



Economic Regulation Authority

Decision on gas retail market scheme: Procedure change proposals IN001/23W, IN003/22W and IN004/21W

Submitted by the Australian Energy Market Operator

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Contents

Decision	ii
1. Background	1
1.1 Legislative requirements.....	1
2. Discussion	4
2.1 Proposal 1 – IN001/23W – Participant Certificate Automation	4
2.2 Proposal 2 – IN003/22W - Amend the description for Job Enquiry Code ‘Trailer Air Coupling’ (TCR)	5
2.3 Proposal 3 – IN004/21W - Include transaction certification table for WA	6
2.4 Consultation process	6
3. The ERA’s assessments	8
List of appendices	
Appendix 1 Timeline of consultation process	11
Appendix 2 Summary of amendments.....	12

Decision

On 24 March 2023, the Economic Regulation Authority received a submission from the Australian Energy Market Operator (AEMO) seeking approval of amendments to the Western Australian gas retail market scheme as outlined in procedure change proposals IN001/23W, IN003/22W and IN004/21W.

In accordance with section 11ZOM(a) of the *Energy Coordination Act 1994* (WA), the ERA approves the amendments in procedure change proposals IN001/23W, IN003/22W and IN004/21W as submitted by AEMO.

In accordance with clause 386(2) of the Retail Market Procedures (WA), the approved amendments will take effect at a time specified by the ERA in the *Western Australian Government Gazette*.

1. Background

The Western Australian gas retail market scheme covers the gas distribution systems operated by ATCO Gas Australia Pty Ltd and has the following elements:

- The WA Gas Retail Market Agreement, which is the agreement between AEMO (the retail market operator) and gas market participants.^{1,2}
- The Retail Market Procedures, which govern the requirements and process for gas full retail contestability (FRC) in the distribution systems covered by the scheme.
- FRC Hub Operational Terms and Conditions, which is the communication infrastructure operated by AEMO through which market participants can deliver and receive messages using defined protocols and formats.
- AEMO Specification Pack, which includes a set of documents that provide the technical specifications for how AEMO and market participants are to implement business processes to transfer information between each other's systems.

The ERA is responsible for approving amendments to the gas retail market scheme in accordance with Part 2B of the *Energy Coordination Act 1994 (WA)* and Chapter 9 of the Retail Market Procedures (WA).³

The Gas Retail Consultative Forum (GRCF), comprising AEMO and market participants, facilitates formal consultation on procedure changes. The ERA is an observer on the GRCF. In consultation with GRCF, AEMO prepares an amendment to the gas retail market scheme and submits the amendment to ERA for approval.

1.1 Legislative requirements

Section 11ZOB of the Act outlines the purpose of the retail market scheme:

The purpose of a retail market scheme for a distribution system is to ensure that the retail gas market that is supplied through that system is regulated and operates in a manner that is —

- (a) open and competitive;
- (b) efficient; and
- (c) fair to gas market participants and their customers.⁴

The Act outlines the ERA's obligations in approving an amendment to the gas retail market scheme.

Requirements for proposing amendments

Section 11ZOL of the Act outlines the criteria that market participants and AEMO must consider before submitting an amendment to the ERA for approval:

- (1) The members for the time being of an approved retail market scheme may –

¹ A retail market scheme for a distribution system must consist of one or more agreements made between gas market participants; a retail market operator; and a set of retail market rules. *Energy Coordination Act 1994 (WA)*, s11ZOF(1), ([online](#)).

² Market participants include users (i.e., retailers) and the network operator (currently ATCO Gas in WA).

³ AEMO, 2020, *Retail Market Procedures (WA)*, version 8.0, effective date 3 August 2020, ([online](#)).

⁴ *Energy Coordination Act 1994 (WA)*, s11ZOB, ([online](#)).

- (a) prepare an amendment to the scheme; and
 - (b) submit the amendment to the Authority for approval.
- (2) An amendment to a retail market scheme is not to be submitted under subsection (1) unless the provisions of the scheme relating to proposals for amendment of the scheme have been complied with.
- (3) An amendment to the retail market rules made as part of a scheme for a distribution system is not to be submitted under subsection (1) unless the members of the scheme have consulted in relation to the amendment with any of the following who would be affected by the amendment if it is approved —
- (a) a gas transmission operator whose pipeline is used to transport gas into that system; and
 - (b) a prescribed person within the meaning in section 11ZOD(1)(b).
- (4) Consultation is required under subsection (3) with a person referred to in subsection (3)(b) only to the extent that the person —
- (a) is required by the regulations to be consulted under that subsection; or
 - (b) meets any criteria in relation to the requirement for consultation that are prescribed for the purposes of this paragraph.
- (5) In this section and in section 11ZOM — **amendment** includes a replacement for the whole or part of the retail market scheme.

Requirements for approving amendments

Section 11ZOM of the Act outlines the options available to the ERA in considering an application to amend the gas retail market scheme:

Where an amendment is submitted under section 11ZOL, the Authority is to, in accordance with sections 11ZOO and 11ZOP —

- (a) approve it;
- (b) request that it be changed and approve it in a changed form; or
- (c) refuse to approve it.⁵

Section 11ZOO of the Act outlines the criteria that the ERA must consider in approving an amendment:

The Authority may approve an amendment to a retail market scheme under section 11ZOM only if the Authority is satisfied that —

- (a) if the amendment is made the provisions of the scheme —
 - i) will comply with this Act; and
 - ii) be suitable for the purposes of section 11ZOB [The purpose of Scheme];
- (b) any other principle, criterion or requirement that is prescribed for the purposes of this paragraph has been met.

The Authority may approve an amendment to any retail market rules under section 11ZOM only if the Authority is satisfied that the consultation required by section 11ZOL(3) has taken place and —

- (a) Each person required to be consulted has agreed to the amendment; or
- (b) If any person required to be consulted has not so agreed, that person has been given a reasonable opportunity in the course of the consultation to provide

⁵ Ibid, s11ZOM.

reasons for not agreeing and any reasons so provided have been considered.⁶

Section 11ZOP of the Act outlines any other matters the ERA must consider when making its decision:

The Authority is also to have regard to —

- (c) any principles, criteria or requirements that are prescribed for the purposes of this paragraph; and
- (a) such other matters as the Authority considers relevant,

when determining whether or not to give an approval under section 11ZOM.⁷

⁶ Ibid, s11ZOO.

⁷ Ibid, s11ZOP

2. Discussion

On 24 March 2023, AEMO sought approval for three proposals to amend the gas retail market scheme:⁸

- Proposal 1 (IN001/23W) provides for the development and use of an improved IT solution for the management of the certification process as well as the adoption an up-to-date digital certificate technology for communications between AEMO and market participants' IT systems.
- Proposal 2 (IN003/22W) amends a minor documentation error.
- Proposal 3 (IN004/21W) includes a table that specifies IT transactions that require certification subject to market participants' role.

AEMO requested that the ERA's approval be gazetted in the *Western Australian Government Gazette* by the end of May 2023 with an effective commencement date of 30 June 2023. A summary of the proposed timeline is available in Appendix 1. This timeframe was endorsed by market participants.

2.1 Proposal 1 – IN001/23W – Participant Certificate Automation

Under this proposal AEMO will introduce the following changes in the IT communication process between AEMO and participants' IT systems:

- 1) Changes to require market participants to ensure their currency of their AEMO-issued digital certificates and request AEMO for re-issues and renewals when required.
- 2) Changes to allow for the use of a new digital certification technology (TLS v1.2), in place of the existing technology (SSL, TLS v1.0 and TLS v1.1).
- 3) Creating a new interface to allow participants and network users to self-manage their AEMO-issued digital certificates to access AEMO systems.

The proposed changes will require market participants to transition to using a more secure digital certification technology when connecting to AEMO IT systems. AEMO stated that currently electricity and gas market participants connect to many of AEMO's systems using TLS (Transport Layer Security) certificates supplied by AEMO.⁹ AEMO explained that the old technology SSL (Secure Socket Layers) certificates are being phased out and being replaced by the new TLS certificates (TLS 1.2).¹⁰ AEMO also explained that a few market participants still use the older certification technology.

AEMO explained it will continue to accept older certificate connections until the changes to AEMO Specification Pack documents, as proposed in AEMO's application, take effect.

⁸ AEMO 2023, *Approval of amendment to the Retail Market Scheme – AEMO Specification Pack Changes related to Gas Retail Market Package 2 – 2023 WA (IN001/23W, IN003/22W and IN004/21W)*, ([online](#)).

⁹ AEMO, 2022, *Certificate management solution, Improving energy market security by providing market participants a solution to self-manage TLS certificates*, (October 2022 GRCF meeting) Appendix F of AEMO's application.

¹⁰ TLS and SSL are IT protocols that help systems securely authenticate and transport data on the Internet. TLS is a more recent version of SSL and fixes some security vulnerabilities in the earlier SSL protocols.

The proposed changes also introduce a new obligation for market participants to ensure the currency of their AEMO-issued digital certificates and make a request to AEMO for re-issues and renewals when required.

Currently, AEMO issues digital certificates for market participants connecting to many of AEMO's systems. AEMO explained these certificates must be manually replaced every three years and replacement can take weeks.

The proposal includes AEMO's development of an IT solution to allow participants to self-manage their certificates by retrieving their existing AEMO-supplied certificates, creating new certificates, and reissuing or revoking existing certificates. The solution will automatically send notifications to participants to remind them of a soon-to-expire certificate. AEMO will monitor the replacement of expiring certificates to ensure participants are self-managing the replacement of their certificates prior to expiry.

To implement this proposal, AEMO plans to:

- Add a clause in *FRC HUB Operational Terms and Conditions* that requires subscribers to ensure the currency of their AEMO-issued digital certificates and make a request to AEMO for re-issues and renewals when required.
- Make minor amendments to the following Scheme documents:
 - FRC B2M – B2B Hub System Architecture
 - FRC B2M – B2B Hub System Specifications
 - FRC HUB Operational Terms and Conditions
 - Connectivity Testing and Technical Certification (WA Only)
 - Specification Pack Usage Guide.

AEMO considered the proposed amendments would benefit market participants and customers through:

- Improving the security of connections.
- Minimising existing manual processes and increasing operational efficiency as market participants will benefit from the reduced administrative costs.
- Reducing the risk for participants of being disconnected from AEMO systems due to expired certificates.

AEMO expected there will be negligible implementation costs because none of the changes proposed will require system changes or substantial process changes.

2.2 Proposal 2 – IN003/22W - Amend the description for Job Enquiry Code 'Trailer Air Coupling' (TCR)

Under this proposal AEMO will make a minor amendment to the Scheme document '*B2B Service Order Specification (WA only) – Part 2*' by replacing the last word "installed" with the word "removed" in the description for the Job Enquiry Code 'Trailer Air Coupling' (TCR) document. This amends a documentation error to correctly reflect the description of the underlying operation for the removal of 'Trailer Air Coupling' to allow gas to flow. This amendment will provide clarity to market participants for running operational processes.

2.3 Proposal 3 – IN004/21W - Include transaction certification table for WA

This proposed change will incorporate a transaction certification table for WA as an appendix in the Scheme document '*Connectivity Testing and Technical Certification (WA Only)*'.

AEMO expected adding the list of transactions will improve compliance and consistency across jurisdictions.¹¹ This list will assist participants to ensure they certify all operational transactions that require certification.

Implementing this proposal will standardise certification of transactions across Australian retail gas markets.

AEMO expected this will improve the related business processes for certifying transactions and reduce administrative costs.

2.4 Consultation process

The Gas Retail Market Procedures require AEMO to invite market participants to provide feedback to the ERA on the procedure change proposals submitted by AEMO:

If the decision is to submit the proposed procedures for approval by the approving body where the approving body's approval to procedure change is required by law, AEMO must:

- (a) subject to any requirements of the approving body otherwise, provide each participant, pipeline operator, prescribed person, and interested person with the following information:
 - i) instructions on how participants, pipeline operators, prescribed persons and interested persons can make a submission on the proposed procedures to the approving body; and
 - ii) the close date for submissions to the approving body by participants, pipeline operators, prescribed persons and interested person, which must be at least 10 business days after the publication on AEMO's website; and
- (b) submit the proposed procedures to the approving body.^{12,13}

Prior to approving any amendment, the ERA ensures that each person required to be consulted has agreed to the amendment:

The Authority may approve an amendment to any retail market rules under section 11ZOM only if the Authority is satisfied that the consultation required by section 11ZOL(3) has taken place and —

- (a) Each person required to be consulted has agreed to the amendment; or
- (b) If any person required to be consulted has not so agreed, that person has been given a reasonable opportunity in the course of the consultation to provide

¹¹ Currently the east coast certification document (Gas FRC B2B Connectivity Testing and System certification (VIC, QLD, SA, AND NSW/ACT)) includes an Appendix B & C showing the required transactions for certification per role.

¹² Retail Market Procedures (WA), 3 August 2020, section 383(4).

¹³ An *interested person* is a government representative, the ERA, or any person that the ERA or AEMO considers has a legitimate interest in the matter or should be consulted in relation to the matter. A *prescribed person* includes a swing service provider, a shipper or a self-contracting retailer. Retail Market Procedures (WA), 3 August 2020, section 2.

reasons for not agreeing and any reasons so provided have been considered.¹⁴

On 13 December 2022, AEMO published its Proposed Procedure Change (PPC) inviting market participants for comments. AGL, Alinta Energy, and Origin Energy expressed their support for AEMO's proposed amendments. Participants suggested typographical edits to some of the documents. No stakeholder disagreed with AEMO's proposed changes and related assessment.

On 24 March 2023, AEMO advised market participants that it had submitted procedure change proposals IN001/23W, IN003/22W and IN004/21W to the ERA for approval and provided information on how to make a submission to the ERA by 11 April 2023.

The ERA did not receive any submissions on AEMO's proposed amendments.

In the absence of any submissions opposing the amendments, the ERA accepts that each person who is required to agree with the amendments set out in proposals IN001/23W, IN003/22W and IN004/21W has agreed and that the requirements under section 11ZOO(2) of the Act and section 384(4) of the procedures have been satisfied. AEMO has completed the consultation process required by the Act and Procedures.

¹⁴ *Energy Coordination Act 1994 (WA)*, section 11ZOO(2).

3. The ERA's assessments

To approve an amendment, the ERA must be satisfied that the retail market scheme will:

- comply with the Act
- be regulated and operate in a manner that is:
 - open, competitive, and efficient
 - fair to gas market participants and their customers.

Proposal 1 (IN001/23W)

The ERA sought some clarifications in relation to IN001/23W from AEMO during the assessment of AEMO's proposal.

The document titled FRC B2M-B2B Hub System Specifications in AEMO's application proposes a change to include a reference to an online instruction for obtaining certificates. In response to AEMO's consultation on the PPC, AGL noted that the document does not specify where that online instruction may be located. In response, AEMO explained that it will include a placeholder and it will be updated with the link for online instructions prior to publishing AEMO's decision. However, AEMO's application to the ERA does not include a link to the online instruction.

The ERA asked AEMO if the link and the relevant online instructions are available. AEMO explained that the online instructions are available on AEMO's website.¹⁵ The website includes information about the use of certificates, managing TLS certificates and use of the certificate management system.

The ERA also sought clarification from AEMO on why the transition to certificate technology TLS v1.2 is included as part of the changes proposed, while in practice AEMO has already adopted the use of TLS technology. The current versions of scheme documents, which AEMO is proposing to amend as part of its proposal, indicate the use of SSL certificate technology, while in practice AEMO has already adopted the use of TLS.¹⁶ AEMO did not previously provide a proposal for amending scheme documents to provide for a transition from SSL to TLS v1.0.

AEMO explained all market participants are currently using TLS. However, AEMO has required participants to use an older version of TLS (i.e. version 1.0) due to AEMO's FRC Hub running this older version of TLS. AEMO has recently upgraded its FRC Hub systems to allow TLS v1.2. AEMO explained it is requiring market participants to adopt this more up-to-date version of TLS to ensure a more secure market.

AEMO had been developing the certificate management system alongside the process for proposing changes to the scheme documents. AEMO indicated that the certificate management solution would be available in April 2023 after pre-production testing. In response to the ERA, AEMO explained that the solution is now available, and it has launched the application on AEMO's Markets Portal. AEMO also clarified that it has already adopted TLS v1.2 in the communications between AEMO and market participants' systems.

¹⁵ AEMO website, [TLSCertificate Management \(aemo.com.au\)](https://portal.aemo.com.au/help/Content/TLSCertificateManagement/TLSCertificateManagement.html), <https://portal.aemo.com.au/help/Content/TLSCertificateManagement/TLSCertificateManagement.html>, accessed 5 May 2023.

¹⁶ For example, all relevant references in the 'Connectivity testing and technical certification version 3.7' are to SSL. These procedures do not currently specify the use of TLS.

The ERA is satisfied with evidence provided by AEMO that the amendments proposed in proposal IN001/23W will reduce manual process and improve operational efficiency, as market participants will be able to access information more securely, quickly and accurately. The adoption of more up-to-date certification technology will also improve the security of communications between AEMO and market participants' systems. SSL and TLS v1.0 or v1.1 are no longer secure, with known vulnerabilities; TLS v1.2 and TLS v1.3 are the current industry standard.

AEMO and market participants have not calculated the implementation and operational cost of each amendment. This, for example, includes the cost of developing a certificate management application, which AEMO has already developed. AEMO has confirmed that due to none of the proposed amendments require system or substantial process changes, the implementation costs will be negligible for market participants.

Benefits are expected from improved IT communications security and administrative cost savings. The cost of renewing digital certificates is negligible and is not materially different between TLS and SSL certification technologies. These benefits are expected to outweigh the cost of adopting the proposed changes and the ERA considers the amendment will promote the economic efficiency of the gas retail market. AEMO does not anticipate causing any disadvantage to gas market participants and customers from adopting the proposed changes. The amendments will apply to all gas market participants and include placing a new requirement on market participants to manage the currency and renewal of their digital certificates. Feedback from stakeholders on AEMO's PPC indicated that participants supported implementing these amendments, with no objections raised. The ERA considers that the amendments are fair to gas market customers because they do not impose any new obligation on customers or remove any existing customer protection mechanism in place.

The amendments do not reduce market openness by placing prohibitively large additional costs on prospective new entrants. The scope of changes includes the adoption of up-to-date digital certification technology which can support the entry of new participants that adopt new technology in their IT systems. Existing market participants did not oppose the proposed transition to new IT certification technology.

Proposal 2 (IN003/22W)

This proposal amends a minor documentation error and does not have any material implication for compliance with the Act, and the openness, competition, efficiency, or fairness of the gas retail market. The proposed change provides for clarity to market participants when following administrative protocols to restore the flow of gas. The change proposed improves the documentation of protocols by correctly reflecting the underlying operational process.

Proposal 3 (IN004/21W)

The amendments will result in the IT system requirements in the WA gas market being further harmonised with the east coast gas markets, which will facilitate the entry of east coast retailers to the Western Australian market. This change provides administrative clarity and may reduce administration costs for market participants. If competition is effective, it is expected that retailers will pass on costs savings from changes to market customers.

This proposed change promotes the openness of the market, competition and economic efficiency. The proposed change is fair to all market participants and market customers. It does not create or remove any obligation that would influence market participants or customers.

The ERA is satisfied by AEMO's assessment that the proposed amendments do not contravene any applicable laws, including the Act and the Procedures.

The ERA is satisfied that the requirements under the Act have been met for all amendments in proposals IN001/23W, IN003/22W and IN004/21W and approves the procedure change proposals as submitted by AEMO.¹⁷

The approved amendments will take effect at a time specified by the ERA in the *Western Australian Government Gazette*.

¹⁷ The ERA's approval does not include the changes marked in AEMO's application that relate to South Australia (SA) (which are included in AEMO's initiative IN005/23). In the amending documents FRC B2M – B2B Hub System Architecture and FRC B2M – B2B Hub System Specifications, AEMO has tagged these SA specific changes with 'IN005/23'.

Appendix 1 Timeline of consultation process

The retail market procedures outline the process that AEMO must follow to progress procedure change proposals.¹⁸ The timeline for each procedure change proposal is outlined in Table 1.

Table 1. Timeline of consultation process

Action	Date
AEMO initiated IN001/23W and IN004/21W	September 2022
Gas market issue raised by market participant (IN003/22W).	December 2021
Proposed procedure change (PPC) issued by AEMO to market participants for comment (IN001/23W, IN004/21W and IN003/22W).	13 December 2022
Submissions on PPC closed.	17 January 2023
Impact and implementation report (IIR) issued by AEMO to market participants for comment.	30 January 2023
Submissions on IIR closed.	27 February 2023
AEMO published notice of decision.	21 March 2023
AEMO submitted the proposals to the ERA for approval.	24 March 2023
Public consultation on AEMO's proposal.	24 March to 11 April 2023
The ERA decides on whether to approve the amendments.	Mid-May 2023
Approved amendments will be published in the <i>Western Australian Government Gazette</i> .	30 May 2023 (tentative)
Approved amendments will take effect.	30 June 2023 (tentative)

¹⁸ Retail Market Procedures (WA), Chapter 9, ([online](#)).

Appendix 2 Summary of amendments

Green underline text represents additions and ~~red strikethrough text~~ represents deletions.

Proposal 1 – IN001/23W – Participant Certificate Automation

The following amendments to the *FRC HUB Operational Terms and Conditions* have been approved.

3.5.8. AEMO and each *Subscriber* will ensure that all messages routed through the *FRC HUB* carry transport layer encryption using 2048~~428~~ bit ~~SSL~~TLS encryption using X509v3 private keys and digital certificates.

4.1.11. *Subscribers* will assist AEMO (as FRC HUB Service provider) to co-ordinate and manage definition of any changes that they require to B2B transactions and processes. *Subscribers* will work with AEMO to allow AEMO to assess the impact and to design and implement the change.

~~4.1.11.~~4.1.12. Subscribers will ensure the currency of their AEMO-issued digital certificates and request AEMO for re-issues and renewals when required.

The following amendments to the *FRC B2M – B2B Hub System Architecture* have been approved.

2.1.4. Encryption

Transport layer encryption using X509v3 certificates with ~~SSL~~ TLS will provide data security. The FBS Certificate Authority will issue X509v3 certificates for encryption/decryption.

2.4.3. Time definitions

Allowable time drift on Message Service Handlers is ± 15 seconds, hence maximum time error will be 30 seconds.

t0 is the maximum time duration before transaction processing can begin.

For high priority messages there are no retries counted, and message acknowledgement times are not included

t0 = sum(steps 1 to 4)

For other medium and low priority messages $t0 = t1$

t1 is the maximum time duration before message acknowledgment receipt

The **t1** times are defined in Section 2.3 of the FRC B2M-B2B Hub System Specifications

t2 is the maximum time duration before transaction acknowledgement receipt

The high priority **t2** time is defined in Section 2.3 of the FRC B2M-B2B Hub System Specifications

All other **t2** times are governed by the Retail Market Procedures~~s~~ and will be policed by audit.

t3 is the maximum time duration before a transaction response is received.

The t3 times are governed by the Retail Market Procedures and will be policed by audit.

6. Security

Note: The following Security architecture only applies to ebXML/aseXML messages routed via the HUB. Other message transport methods used for example for BAR transactions may not use the certificate-based security architecture discussed here.

An Internet based message service, by its very nature, presents certain security risks. An ebXML Message Service may be at risk by means of:

- Unauthorized access Data integrity and/or confidentiality attacks (e.g. through man-in-the-middle attacks)
- Denial-of-Service and
- IP spoofing.

Each security risk is described in detail in ebXML Technical Architecture Risk Assessment – <http://www.ebxml.org/specs/secRISK.pdf>. Beyond the requirements herein, participants should make themselves familiar with these risks and institute countermeasures balanced against an assessment of the inherent risks and the value of the asset(s) that might be placed at risk.

The system will require some Public Key Infrastructure. The system will employ transport layer encryption via ~~SSL~~ ~~TSL~~ TLS to protect the data in transit, and as part of the ebXML reliable messaging solution, will provide signed messages and signed acknowledgements, which will provide authentication and non-repudiation.

6.2. Encryption

The system will employ transport layer encryption via ~~SSL~~ TLS to protect the data in transit. The keys used will be ~~2048~~128 bit X509v3 and will be provided by the FBS administration.

In the FBS is that there will be neither ebXML payload encryption nor element level encryption within the aseXML document.

The following amendments to the *FRC B2M – B2B Hub System Specifications* have been approved.

5.2. Obtaining certificates

Obtaining X509 certificates for use with ~~SSL~~ TLS and digital signatures in the FBS is achieved by following the Manage TLS Certificates online instruction {Placeholder TBA}, ~~submitting a Certificate Signing Request (CSR) via the FBS Administration to the FBS Certificate Authority (FBS-CA). Some participants will be using a gateway product that will generate such a CSR. Others may do it using publicly available tools such as Open-SSL.~~

~~When participants have generated their CSR it should be sent to the FBS Administration as an email attachment to the following address~~

fbsadmin@aemo.com.au

5.3. FRC Hub Security Services

In order to solve the “many to many” problem with regard to certificate distribution and revocation, participants in the FBS, the hub will provide security services. Participants will only need one certificate - that of the FRC Hub for **SSL/TLS** and digital signature services.

Messages will be signed by the From party private key and be routed to the To party via the FRC Hub.

The hub will verify this signature against the participant’s certificate. The hub is the only repository of certificates issued by the associated FBS Certificate Authority (FBS-CA). Individual participants will not need certificates from other participants.

The hub will then re-sign the message with the FRC Hub private key and forward the message to the To party. The To party then verifies the message signature against the FRC Hub certificate

~~There will be no published CRL’s. There will be no OCSP technology. Certificate generation and revocation will be handled between the co-located FBS-CA and the FRC Hub. This system will suffer zero propagation delay – for example in the event of notification of a compromised private key.~~

A motivation for using ebXML was for a technology that provided for a signed payload to provide for non-repudiation of receipt. Using the webMethods hub security services does not change the certainty of non-repudiation of receipt; it simply changes the procedures to be followed in the event of dispute resolution. The FBS Administration will describe these in detail in due course; but in short non-repudiation of receipt will be verifiable as follows:

In the event there is a dispute about an alleged difference in an aseXML payload document both parties will supply their copies of the aseXML payload document in question to the FBS Administration. If these documents do differ:

The sender will be asked to sign and send both documents using the same hash-code algorithm. The hash-codes that are generated will be checked against the hash-code and algorithm reference that is archived at the hub.

The FRC Hub will re-sign both documents against the hash-code algorithm reference that is archived at the hub and compare these hash-codes with the appropriate hash-code reference that is archived at the FRC hub.

The outcome of this process will reveal exactly what content was sent.

The ebXML Message Service Specification provides for multiple signatures on the payload to facilitate the sort of process described here, whilst providing the benefit of leaving the sending signature intact. Vendor tool support for this functionality is not yet present, so this methodology will not be used in the FBS.

5.4. SSL/TLS

The FRC Hub is capable of SSL/TLS connectivity in compliance with SSL/TLSv3 and TLSv1.20. TLS is based on RFC5246 SSLv3 [and is also referred to as SSLv3.1] and is an Internet standards track protocol:

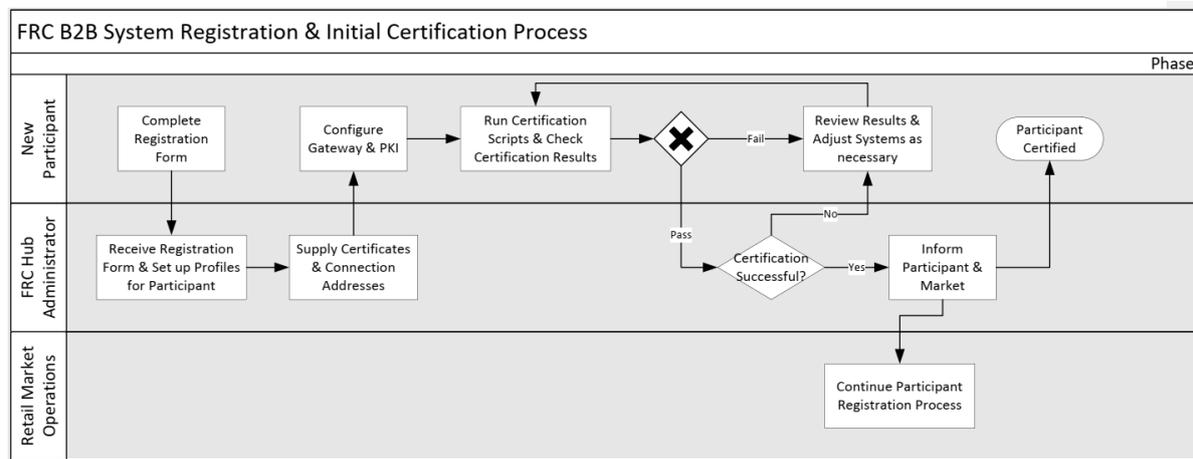
<http://www.ietf.org/rfc/rfc2246.txt> <https://www.ietf.org/rfc/rfc5246.txt>

The certificates used in the FBS will not employ any extensions. Sometimes these certificates extensions are referred to as server certificates by certain vendors. Certificates without extensions are sometimes referred to as client certificates by certain vendors.

The following amendments to the *Connectivity Testing and Technical Certification (WA Only)* have been approved.

1.3. Certification Processes

The certification process is described in the diagram below:



Certification shows that participants are able to:

- o Connect to the FRC Hub using SSLTransport Layer Security (TLS), either via the Internet or the Gas Industry Network;
- o Send well-formed ebXML messages (that conform to the ebXML Message Services Specification v1.0, and the FRC B2B-B2M Hub System Architecture and AEMO Specifications documents) via the FRC Hub to a Certification Responder which acts as a gateway; and
- o Send documents that conform to the aseXML schema and the validation rules described in current versions of the relevant documents in the AEMO Specification Pack. Validation of aseXML will include both the XML content and CSV content of the transactions.

There are a variety of scripts that an applicant must run to demonstrate that it is capable of interoperating with the FRC Hub. These fall into two categories:

- o Messaging capabilities; and

- o Transaction capabilities.

1.3.1.1. Certification Window 1 – Messaging (ebXML)

All applicants need to certify against all the components of Window 1. The scripts for these processes fall into three groups. They are

1. Applicants will establish ebXML messaging capability over ~~SSL~~TLS;
2. Applicants will establish digital signature capability on messages; and
3. Applicants will establish reliable messaging capability on messages.

Test scripts for Window 1 tests are published by the FRC Hub Operator on its certification user interface. These scripts do not provide XML for participants to run, but describe the purpose and steps of each test.

The following amendments to the *Specification Pack Usage Guide* have been approved.

2. Overview of the AEMO Specification Pack

The following table provides an overview of the AEMO Specification Pack. The documents are provided in a directory structure as follows:

Main Directory	Sub-Directory	Documents	Version
Specification Pack	1. Usage Guidelines	Specification Pack Usage Guidelines	8. 5 <u>6</u>
	2. Interface Control Document (ICD)	Interface Control Document	5.1
	3. B2B System Interface Definitions	FRC B2B System Interface Definitions	5.0
	4. Transport Layer	FRC B2M-B2B Hub System Specifications	3.9 <u>4.0</u>
		FRC B2M-B2B Hub System Architecture	3.6 <u>7</u>
	5. CSV File Format	FRC CSV Data Format Specification	3.3
	6. Connectivity and Technical Certification (WA Only)	Connectivity Testing and Technical Certification (WA Only)	3.7 <u>8</u>
	7. Readiness Criteria (WA Only)	Readiness Criteria (WA Only)	2.3
	8. Service Order Specifications	B2B Service Order Specifications, Part 1 (WA only) and Part 2 (WA only), For SA Participant Build Pack 1 - Table of Transaction, Job Enquiry Code tab, and Elements tab (only the Job Enquiry Code 1, 2 and 3 elements)	2.5 and 3.5 <u>6</u>
9. aseXML Schemas	The complete set of aseXML schemas and examples which participants have subscribed to for	SA – R40 WA – R40	

		SA / WA Gas is available from www.aemo.com.au/asexml	
	10. asEnumerations.xsd	Enumerations file containing the gas-specific enumerations that can be added to at short notice and can be released outside of the standard aseXML change cycle.	SA – 1.0.0 WA – 1.0.0

Proposal 2 – IN003/22W - Amend the description for Job Enquiry Code ‘Trailer Air Coupling’ (TCR)

The following amendments to the *B2B Service Order Specification (WA only) – Part 2* have been approved.

ENQUIRY CODE	WA BRIEF DESCRIPTION	WESTERN AUSTRALIA DETAILED DESCRIPTION
TCR (WA Only)	Remove Trailer Air Coupling to allow gas to flow	Used to request a Trailer Air coupling to be removed to restore supply. The successful completion of this service order is: Trailer Air Coupling device installed removed .

Proposal 3 – IN004/21W - Include transaction certification table for WA

The following amendments to the *Connectivity Testing and Technical Certification (WA Only)* have been approved.

Appendix A: Certification Profile (WA)

The following table lists the FRC transactions between businesses and the market operator.

<u>Transaction to be recertified</u>	<u>Retailer</u>		<u>Distributor</u>		<u>AEMO</u>	
	<u>To</u>	<u>From</u>	<u>To</u>	<u>From</u>	<u>To</u>	<u>From</u>
<u>AccountCreationNotification</u>	X			X		
<u>AmendMeterRouteDetails/AmendSiteAccessDetails</u>	X	X	X	X		
<u>AmendMeterRouteDetails/AmendSiteAddressDetails</u>	X	X	X	X		
<u>CATSChangeAlert</u>	X	X		X	X	X
<u>CATSChangeRequest</u>		X		X	X	
<u>CATSChangeResponse</u>	X		X			X
<u>CATSChangeWithdrawal</u>		X			X	
<u>CATSDataRequest</u>	X		X			X
<u>CATSNotification</u>	X		X			X
<u>CATSObjectionRequest</u>		X			X	
<u>CATSObjectionResponse</u>	X					X
<u>CATSObjectionWithdrawal</u>		X			X	
<u>CustomerDetailsNotification</u>		X	X			
<u>CustomerDetailsRequest</u>	X			X		
<u>GasMeterNotification/MeterFix</u>				X	X	
<u>GasMeterNotification/MIRNStatusUpdate</u>				X	X	
<u>LifeSupportNotification</u>	X	X	X	X		

<u>LifeSupportRequest</u>	X	X	X	X		
<u>MeterDataHistoryRequest</u>			X			X
<u>MeterDataMissingNotification</u>		X	X			X
<u>MeterDataNotification</u>	X			X	X	
<u>MeterDataResponse</u>		X	X			X
<u>MeterDataVerifyRequest</u>		X	X			
<u>MeterDataVerifyResponse</u>	X			X		
<u>MeteredSupplyPointsCountUpdate</u>				X	X	
<u>MeterReadInputNotification</u>		X	X			
<u>NetworkDUoSBillingNotification/DisputeNotification</u>		X	X			
<u>NetworkDUoSBillingNotification/DisputeResolution</u>	X			X		
<u>NetworkDUoSBillingNotification/ExcludedServices</u>	X			X		
<u>NetworkDUoSBillingNotification/PaymentAdvice</u>		X	X			
<u>NetworkDUoSBillingNotification/TariffD</u>	X			X		
<u>NetworkDUoSBillingNotification/TariffV</u>	X			X		
<u>NetworkDUoSBillingNotification/TariffH</u>	X			X		
<u>NMIDiscoveryRequest</u>		X	X			
<u>NMIDiscoveryResp</u>	X			X		
<u>NMIStandingDataRequest</u>		X	X			
<u>NMIStandingDataResponse</u>	X			X		
<u>NMIStandingDataUpdateNotification</u>				X	X	
<u>NMIStandingDataUpdateResponse</u>			X			X
<u>ServiceOrderRequest</u>		X	X			
<u>ServiceOrderResponse</u>	X			X		
<u>SpecialReadRequest</u>		X	X			
<u>SpecialReadResponse</u>	X			X		