longevity and performance of existing Hub services.</li> </ul>

	<ul style="list-style-type: none"> <li>Optional functionality for participants, including the ability for participants to view message history and resend undelivered messages.</li> <li>The mitigation of system and operational risks from using unsupported software and hardware assets.</li> </ul>
6. The likely implementation effect of the change(s) on stakeholders (e.g. Industry or end-users)	<p>AEMO considers that there is likely to be no effect on participants as a result of implementing the proposed documentation changes. For the Hub upgrade, AEMO will be required to implement system changes and undertake development testing, including full Window 1 and Window 2 certification for the VIC and QLD gateway.</p> <p>Participants are not required to make any system or configuration changes to their gateways. However, participants will be required to complete Window 1 certification testing with the Hub.</p>
7. Testing requirements	<p>As noted in section 6, participants are not required to make any system or configuration changes to their gateways. However, participants will be required to complete Window 1 certification testing with the Hub.</p> <p>Industry certification is planned to commence on 31 March 2015 and be completed by 30 April 2015.</p>
8. AEMO's preliminary assessment of the proposal's compliance with section 135EB: - consistency with NGL and NGR, - regard to national gas objective - regard to any applicable access arrangements	<p><u>Consistency with NGL and NGR:</u></p> <p>AEMO's view is that the proposed documentation changes are consistent with the NGL and NGR. The proposed changes promote clarity and consistency across all jurisdictions.</p> <p><u>National gas objective</u></p> <p><i>"Promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."</i></p> <p>It is AEMO's view that the proposed changes will assist to facilitate the efficient operation of each of the retail gas markets, and are in the long-term interests of consumers as they promote clarity and consistency.</p> <p><u>Applicable access arrangements</u></p> <p>AEMO's view is that the proposed changes are not in conflict with existing Access Arrangements.</p>
9. Consultation Forum Outcomes (e.g. the conclusions made on the change(s) whether there was unanimous approval, any dissenting views)	<p>On 30 October and 31 October 2014, AEMO hosted industry workshops to walkthrough the proposed documentation changes. The initial feedback received at these workshops was then incorporated into the proposed documentation changes.</p> <p>On 20 November 2014, AEMO published the Proposed Procedure Change (PPC) for the proposed documentation changes on its website. AEMO also sent notices to several industry reference groups inviting them to comment on the PPC. These industry reference groups included:</p> <ul style="list-style-type: none"> <li>Gas Retail Consultative Forum (GRCF)</li> <li>REMCo Rule Change Committee (RCC)</li> </ul>

- Information Technology Development Forum (ITDF)
- Technical Working Group (TWG)

Comments to the PPC closed on 11 December 2014 and AEMO received feedback from 7 participants. See **Attachment G** for a summary of the feedback received, including AEMO's response to these comments.

### Revised Changes

AEMO has made a number of revised changes based on the feedback received to the PPC. In summary, these changes are as follows:

- FRC Hub Operational Terms and Conditions:
  - Modified the definition for "FRC HUB" to refer to each of the jurisdictional Retail Market Procedures and the WA Retail Market Rules.
  - Inserted the following under Document Purpose:
 

"If there is any inconsistency between this document and the jurisdiction Retail Market Procedures (as applicable) and the Retail Market Rules in Western Australia, the Retail Market Procedures and Retail Market Rules will prevail to the extent of that inconsistency."

"Words and phrases in this document which appear in *italics* have the meaning given to them under the jurisdiction Retail Market Procedures (as applicable) and under the Retail Market Rules in Western Australia unless an intention to the contrary appears."
  - Retained recitals 1.1 and 1.2. Recitals 1.3, 1.4 and 1.5 have been moved to other sections of the document.
  - Amended clause 3.2.1(c) to state that:
 

"Where the delayed messages are in excess of the peak performance requirement of 8 approx 5KB messages/sec."

This purpose for this change is to align clause 3.2.1(c) with clause 3.2.2.
  - Amended the AEMO's availability uptime % in Table 1 to be 99.6% to align with existing requirements.
  - Removed the proposed uptime percentages in Table 3 for Distributors and Retailers. The original response time figures in Table 3 will be retained.
  - Removed the proposed RPO and RTO targets in Table 4. However, the proposed RPO and RTO targets for the Market Operator in clauses 3.3.2 and 3.3.2 have been retained.
  - Retained clause 1.3.7 which requires AEMO to test production fail over to and from back up from disaster recovery every 6 months and report the results.
- Participant Build Pack 3: FRC B2B System Specifications

	<ul style="list-style-type: none"> <li>○ Amended clause 2.6.3 to state that: The total maximum transaction size shall be 2 MB unless otherwise agreed in the relevant Retail Market Procedures.</li> <li>○ Retained clause 4.6 relating to ebXML error reporting and handling.</li> <li>● Specification Pack: FRC B2M-B2B Hub System Specifications <ul style="list-style-type: none"> <li>○ Amended clause 2.6.3 to state that: The total maximum transaction size shall be 2 MB unless otherwise agreed in the relevant Retail Market Procedures.</li> <li>○ Retained clause 4.6 relating to ebXML error reporting and handling.</li> </ul> </li> </ul>
--	---

<b>RECOMMENDATION(S)</b>	
10. Should the proposed Procedures be made, (with or without amendments)?	AEMO recommends that the proposed documentation changes be made as drafted in Attachments A - F.
11. If applicable, a proposed effective date for the proposed change(s) to take effect and justification for that timeline.	AEMO proposes an effective date of 17 May 2015.

**ATTACHMENT A – PROPOSED CHANGES TO THE FRC HUB OPERATIONAL TERMS  
AND CONDITIONS**

**Blue** represents additions **Red** and **strikeout** represents deletions – Marked up changes

Please refer to the marked-up copy of the FRC Hub Operational Terms and Conditions (version 7.0) which has been attached separately to this document.

**ATTACHMENT B – PROPOSED CHANGES TO PARTICIPANT BUILD PACK 3: FRC B2B  
SYSTEM ARCHITECTURE**

**Blue** represents additions **Red** and **strikeout** represents deletions – Marked up changes

Please refer to the marked-up copy of the Participant Build Pack 3: FRC B2B System Architecture (version 3.2) which has been attached separately to this document.

**ATTACHMENT C – PROPOSED CHANGES TO PARTICIPANT BUILD PACK 3: FRC B2B  
SYSTEM SPECIFICATIONS**

**Blue** represents additions **Red** and **strikeout** represents deletions – Marked up changes

Please refer to the marked-up copy of the Participant Build Pack 3: FRC B2B System Specifications (version 3.1) which has been attached separately to this document.

**ATTACHMENT D – PROPOSED CHANGES TO SPECIFICATION PACK USAGE  
GUIDELINES**

**Blue** represents additions **Red** and **strikeout** represents deletions – Marked up changes

Please refer to the marked-up copy of the Specification Pack Usage Guidelines (version 5.8) which has been attached separately to this document.

**ATTACHMENT E – PROPOSED CHANGES TO SPECIFICATION PACK: FRC B2M-B2B  
SYSTEM ARCHITECTURE**

**Blue** represents additions **Red** and **strikeout** represents deletions – Marked up changes

Please refer to the marked-up copy of the Specification Pack: FRC B2M-B2B System Architecture (version 3.3) which has been attached separately to this document.

**ATTACHMENT F – PROPOSED CHANGES TO SPECIFICATION PACK: FRC B2M-B2B  
SYSTEM SPECIFICATIONS**

**Blue** represents additions **Red** and **strikeout** represents deletions – Marked up changes

Please refer to the marked-up copy of the Specification Pack: FRC B2M-B2B System Specifications (version 3.7) which has been attached separately to this document.

**ATTACHMENT G – SUBMISSIONS RECEIVED TO THE PPC FOR IN023/14**

	<b>PARTICIPANT</b>	<b>DOCUMENT</b>	<b>COMMENTS</b>	<b>AEMO RESPONSE</b>
1.	REMCo	FRC Hub Operational Terms and Conditions	Definitions: REMCo recommends a legal review of the T&Cs to ensure all definitions and references are clear correctly applied throughout the document.	AEMO has also removed the definition of FRC Markets and amendment the definition of FRC Hub to be consistent with the relevant definition in the jurisdictional Retail Market Procedures and the Retail Market Rules.
2.	REMCo	FRC Hub Operational Terms and Conditions	Recitals: It's still not clear why the Recitals have been removed from the T&Cs. The recitals provide critical context and background for the T&Cs, which are essential to aid interpretation of the document; and it does not appear that the new "Purpose" section of the document sufficiently replaces the Recitals.	AEMO agrees with the comments from REMCo and has retained all the recitals. Note: recitals 1.3, 1.4 and 1.5 have been moved to other parts of the document. i.e. 1.3 moved to 3.3.1; 1.4 moved to 4.1.1; and 1.5 moved to 3.3.5.
3.	AGL	FRC Hub Operational Terms and Conditions	3.2 Performance: Should have peak performance requirements defined and then just refer to it. Or 3.2.1 - should have approx 5 kb messages as well to align with 3.2.2.	AEMO agrees with the comments from AGL and has revised the drafting of clause 3.2.1(c) to align with clause 3.2.2.
4.	AGL	FRC Hub Operational Terms and Conditions	3.3.2 RPO: Don't understand why RPO is 24hrs. Why not 4 hrs? If the systems are restored in 4 hours why would we lose so much data? Possibly it should explain why it is?	RPO (24 hrs) represents the maximum amount of data that may be lost. This may occur in a catastrophic site(s) failure. AEMO runs 24 hr backup cycles. RTO (4hrs) is in reference to how quickly AEMO is committing to bringing a system back up into operation.
5.	AGL	FRC Hub Operational Terms and Conditions	3.5.10 Production Environments: What security is around certification and non-production environments? Couldn't see anything specified for these?	AEMO notes the comments from AGL and has revised the drafting of clause 3.5.10 to be as follows:

			Participants may send confidential data across these as part of testing so they should be secure? Or specify Pre-Prod insecure and Production data is not to be used in testing?	AEMO will house Production and all external participant facing environments in physically secure environments with strictly controlled access.”
6.	AGL	FRC Hub Operational Terms and Conditions	Deleted Clause 1.5.13 Geographically Separate Production and DR Hubs: Some definition should be provided of geographical separation. Don't want both hubs in the same data centre/building?	AEMO notes the comments from AGL. AEMO already has geographically separate production and DR hubs. Therefore, AEMO consider that the retention of this clause is not necessary.
7.	AGL	FRC Hub Operational Terms and Conditions	4.1.6 Removal of Periodic Hub Ping: This should stay. Is this really removal of automated ping testing service as indicated in the IN02314 document? As it still talks about a monitored connectivity test which one would assume is automated? It's just saying it needs to respond to a ping test when sent. Doesn't say periodic ping has to be done or what the period is? Could reword to “after initiated” i.e. initiated periodically (but not more than once per hour).	AEMO notes the comments from AGL and will continue to support a ping testing service. This includes responding to any HUB pings as required.
8.	AGL	FRC Hub Operational Terms and Conditions	3.12.6 Certificates: Given elsewhere X509 is specified as the protocol should the X.509 certificates remain. i.e. upon approval by AEMO, Subscribers will receive the required x.509 certificates to operate in the FRC HUB.	AEMO notes the comments from AGL and considers that the System Architecture document is the appropriate source for detailing the requirements for certificates.
9.	AGL	FRC Hub Operational Terms and Conditions	4.1.1 Subscriber Responsibilities: This is too prescriptive. It needs to refer to modification of the parts of the systems that will impact the generation and transmission of messages etc.	AEMO notes the comments from AGL and has revised the drafting of clause 4.1.1 as follows:  When any Participant modifies their gateway or internal systems that are used to generate or transmit messages/transactions that is passed through the FRC HUB, they must re-certify prior to implementing the changes.

10.	AGL	PBP3: FRC B2B System Architecture	<p>Comment:</p> <p>Ebxml 1.0 spec. This is now quite old and 3.0 exists. Although we aren't adopting yet I would assume phase 2 of the HUB work that the HUB would be able to provide interoperability b/w these. i.e. Participant to still send and receive based on version 1.0 as needed but having rules defined that allow translate to / from for participant that want to work to 3.0.</p>	AEMO notes the comments from AGL. The upgrading of ebXML version 1.0 is not in scope for this project.
11.	AGL	PBP3: FRC B2B System Specifications	<p>Version History:</p> <p>Still has changes to TTL retry etc? Should be removed.</p>	AEMO has removed the reference to TTL retry from the version history.
12.	AGL	PBP3: FRC B2B System Specifications	<p>2.6.3 Low Priority Transactions:</p> <p>The priority of transactions should be specified in the retail market procedures not the system spec. OK with the size of the transaction for the priority type being defined. Should be OK for small csv data file to be medium priority. Especially since for NSW B2B these will be delivered to participants. Does something need to be said about the effect of bundling on size: 10 X 2MB Txns = 20 Mb message. So possibly it should actually say per message upto 2MB in total of transaction data.</p>	AEMO notes the comments from AGL and has revised the drafting of clause 2.6.3 to state that the total maximum transaction size shall be 2 MB unless otherwise agreed in the relevant Retail Market Procedures.
13.	AGL	PBP3: FRC B2B System Specifications	<p>4.6 ebXML Error Reporting and Handling</p> <p>Is this trying to account for the HUB performing a validation function? Seem to be confusing what's done by a gateway and the HUB. For the HUB the parsing should only be done if the participant has requested this to be done. i.e. using the hub as a validation gateway. Otherwise the gateway does it as part of the FBS. Should indicate what happens to the document in either case. i.e. a receiver may be able to do something with a failed message (improving customer experience) while waiting for rectification of failed message. Could be seen to be about hiding participant system issues form other participants, as this is often the first indication of a market issue?</p>	AEMO notes the comments from AGL and has retained the drafting for clause 4.6. Hub aseXML validation is no longer being implemented and will considered under Phase 2 of the Hub upgrade.

14.	APA Group	FRC Hub Operational Terms and Conditions	<p>Recitals:</p> <p>APA opposes the removal of this section. In order to make the technical changes the recital section does not need to be removed.</p> <p>The removal of “best endeavours” clauses means what? Prior to any agreement to remove these clauses we will need to understand the implications from AEMO. i.e. standards increased, but what happens if not met?</p> <p>There now appears to be no defence where all reasonable endeavours have been applied, which is quite concerning to APA/AGN and there is no indication of implications if a distributor does not meet these standards. These clauses need to be retained.</p>	Please refer to AEMO’s response to comment #2.
15.	APA Group	FRC Hub Operational Terms and Conditions	<p>4.1.2 (Table 3) New Subscriber Availability Targets:</p> <p>APA would need to upgrade our four gateway systems to meet higher availability (99.9% during business hours – Table 1 p.6) and would also need to provide monitoring facilities to meet the changed terms and conditions.</p>	<p>AEMO notes the comments from APA Group and has removed proposed uptime percentages for Distributors and Retailers. The current response time figures in Table 3 will be retained.</p> <p>AEMO has also removed the proposed RPO and RTO targets for Distributors and Retailers.</p>
16.	APA Group	FRC Hub Operational Terms and Conditions	<p>General:</p> <p>APA believes that the technical changes for the Hub Upgrade Project can be implemented without changing the terms and conditions for distributors. APA questions why these stricter terms and conditions are being applied.</p>	AEMO notes the comments from APA Group. Please refer to AEMO’s response to comment #15.
17.	Energy Australia	FRC Hub Operational Terms and Conditions	<p>4.5 Allow AEMO to Identifying Payload Data to Perform aseXML Schema:</p> <p>EA understanding is that this may not be available in phase 1. If it is made available, participants will have an option to turn Hub validation off for all received messages. If auto validation is on the from PID will be the message initiating PID, not Hub, thereby abstracting the source of the ack/nack from the gateway. Assuming this</p>	AEMO can confirm that aseXML schema validation will not be made available to participants in Phase 1.

			understanding EA support this optional functional capability.	
18.	Kleenheat Gas	FRC Hub Operational Terms and Conditions	Recitals: We have confirmed recitals 1.1 & 1.2 are covered by the Retail Market Rules and recitals 1.3, 1.4 & 1.5 have been moved to other sections and are still contained in the document.	Please refer to AEMO's response to comment #2.
19.	Kleenheat Gas	General	Costs for the Hub upgrade project. Will the cost of the upgrade result in additional charges being incurred by REMCo and therefore the members?	The costs for the Hub upgrade will be consolidated into AEMO's Gas FRC Fee Determination Process. AEMO believes the costs for the Hub upgrade are necessary to in order to mitigate the apparent system risks that could materially impact AEMO and market participants.
20.	Origin Energy	FRC Hub Operational Terms and Conditions	Comment: On the face of it, AEMO appears to be seeking to reduce its obligations to provide a secure and resilient platform under the FRC Hub Operation Terms and Conditions. We are seeking assurances that AEMO's standards of security and resilience of the hub will not be reduced.	AEMO will not be reducing any of its existing standards of security and resilience of the Hub as a result of the proposed documentation changes.
21.	Origin Energy	FRC Hub Operational Terms and Conditions	Deleted Clauses 1.3.1 and 1.3.7: Does the removal of the DR and Failover from the documents mean AEMO will not have a Disaster Recovery capability anymore?	AEMO notes the comments from Origin and has retained clause 1.3.7 which requires AEMO to periodically test production fail over to and from back up from disaster recovery.