Oakley Greenwood

Gas Bulletin Board Scoping Study - Consultation Paper

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1. Introduction

In February 2018 the Hon. Josh Frydenberg, Minister for the Environment and Energy, tasked AEMO with undertaking a scoping study to explore improvements to the Gas Bulletin Board under Section 91C of the National Gas Law. The study is to focus on the costs and benefits of a centralised facility to capture real-time data from **gas producers, storage operators and pipeline operators**. The study is also considering changes currently being progressed by COAG to ensure findings are not duplicated.

AEMO has engaged Oakley Greenwood (OGW), with technology sub-contractor Optimate, to undertake the scoping study to examine the costs and benefits of real-time data provisions for the Gas Bulletin Boards and consider opportunities to align the technology used for both the Natural Gas Bulletin Board (GasBB) and the Gas Bulletin Board of WA (GBB WA) – collectively referred to as the Bulletin Boards or GBBs. The scoping study will also consider potential linkages to:

- The electricity markets (National Electricity Market and the Wholesale Electricity Market); and
- International markets.

As part of the scoping study, OGW is conducting a stakeholder engagement process which will be used to help inform a cost benefit analysis. The stakeholder process will initially seek written submissions to this consultation paper to obtain views on how a central facility to capture real-time data can improve the Gas Bulletin Boards, assist government organisations and industry participants in emergency functions, and enhance transparency in the gas market to enable users to make more informed purchasing decisions. During the consultation paper review period, OGW will hold individual meetings with several key stakeholders that wish to have a further, more detailed and/or confidential, engagement in the process.

There are some definitional items that need to be explored and their context within the scoping study and the stakeholder engagement. Real-time data may have several interpretations and different applications to market based activities and emergency management scenarios. Along with real-time data is the question of how granular that data maybe captured to understand historical trends for efficient investment decisions or for post-incident review following a declared emergency.

The study will consider and complement ongoing, previous and related enhancement projects, such as:

- East Coast Wholesale Gas Market and Pipeline Frameworks Review[1]
- Gas Market Reform Group related publications[2]
- ACCC Gas inquiry 2017-2020[3]

1 AEMC. Stage 2 Final Report for the East Coast Wholesale Gas Market and Pipeline Frameworks Review. Available at: https://www.aemc.gov.au/markets-reviews-advice/east-coast-wholesale-gas-market-and-pipeline-frame. Viewed: 30 May 2018.

2 GMRG. Available at: http://gmrg.coagenergycouncil.gov.au/publications. Viewed: 30 May 2018.

3 ACCC. Available at: https://www.accc.gov.au/regulated-infrastructure/energy/gas-inquiry-2017-2020. Viewed: 30 May 2018

- The Australian Domestic Gas Security Mechanism[4]
- Gas Supply Guarantee[5]
- Natural Gas Services Bulletin Board
  - Improvements to Natural Gas Bulletin Board[6]
  - Enhanced Information for Gas Transmission Pipeline Capacity Trading[7]
  - Removal of Gas Bulletin Board emergency information page[8]

It is important to note that despite any possible inference from this discussion paper, the decision on whether to proceed with the collection and publication of real-time data has not yet been taken.

Further background information for this consultation paper can be found in Appendix A.

1.1. Outcome

The outcome of the scoping study is to inform future policy options for enhancing gas market transparency to enable users to make informed decisions with regard to gas procurement, short-term trading, infrastructure investment and emergency management, by examining the potential implementation of a real-time data facility leading to more efficient outcomes for the gas industry.

1.2. Submissions

Written submissions can be submitted to AEMO at bbscoping@aemo.com.au and are to be provided by 21 September 2018.

Stakeholders will need to identify if their written submissions are confidential. Submissions that are not confidential may be published on the AEMO stakeholder consultation website.

Feedback in one-on-one meetings provided by Market Participants will not be attributed to individuals or companies if requested.

The following Consultation Paper consists of four main sections. Each section contains sub-sections that are an explanatory paragraph followed by 2-3 questions. Some sections will be more relevant to your market sector than others. Please answer the questions that are relevant to your sector, and where you feel able to provide substantive commentary.

Many thanks in advance for your contribution to the consultation process.

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4 Department of Industry, Innovation and Science. Available at: https://industry.gov.au/resource/UpstreamPetroleum/AustralianLiquefiedNaturalGas/Pages/Australian-Domestic-Gas-Security-Mechanism.aspx. Viewed: 30 May 2018.

5 AEMO. Available at: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Emergency-Management/Gas-Supply-Guarantee. Viewed: 30 May 2018.

6 AEMC. Available at: https://www.aemc.gov.au/rule-changes/improvements-to-natural-gas-bulletin-board. Viewed: 30 May 2018.

7 AEMC. Available at: https://www.aemc.gov.au/rule-changes/gas-transmission-pipeline-capacity-trading-enhance. Viewed: 30 May 2018.

8 AEMC. Available at: https://www.aemc.gov.au/rule-changes/removal-of-gas-bulletin-board-emergency-information. Viewed: 30 May 2018.

2. Informed decision-making

2.1. Current market information limitations

This scoping study is to examine if there are existing limitations on the provision of data which creates uncertainty for users in the market (buyers and sellers; emergency management organisations) when looking to make informed decisions.

OGW are gathering views from industry on what the limitations are, if any, and whether real time data or more granular data will assist in mitigating resultant risks and identify the benefits.

A key consideration for industry is the term and type of transactions real-time data, and the granularity of the data, that may be useful in helping to facilitate efficient market outcomes. For example, more efficient spot transactions might be made because of the publication of real-time data. A view from stakeholders on how real time data or more granular historical datasets may benefit longer term transactions is also sought.

Question 1. **How does your organisation use the GasBB or GBB WA?**

Question 2. **How could real-time data on gas pipeline flows and gas production levels being available to all parties enable a more efficient and timely functioning of the gas and electricity markets for short-term transactions (less than a week including intra-day), for long-term transactions (greater than a week), and for increased reliability? What frequency should be captured?**

Question 3. **Are the benefits that may be gained from the availability of real-time data equally attainable from simply more granular historical data than is currently available, and at what frequency should the data be collected?**

Question 4. **How can access to real-time data, or more granular data, allow for better investment decisions (e.g. gas power generation, new pipeline infrastructure)?**

Question 5. **Is there any other market data that should be linked or have linkages to the gas market data?**

3. Information and data collection

If real-time data capture is brought into a central facility, the type of data collected, frequency of collection, distribution and use of this data becomes critical in defining the study scope. It is likely that different access levels will be needed for different requirements with associated security and granularity. For example, the data from the central facility could be aggregated for display or direct download through the Gas Bulletin Boards for public consumption but more granular and up to date data would be consumed securely by AEMO and other government agencies for emergency, monitoring and advisory purposes.

3.1. Types of real-time information collected

The central real-time data facility may contain a large volume of data from a facility level and a time perspective that could be used for a number of functions with the volume and detail varying depending on the end use. i.e. confidential emergency information would have a more detailed set compared to data made available through the Gas Bulletin Boards.

While the central facility may contain a complete data set, the benefits of different data sets required by different participants needs to be quantified.

Question 6. **What other real-time information do industry participants believe could be captured to provide benefits to participants in supporting efficient market outcomes and emergency management responses? For example, real-time or near real-time outage notices.**

Question 7. **How does the upcoming introduction of pipeline capacity trading mechanisms[9] affect the value that market participants place on additional real-time data? If so, please explain why, and the extent to which this is likely to be of a material benefit?**

Question 8. **The GBB WA reports daily Large User consumption data, 7 days in arrears. Would the inclusion of this data in real-time on the Gas Bulletin Boards improve market efficiencies or emergency management outcomes?**

The provision of real-time data may, in and of itself, only partially assist in the development of the gas market, as interpreting the data can also be problematic. Providing some context on what data means may assist the industry, however this generally requires supplementation from the data provider, increases the risk of confidential information being made public, and ultimately increases the cost of data provision.

For example, real-time monitoring of data may show that a 400TJ/day Queensland gas production facility has just dropped production from the forecast level of 350TJ to a 0TJ/day rate. However, insight into the likely duration of this supply interruption and subsequent impact on the short-term market supply/demand balance is required to make full use of this information.

Question 9. **What additional "context" material should be provided to AEMO when real-time data monitoring detects a "material" variation from forecast, and why?**

9 https://www.aemo.com.au/Gas/Pipeline-Capacity-Trading

3.2. Information handling and access

Pipeline operators and production facility operators have a number of requirements to submit information for a variety of commercial and regulatory purposes. Information tends to be submitted to multiple organisations with little or no difference in the information submitted.

Question 10. **What similar information do you currently provide more than once but to different agencies or organisations?**

Question 11. **What sensitive information should not be captured by a centralised facility? And what sensitive information, if captured, should not be publicly available?**

Question 12. **Should a Gas Bulletin Board have links and notifications to other markets such as the NEM and what would be the benefits (e.g. gas power generator status and output, changes in demand forecasts in the STTM or DWGM)?**

The volume of real-time data being brought into a central facility is likely to exceed the requirements of the public-facing Gas Bulletin Boards and datasets that third-party data service providers may want access to. However, there may be other stakeholders that may benefit from accessing the more detailed data sets.

Question 13. **Is your organisation likely to request access to more detailed data sets?**

Question 14. **What benefits is your organisation likely to gain from access to more detailed data sets?**

4. Uses of real-time information

4.1. Emergency management

There are various existing mechanisms in place relating to emergency management of the gas market during periods of market stress. Some of these relate to bilateral contract obligations (FM notifications, etc.), some to market-based responses (spot markets setting prices and volumes reflective of economically efficient outcomes, STTM contingency gas), and others to centrally co-ordinated functions to manage emergency events (National Gas Emergency Response Advisory Committee (NGERAC); State Emergency Management Committee (SEMC)).

Currently the different state jurisdictions on the East Coast make the decision on curtailment under emergency conditions based on information available through NGERAC. As the East Coast pipeline system moves from simple point to point systems to a more meshed system across the states, the emerging and future emergency scenarios are becoming more complex and across multiple jurisdictions.

As the jurisdictions have the authority to implement emergency plans, they are turning to AEMO for advice and understanding of the East Coast system. AEMO is increasingly being requested to provide advice to the different jurisdictions to inform their decision-making processes. However, AEMO are impeded in their ability to provide timely and meaningful advice due to a lack of real-time data during emergency situations, with the exception of the Victorian Transmission System (VTS). Providing decision makers with data that is up to date and easily consumable delivers confidence in the process and increases the likelihood of better outcomes.

In Western Australia, in the event of an emergency, the State Emergency Management Committee (SEMC) is responsible for exercising the Westplan Gas Supply Disruption arrangements. A Westplan defines and prescribes a hazard, and the arrangements on how to manage that hazard.

In Western Australia, during the period when a Westplan is being actioned, legislation allows the SEMC to request and require detailed data to be delivered at frequent intervals from producers and pipeline operators to assist in managing the incident and activates a specific web service to the data for approved participants.

There is some existing information on the GasBB and GBB WA specific to emergency management:

- A Linepack Capacity Adequacy report which indicates whether there is sufficient linepack in a pipeline to maintain supply at delivery points.
- Medium Term Capacity Outlook.
- Actual Gas Held in Storage

Real-time data may provide a valuable level of transparency for a co-ordinated emergency response, which could increase the speed of response and appropriateness of response. Real-time data may also provide leading indicators of potential emergency events.

Question 15. **What other sources of information do market participants currently monitor concerning potential or actual interruption to supply events, and what additional information would be useful?**

Question 16. **For those market participants who operate in the East and West Coast markets, does the West Australian model of emergency management provide a useful example for adaptation on the East Coast? What improvements could be made to the existing GBB WA model for use on the both the East and West Coasts?**

Question 17. **Would the addition of real time data improve on the GBB WA model? For example, this would avoid the need to request participants to submit data in an emergency event and provide a greater level of integrity and timeliness of information.**

In March 2017, Production Facility Operators and Pipeline Operators made commitments to the Commonwealth Government to make gas available to meet peak demand periods in the National Electricity Market. The Gas Supply Guarantee is a mechanism developed by the gas industry to facilitate the delivery of these commitments.

Question 18. **How would real time data assist in the identification of risks prior to a forecast gas supply shortfall under the Gas Supply Guarantee?**

5. Connectivity and data processing

5.1. Data collection method

5.1.1. East

AEMO e-Hub is AEMO's East Coast communication platform supporting exchange of information between Participants and AEMO. AEMO currently provides three methods of data collection: viz. FTP, MarketNet and internet accessible web services. FTP has not been considered as a viable option for data collection as it is due to be decommissioned in 2019. MarketNet and web services are considered future proof and scalable and could be viable options for data collection at a nominal five minutes in resolution.

5.1.2. West

In the West, participants provide data to the GBB WA by a web-based user interface, and a secure web programmable interface. Data is sent to the GBB WA as CSV files.

5.2. Connectivity

Access to the AEMO e-Hub via MarketNet:

MarketNet is AEMO's private data network connection, Connection types are detailed in AEMO's "Guide-to-Information-Systems". They consist of direct connections to AEMO's energy market systems and may be the preferred connection option for some participants.

Access to the AEMO e-Hub and GBB WA via the Internet

An alternate mechanism for accessing AEMO's e-Hub is by connection via the Internet without the need for full MarketNet. GBB WA similarly provides access via a programmable interface, as well as a web user interface.

Question 19. What method does your organisation currently use to submit data to AEMO?

Question 20. What is your preferred method to submit data to AEMO, and why?

5.3. Data capture and processing

AEMO will receive and process data from participants at the required frequency. Data ingestion mechanisms provided by AEMO may impact participants to varying degrees.

The following tables contain the different types of real-time data sets (not limited to) that are being considered, what they contain, and the likely source of the data.

Table 1: Potential datasets

GC Data	Meter Data	Compressor Data	Derived Data
methane	Pressure	pressure in/out	line pack
ethane	flow	Status	
propane	heating value		
butane_i			
butane_n			
pentane_i			
pentane_n			
pentane_neo			
hexane			
nitrogen			
carbon_dioxide			
spec_gravity			
heating value			
Potential Sources			
Producers	Producers	Pipeline Operators	Pipeline Operators
Injection Points	Injection Points		
Pipeline Operators	Pipeline Operators		
	Storage Operators		
	Demand Centres		
	Large Users		

Question 21. **To what extent are your systems currently capable of delivering this kind of data to AEMO, and at frequent intervals (up to five-minute intervals)?**

Question 22. **What, if any, are the likely challenges for your business in supplying appropriate data to AEMO at frequently prescribed intervals?**

Question 23. **What, if any, major technical, security, resource, logistics or other obstacles can you identify that might prevent your business implementing and operating data feeds to AEMO?**

Question 24. **What, if any, significant security issues can you identify that could impede the provision of real-time data to AEMO at frequently prescribed intervals?**

6. Other feedback

If there is any other feedback or commentary you would like to provide in relation to this scoping study, please do so.

7. Next steps

In parallel to seeking written responses to the consultation paper, one-on-one interviews will be conducted with selected stakeholders during the consultation paper response period. If you wish to nominate for a one-on-one interview to further discuss the details in the consultation paper, you are encouraged to do so by responding as early as possible. Participants who nominate and are approved for the one-on-one interviews may be sent a set of more detailed questions prior to the interview taking place.

An interim report setting out the findings will be produced and will be used as inputs to the cost – benefit process and developing the scope document for Workstream 2 – technology options.

Further stakeholder engagement will be conducted with more detailed focus on the technology options to further inform the specification and costs of any systems required for real-time data capture.

Appendix A – Background Information

A.1 Study scope and approach

It is intended that the Study will inform future policy options for enhancing transparency in the gas market to enable users to make more informed purchasing decisions, assist in emergency management, and complement the work already underway on Bulletin Board improvements being led by the COAG Energy Council (See Section A.2). To a significant degree, the objective of enhancing transparency will focus on removing or lowering the level of information asymmetry that exists in the market, without unnecessarily creating issues for participants in relation to the release of commercial-in-confidence data.

To this end, the study is to focus on the implementation of a centralised facility to capture real time data from gas producers, storage operators and pipeline operators and what the costs and benefits of that data, or subset of that data, to market participants will be.

The category of stakeholders that OGW will consult with are:

- Pipeline and Storage Facility Operators.
- Market Participants.
- Gas Producers.
- Government Departments and Agencies (relevant departments in State Governments and the Northern Territory).
- Advocacy Groups.
- Relevant Consultants and Information On sellers

A.2 Current gas market reforms

A number of gas market reforms are occurring in parallel to the GBB scoping study.

The COAG Energy Council released their Australian gas market vision in December 2014 and announced the Gas Market Reform Package in August 2016.

The reform package delivers a range of measures including:

- a wholesale gas market that concentrates trading at two primary trading hubs, a northern hub and a southern hub, with improved and more unified market designs at each location;
- a gas transportation capacity market to underpin the new wholesale market design;
- broader and more accurate market related information for participants and the public, primarily through a redeveloped Natural Gas Services Bulletin Board;
- examining whether a new test for determining whether a gas transportation pipeline should be subject to price regulation through a consultation process; and
- implementation of the Energy Council Gas Supply Strategy.

The Gas Market Reform Group (GMRG) has been established to lead the roll out of the reforms outlined in the package and also requested to work with the ACCC on options to improve gas supply chain price transparency.

Separate to the GBB scoping study, the AEMC has completed an NGR rule change on improvements to the Natural Gas BB on 26 September 2017.

The rule change aims have:

- clarified the purpose of the Bulletin Board;
- removed the current zonal model and establish a new reporting model;
- exempted remote and non-connected pipelines from reporting obligations;
- included regional pipelines and facilities and facilities attached to distribution pipelines;
- established a new registration framework and threshold;
- included a reporting standard;
- removed the market participant and Australian Energy Market Operator (AEMO) cost recovery provisions; and
- added a new biennial reporting requirement for AEMO.

AEMO is currently implementing this rule change to enhance the breadth and accuracy of information provided to the market through the natural gas Bulletin Board which will come into effect on 30 September 2018. Details of the GasBB changes can be found here . While the GBB scoping study is independent of the changes under way it is to complement and utilise these changes.

A.3 Current East Coast GasBB overview

Figure 1 Current GasBB data process and architecture

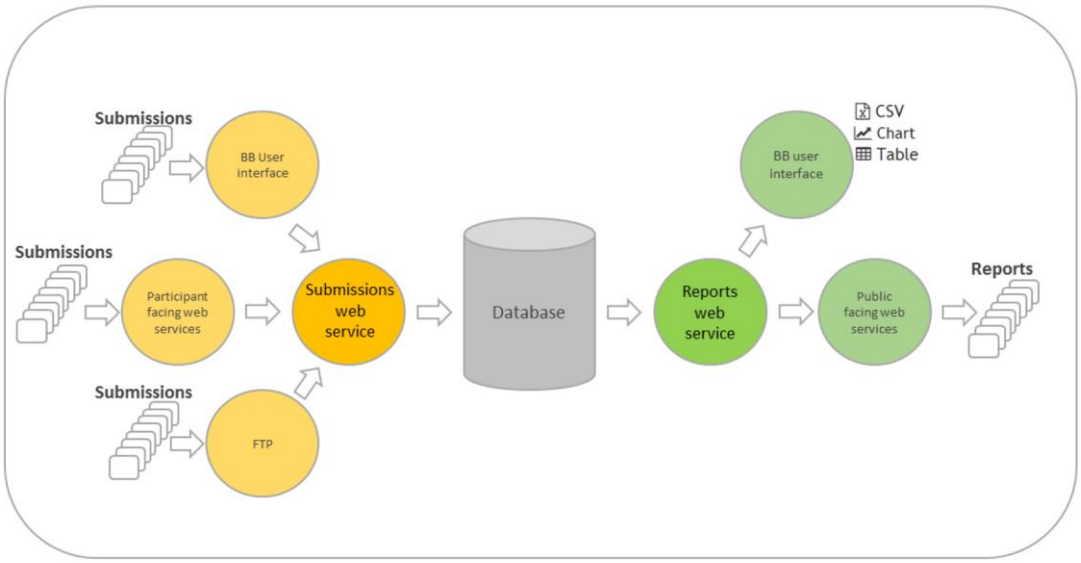


Figure 1 gives an overview of the current data processes within the GasBB. Parts of the data submission processes (data submission by manual and CSV processes) are under change from AEMO with a move to data submission through Application Programming Interfaces (API). Data submissions into the central database are further processed and/or aggregated by AEMO for publication to the public-facing data portals and web pages.

The current submission datasets are:

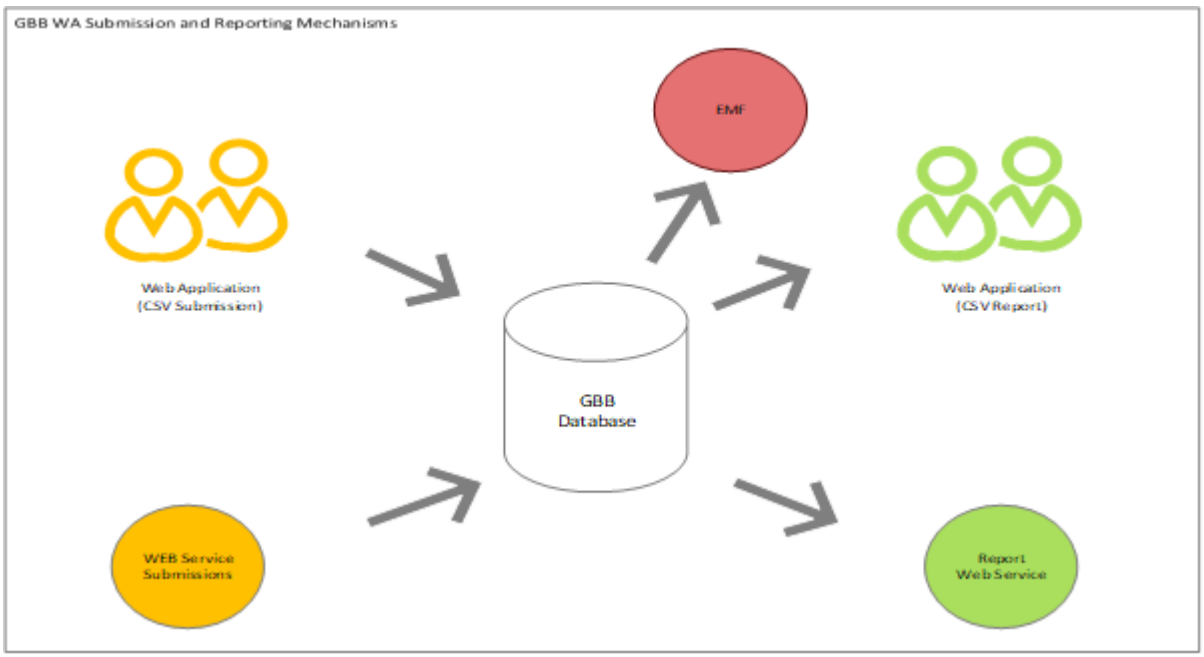
- Capacity outlook
- Daily production and flow
- Daily storage

- Nominations and forecasts
- Gate station nameplate rating
- Linepack capacity adequacy
- Medium term capacity
- Secondary bid offer summary
- Secondary trade summary
- Nameplate rating
- Uncontracted capacity

The datasets are updated at a minimum daily

A.4 Current GBB WA overview

Figure 2 GBB WA data process and architecture



The current GBB WA design was in response to the gas supply disruptions in North West WA in 2008 based on the key recommendations of the Gas Supply and Emergency Committee. Figure 2 shows the key components of the gas information services consisting of the GBB WA and the Emergency Management Facility (EMF).

The data set provided to the GBB WA is:

- Contact Information
- Standing Data
  - Information about GBB Pipelines, including the Nameplate Capacity of the pipeline and how the pipeline is connected to other GBB Facilities and gas distribution systems;
  - Information about other GBB Facilities, including the Nameplate Capacity of the Facility and the GBB Pipeline(s) each Facility is connected to; and
  - Information about GBB Facilities for which gas quality specification information is published as required by the Gas Supply (Gas Quality Specification) Act 2009.

- Capacity Outlook Information
  - Linepack Capacity Adequacy (LCA) Flag
  - Seven-day Capacity Outlook
  - Medium Term Capacity Outlook
- Forecast and Actual Flow Information
  - Nominated and Forecast Flow Data: flows into and out of GBB Pipelines (aggregated by Zone) and Storage Facilities for the current Gas Day and next six Gas Days.
  - Daily Actual Flow Data: flows into and/or out of GBB Pipelines (aggregated by Zone), Gate Stations, GBB Production Facilities and GBB Storage Facilities published around 30 hours after the end of the relevant Gas Day.
  - Daily Actual Consumption Information: published around 30 hours after the end of the relevant Gas Day, including consumption by:
    - Large Users, aggregated by Zone; and
    - Non-large users, aggregated by Zone both for distribution-connected end users and other end users.
  - In addition, around a week after the end of the relevant Gas Day, Daily Actual Consumption Data for:
    - Each GBB Large User Facility; and
    - Large Users, aggregated by Zone and Consumption Category (mining, electricity generation, minerals processing, other manufacturing processes and other Large User Facility consumption).
  - Gas Specification Data: gas quantities and/or higher heating values

The EMF is an online information service which is part of the GBB, activated by AEMO in the event of an emergency or gas supply disruption and accessible only by certain parties. Data published to the EMF is without aggregation and has additional datasets such as Large User Facilities to operate on alternative fuel, with max and min capacities of facilities to run during the emergency and more up to date information that is available through the GBB WA.

A.4.1 Submission mechanism

Two submission mechanisms are available to participants:

- The first is a web-based interface where submission files can be uploaded through the user interface (CSV).
- The second is an API (REST) interface available through HTTPS.