

GSH - Technical Specification - October 2022

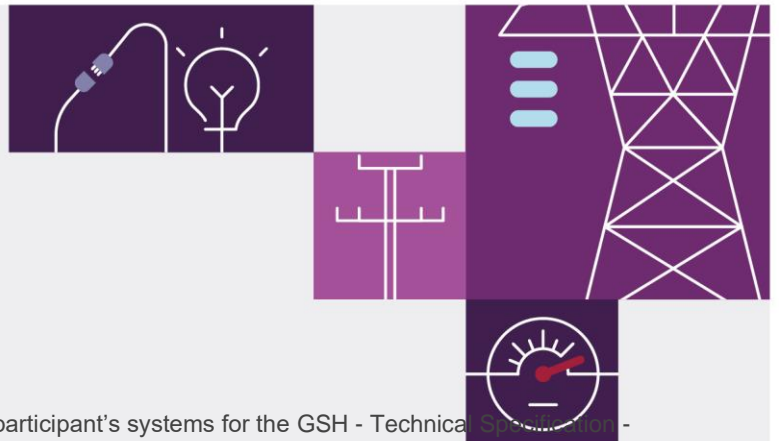
2.00 August 2022

Pre-production: Friday 2 September
2022

Production: Thursday 6 October
2022

Release series: GSHJUL2022





Important notice

Purpose & audience

This document describes the technical changes required to participant's systems for the GSH - Technical Specification - October 2022 (Release). The Australian Energy Market Operator (AEMO) provides this information as a service targeting business analysts and IT staff in participant organisations. It provides guidance about the changes to their market systems under the National Gas Rules (Rules), as at the date of publication.

How to use this document

- If you have questions about the business aspects of these changes, please see Consultations on AEMO's website.
- The references listed throughout this document are primary resources and take precedence over this document.
- Unless otherwise stated, you can find resources mentioned in this guide on AEMO's website.
- **Text in this format** is a link to related information.
- **Text in this format**, indicates a reference to a document on AEMO's website.
- **Text in this format** is an action to perform in the Markets Portal.
- This document is written in plain language for easy reading. Where there is a discrepancy between the Rules and information or a term in this document, the Rules take precedence.
- Glossary Terms are capitalised and have the meanings listed against them in the Glossary.
- Rules Terms have the meaning listed against them in the **National Gas Rules** (Rules).

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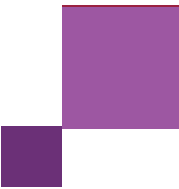
2.00 See [Changes in this version](#).

Documents made obsolete

The release of this document changes only the version of GSH - Technical Specification - October 2022.

Support hub

To contact AEMO's Support Hub use Contact Us on AEMO's website or for urgent matters phone: 1300 AEMO 00 (1300 236 600).



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1 Introduction

1.1 Audience

The primary audience is Registered Participant:

- Business analysts and IT teams.
- GSH Trading Participants.

1.2 Objective

The GSH - Technical Specification - October 2022 (Release) describes the projects planned by AEMO from a participant perspective and includes any related system changes for participants.

1.3 Status

Version	Status
2.00	This is the final design for the pre-production release
1.00	This technical specification is for participant information only. The design is in progress and may change as the technical requirements are streamlined. Please provide feedback to the Gas Supply Hub Reference Group: Gas_SupplyHub@aemo.com.au

1.4 Release dates

Scheduled for implementation in:

- Pre-production: Friday 2 September 2022
- Production: Thursday 6 October 2022

1.5 Version numbers

AEMO releases new versions of this document as the technical requirements are streamlined.

Incremental version numbers such as 1.01, 2.01 and so on mean there is a minor change to the technical specification.

Major version numbers such as 1.00, 2.00 means there are substantial changes to the technical specification. Participants must carefully review these changes, detailed below.

1.6 Changes in this version

1. Changes to the **Gas Future ID**:

From	To
ASX-AEMO-NNNN	ASX-AEMO-NNNN-NNNNNN

2. Added link to the draft **Guide to GSH Future Submission** in Markets Portal chapter.
3. Added link to draft **Postman: GSH Future API Endpoints** in API Endpoints chapter.
4. Updated **validation** and messages.
5. Added more **reports** detail.
6. Added link to **Gas Data Model v2.2 Technical Specification** v2.2 technical specification.
7. Updated **payload** and API submission date format: YYYY/MM/DD only.
8. **Submission parameter** updates:
 - Price is 2 decimal places.
 - TradeType must be uppercase: BUY or SELL.
 - Volume must be a whole number.
9. Updated **Proposed Timeline**.

1.7 Related technical specifications

Name	Description	Status
Gas Data Model v2.2 - Technical Specification - September 2022	Gas Data Model v2.2 GSH affected tables, reports details	Draft published

1.8 Procedure and agreement changes

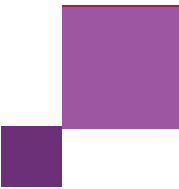
Name	Description	Type
Gas Supply Hub Exchange Agreement	Provides the terms of participation in the Exchange and transactions entered into through the Exchange	Agreement
Settlements and Prudential Methodology	The methodology established under rule 536(3) of the National Gas Rules (NGR) and clause 17 of the Exchange Agreement (EA) determining the amounts payable by, or to, Market Participants in the GSH	Procedure

1.9 Related documents

Once published, these resources take precedence over this technical specification.

These guides and resources are updated according to this technical specification and published for the pre-production Release Date.

Title	Description	Status
Guide to EFP Trade Submission	Help using the new Markets Portal Future Trade interface	Published
Guide to User Rights Management	Details the user rights management (URM) functions in AEMO's Market Systems. It is relevant to Participant Administrators maintaining user rights for their company's Participant Users.	In progress
GSH EFP Trade Submission API Endpoints Reference	Detailed endpoint spec and context for API development	Published
Gas Supply Hub Industry Guide	Provides guidance on the use of the Gas Supply Hub	In progress



1.10 Approval to change

There is no approval or agreement to change required from participant change controllers for this Release. Design agreement is sought during the **Gas Supply Hub Reference Group (GSHRG)**.

1.11 Gas supply hub reference group

The Gas Supply Hub Reference Group (GSHRG) meets on an ad hoc basis to discuss changes to the GSH.

GSHRG meetings are open to GSH Registered Participants with invitations sent to all included on the distribution list. If you want to attend the meetings send an email to Gas_SupplyHub@aemo.com.au asking to be put on the distribution list.

1.12 Market systems user group meetings

The Market Systems User Group (MSUG) is an industry user group established to discuss wholesale and retail IT systems releases. Its purpose is to facilitate the continuing improvement of AEMO's IT systems by seeking feedback and collaboration from participants.

MSUG meetings are open to all interested parties, with invitations sent to all included on the distribution list. If you have a technical question for a project and want to attend the MSUG ask your company's support team to include your email address in their **AEMO Help Desk Bulletin (CRM)** distribution list.

1.13 Projects

Projects in this Release include:

1. **EFP Trade Submission**

2 Proposed Timeline

The dates for the Market System User Group Meetings (MSUG) are tentative. We will provide an invitation one week prior to the meeting.

Milestone	Date	Description
Approval required	No approval required	Final date for participant approval of this Release
Pre-production refresh MSATS & eMDM	Completed March 2022 Refreshed from production data Monday 21 February 2022	Refresh of the pre-production system with data refreshed from the production system. An outage of up to five days can occur to the pre-production environment during this period. Participant access is not restricted, however, AEMO do not guarantee the pre-production data content or system availability. During the refresh, access to other AEMO systems such as AWEFS, EMMS, OPDMS, and STTM may be intermittently affected
Revised Technical Specification	Only if required	AEMO releases new versions of this document as the technical requirements are streamlined. During the project this document is the source of truth. From the pre-production release, the technical specification is no longer updated, the guides and related documents become the source of truth, see related documents Error! Reference source not found. Error! Bookmark not defined. Release schedules and technical specifications
MSUG meeting: pre-release review	Completed: Tuesday 29 March 2022	Market systems user group meeting to discuss this technical specification
Related documents publication	Friday 2 September 2022	See Related documents Error! Reference source not found. Error! Bookmark not defined.
MSUG meeting: pre-production review	Wednesday 31 August 2022	Market systems user group meeting to discuss the pre-production release
Pre-production implementation	Thursday 25 August 2022	AEMO implements components of the Release to pre-production for participant testing AEMO has full access to the system during this period Participant access is not restricted; however, the data content or system availability is not guaranteed

Milestone	Date	Description
Pre-production Data Model file subscription change	Friday 2 September 2022 Wednesday 31 August 2022	There is no auto-subscription for existing files. AEMO moves participants to the Legacy version of files. Participants must subscribe to the new version. For more details, see Participant Impact
Pre-production pdrConfig release	Friday 2 September 2022	There is no new Data Model release for this Project. Only the NEM reports with the pdrConfig are released. The pdrConfig contains the latest report versions to load into your DI environments For more details, see Participant Impact
Pre-production available	Friday 2 September 2022	Once the implementation complete notice is sent Testing period begins for participants
Participant testing	Friday 2 September 2022 – Thursday 6 October 2022	Unstructured/bilateral participant testing in the pre-production environment
Production implementation	Wednesday 5 October 2022	AEMO implements the release to production
Production Data Model file subscription change	Thursday 6 October 2022	There is no auto-subscription for existing files. AEMO moves participants to the Legacy version of files. Participants must subscribe to the new version For more details, see Participant Impact
Production pdrConfig release	Thursday 6 October 2022	There is no new Data Model release for this Project. Only the NEM reports with the pdrConfig are released. The pdrConfig contains the latest report versions to load into your DI environments. For more details, see Participant Impact
Production systems available	Thursday 6 October 2022	Once the implementation complete notice is sent Production systems available to participants
Pre-production Gas Data Model release	Wednesday, 14 September 2022	Approximate pre-production full Gas Data Model released

Proposed Timeline

Milestone	Date	Description
Production Gas Data Model release	Wednesday, 5 October 2022	Approximate production full Gas Data Model released
MSUG: post-production review	Wednesday, 2 November 2022	Market systems user group meeting to review the implementation of the production release
Expected first delivery month	March 2023– April 2023	GSH Future Trades commences

3 Participant Impact

3.1 Submission window

The EFP Trade Submission interfaces are **only** available during the EFP Trading Window. EFP Trades not matched during the submission window expire and are no longer available.

3.2 Submission access

For details about accessing the web or API interfaces to submit an EFP Trade, see [User rights access \(URM\)](#).

3.3 Submission interfaces

There are several ways to submit a Trade:

- [Web: GSH Future Submission](#)
- [Web: Upload csv payload](#)
- [API e-Hub](#)

3.4 Reports

GSH report name	Data model report name
Trade execution report	GSH_TRADE_SINGLE (existing)
	GSH_TRADE_RANGE (existing)
GSH future trade submission report	GSH_FUTURE_TRADE_SINGLE (new)

3.4.1 I don't want to receive any reports.

There is no impact to you.

3.4.2 I don't want to receive the reports

There is no impact to you. You can remain on the [Legacy reports](#).

3.4.3 I want to receive the new reports

There are 3 report retrieval options:

1. [GSH Publishing Direct](#)
2. [Participant File Server](#)
3. [Data Interchange](#)

3.5 Data Subscription

You must subscribe to the reports in the Data Subscription to retrieve them using any of the report retrieval options.

3.5.1 Auto-subscription

Existing GSH data model participants

- **Are** auto subscribed to **new** files (GSH_FUTURE_TRADE_SINGLE).
- **Are not** auto subscribed to **existing** files GSH_TRADE_SINGLE and GSH_TRADE_RANGE.

New GSH Data Model participants

- New participants are auto subscribed to **all** files.

3.5.2 Legacy reports

So participants continue to receive the same data until they manually subscribe to the new version, AEMO moves participants to the Legacy version of reports.

Files Supplied by MMS

Filter by keywords and/or status

Click "Refresh" after changing the filter options

Keywords: Status:

NOTE: Data Model files identifiers match the "identifier" unless indicated otherwise.

Please select the files you wish to view, and click "View Detail".

<input type="checkbox"/>	Data Model	Identifier	Status	Description	Type
<input type="checkbox"/>	Yes	GASBB3_SEC_CAP_TRADES_TRK	Assignable	(DM:GAS_BB) Gas Bulletin Board : Rule Changes 2018	Csv
<input type="checkbox"/>	Yes	GASBB_SEC_PIPE_CAPACITY_TRADES	Assignable	(DM:GAS_BB) Gas Bulletin Board Phase 3 : Trades of secondary pipeline capacity	Csv
<input type="checkbox"/>	Yes	GSH_CAPACITY_TRANSACTION	Assignable	(DM:GSH) Provides a consolidated list of all secondary capacity trades which includes GSH trades AND Bilateral trades submitted into the GBB	Csv
<input type="checkbox"/>	Yes	GSH_DELIVERY_OBLIGATION_SINGLE	Assignable	(DM:GSH) Gas Supply Hub Delivery Obligations Report for a single non netted trade	Csv
<input type="checkbox"/>	Yes	GSH_EXCHANGE_TRADE	Assignable	(DM:GSH) Gas Supply Hub Trade Execution Report	Csv
<input type="checkbox"/>	Yes	GSH_TRADE_RANGE	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a date range	Csv
<input checked="" type="checkbox"/>	Yes	GSH_TRADE_RANGE_LEGACY	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a date range	Csv
<input type="checkbox"/>	Yes	GSH_TRADE_SINGLE	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a single Trade	Csv
<input checked="" type="checkbox"/>	Yes	GSH_TRADE_SINGLE_LEGACY	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a single Trade	Csv

3.5.3 Required subscriptions

So you can retrieve the reports using one of the [report delivery methods](#), subscribe in the **EMMS Markets Portal > Data Subscription** interface to your required reports:

- GSH_FUTURE_TRADE_SINGLE (new)
- GSH_TRADE_SINGLE (existing)
- GSH_TRADE_RANGE (existing)

When you receive the first new report, unsubscribe from the Legacy versions.

[Home](#)

EMMS -

Market Info +

Settlements +

Offers & Submissions +

SRA +

Intermittent Generation +

Data Interchange -

Data Subscription -

Data Model Changes

Subscribe to Files

Unsubscribe Files

View Catalogue

Files Supplied by MMS

Filter by keywords and/or status

Click "Refresh" after changing the filter options

Keywords: Status:

NOTE: Data Model files identifiers match the "Identifier" unless indicated otherwise.

Please select the files you wish to view, and click "View Detail".

<input type="checkbox"/>	Data Model	Identifier	Status	Description	Type
<input type="checkbox"/>	Yes	GASBB3_SEC_CAP_TRADES_TRK	Assignable	(DM:GAS_BB) Gas Bulletin Board : Rule Changes 2018	Csv
<input type="checkbox"/>	Yes	GASBB_SEC_PIPE_CAPACITY_TRADES	Assignable	(DM:GAS_BB) Gas Bulletin Board Phase 3 : Trades of secondary pipeline capacity	Csv
<input type="checkbox"/>	Yes	GSH_CAPACITY_TRANSACTION	Assignable	(DM:GSH) Provides a consolidated list of all secondary capacity trades which includes GSH trades AND Bilateral trades submitted into the GBB	Csv
<input type="checkbox"/>	Yes	GSH_DELIVERY_OBLIGATION_SINGLE	Assignable	(DM:GSH) Gas Supply Hub Delivery Obligations Report for a single non netted trade	Csv
<input type="checkbox"/>	Yes	GSH_EXCHANGE_TRADE	Assignable	(DM:GSH) Gas Supply Hub Trade Execution Report	Csv
<input checked="" type="checkbox"/>	Yes	GSH_TRADE_RANGE	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a date range	Csv
<input type="checkbox"/>	Yes	GSH_TRADE_RANGE_LEGACY	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a date range	Csv
<input checked="" type="checkbox"/>	Yes	GSH_TRADE_SINGLE	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a single Trade	Csv
<input type="checkbox"/>	Yes	GSH_TRADE_SINGLE_LEGACY	Assignable	(DM:GSH) Gas Supply Hub Trade Confirmation Report for a single Trade	Csv

For help, see:

- [Unsubscribe from files](#)
- [Subscribing to new Gas Data Model files](#)

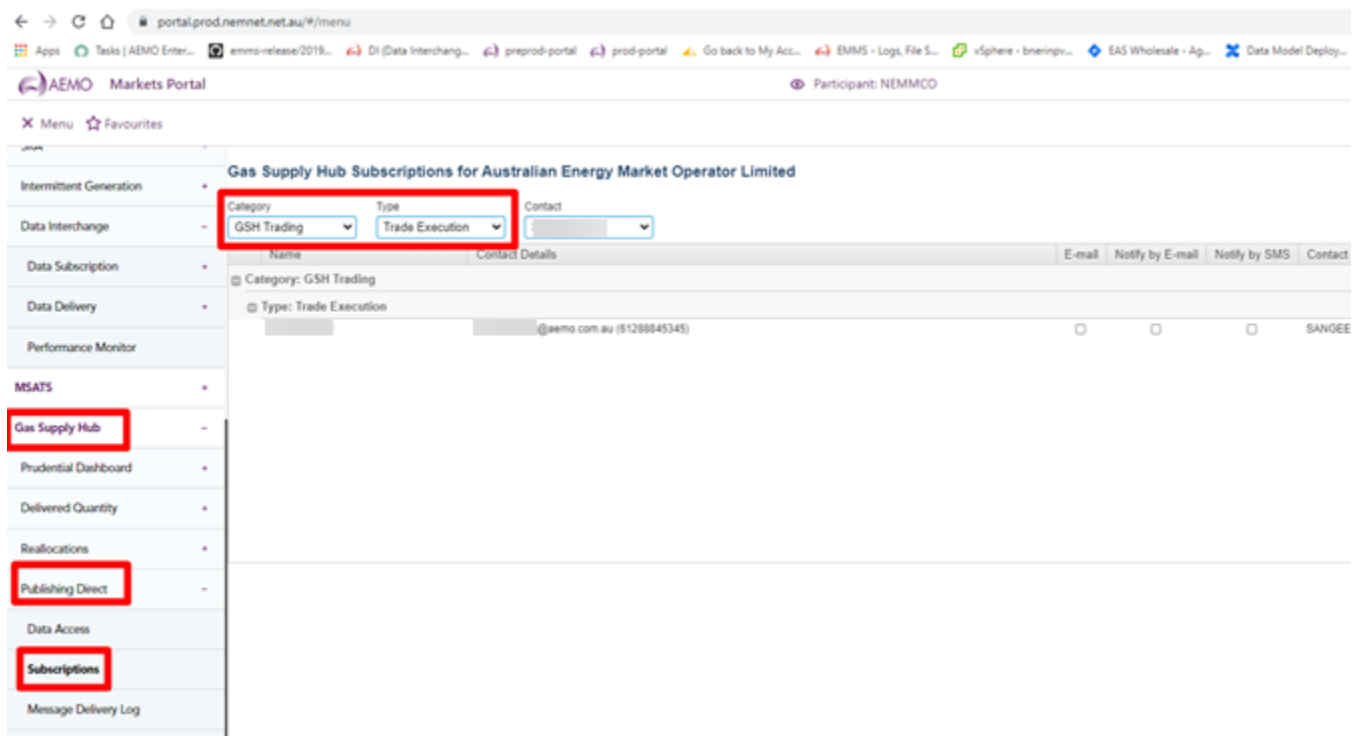
3.6 GSH publishing direct

I'm already subscribed to the previous version

If you are currently subscribed to the **GSH Trading > Trade Execution** file and have alerts set up, you receive an alert advising the file has changed. You don't need to do anything.

I'm not subscribed to the previous version

1. On the **Release Dates**, when you receive the Support Hub email advising the implementation is complete, subscribe to the **new report versions** in **Data Subscription**.
2. Login to **GSH Publishing Direct** and subscribe to the **GSH Trading > Trade Execution** file.
3. If required, add alerts.



For GSH Publishing Direct access and subscription details, see [Guide to GSH Publishing Direct](#).

3.7 Participant file server

You can retrieve the reports directly from you Participant ID folder on the Participant File Server:

1. On the **Release Dates**, when you receive the Support Hub email advising the implementation is complete, subscribe to the **new report versions** in **Data Subscription**.
2. Retrieve the reports from your **Participant ID folder** on the **Participant File Server**.
3. Unsubscribe from the **Legacy reports**.

You can automate the retrieving of reports without setting up a Data Interchange environment using the [Participant Data Replication Batcher](#).

3.8 Data interchange

Only the associated NEM reports with the **pdrConfig** are released. There is no new Gas Data Model release for this Project. The pdrConfig contains the latest report versions to load into your DI environments.

This Release includes EFP Trade Submission reports only. It does not contain a new Gas Data Model version. Later this year, we will release a new version of the Gas Data Model with the changes described in Gas Data Model on page 40.

Before attempting any changes on production systems, participants are encouraged to use the pre-production environment to test procedures and train their users.

3.8.1 Subscribing to new reports and new versions

1. The pdrConfig to load the new and updated reports is automatically applied to your pdrLoader on the **Release Dates**.
2. On the **Release Dates**, when you receive the Support Hub email advising the implementation is complete:
 - a. Subscribe to the **new report versions** in **Data Subscription**.
 - b. In pdrMonitor, Activate the new GSH.FUTURE_TRADE_SINGLE report. Because it is a new report the subscription is automatic.
 - c. Subscribe to the new version of reports: GSH_TRADE_SINGLE and GSH_TRADE_RANGE.
 - d. When you receive the first new report version, unsubscribe from the Legacy versions of the above reports.

4 EFP Trade Submission

4.1 Goal

This project implements a physical EFP Trade Submission product facilitated through AEMO's Gas Supply Hub (GSH) market.

4.1.1 High-level changes

Function	Description	Reference
APIs	Detailed specifications and context for API development	APIs
Gas Data Model v2.2	New data table/s established to record information provided to AEMO containing EFP Trades.	Gas Data Model
GSH Forward Exposure	EFP Trades Information is included in the Forward Exposure calculation	Forward exposure
GSH Markets Portal	Trading Participants can enter EFP Trade Information directly in the Markets Portal web interface	GSH Markets Portal
GSH Prudential Calculation	EFP Trades are incorporated into the GSH forward Prudential Calculation	Prudential calculation
Reports	A new GSH Future Trade Submission report and changes to the existing Trade Execution Report	Reports

4.2 Gas future ID

The Gas Future ID is the EFP Trade Identifier for the Final EFP Trade. Following the last trading day of a Futures contract, Trading Participants submit the Final EFP Trade Information to AEMO including the required Gas Future ID and the Final Price. The Gas Future ID is unique for each EFP Trade (one buy and one sell) and has the following format:

Format	Example	Length	Visibility
ASX-AEMO-nnnn-NNNNN	ASX-AEMO-1234-AA5678	20 Alphanumeric characters	Private. Only Participant Users of the Participant ID can see it.

4.2.1 Format details

Section	Description
ASX-AEMO	Common prefix
-nnnn	unique 4-digit number
-NNNNN	Unique alphanumeric sequential code 5 characters

4.3 Trading participants

There are no registration or process changes. Existing GSH registered Trading Participants are responsible for communicating EFP Trade Information to AEMO.

4.4 EFP trade

4.4.1 Preliminary EFP trade submission

Prior to the last trading day of the Futures contract, Trading Participants provide AEMO with optional Preliminary EFP Trade Information without a Gas Future ID, allowing time to check registration and credit status.

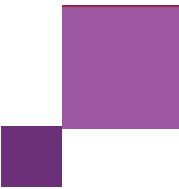
AEMO uses the EFP Trade Information in Prudential Calculations:

- Unless it is rejected by a Trading Participant.
- Providing there are no records for the delivery period with a Gas Future ID.

The Preliminary EFP Trade Submission price is the most recent daily settlement price of the Futures product. The price used in the Preliminary EFP Trade Information is indicative only and may change for the Final EFP Trade Submission.

4.4.2 Final EFP trade submission

Following the last trading day of the Futures product, Trading Participants submit the Final EFP Trade Information to AEMO **with** the Gas Future ID and the Final Price. The Final EFP Trading Window starts after the expiry of a future contract on Business Day minus 5 Gas Days.



4.5 Gas delivery period

There is no change to the Delivery Netting process or systems. For the purpose of gas delivery, once transferred into the GSH, EFP Trades are treated like all other Netted GSH trades. A Trading Participant can adjust or trade out of a position in the GSH ahead of the daily Delivery Netting run.

4.6 Prudential calculation

The GSH Prudential Calculation determines the potential credit exposure associated with the settlement of a Trading Participant's transactions in the GSH so EFP trades are incorporated into the forward exposure and included in the prudential calculation.

Inputs into the Prudential Calculation for EFP Trades are:

1. Transaction price and volumes
2. Order price and volumes
3. EFP Trade price and volumes

4.7 Forward exposure

EFP Trades Information is included in the Forward Exposure calculation between the Preliminary EFP Trading Window Start and End Dates.

4.8 Settlement

There is no change to the Settlement process or systems for this Release.

5 EFP Trade Process

End-to-end process

Step	Action	State	Who	Where	When
1.	Intent to make a Physical Delivery	Required	Trading Participants	Participant systems	Prior to the Preliminary EFP Trading Window
2.	Submit Preliminary Trade Information (without Gas Future ID)	Optional	Trading Participants	One of the submission interfaces	During the Preliminary EFP Trading Window
3.	Validate Preliminary EFP Trade Information	Required	AEMO	AEMO systems	
4.	Rectify any failed validation	If submission rejected	Trading Participants	Participant systems	
5.	Send reports	Valid submission	AEMO	For details, see reports	
6.	Utilise the Preliminary EFP Trade Information	If validated	AEMO	Prudential Calculations	
7.	Rectify any breaches	Close out unrectified positions	Trading Participants	Participant systems	
8.	Submit Final EFP Trade information with Gas Future ID and Final Price	Required	Trading Participants	One of the submission interfaces	During the Final EFP Trading Window
9.	Validate Final EFP Trade Information	Required	AEMO	AEMO systems	
10.	Create GSH EFP Trade	If validated	AEMO	AEMO systems	
11.	Send reports	GSH trade created	Trading Participants	For details, see reports	



5.1 Validation

Unregistered GSH Trading Participants or those without sufficient Trading Margin in the GSH cannot submit an EFP Trade.

5.2 Incorporation of EFP trade positions

Following the Final EFP Trade, AEMO generates trade records, enabling incorporation of EFP Trade positions into the Delivery Netting and Settlement processes.

6 EFP Trade Submission

6.1 Preliminary EFP trade information

Information required from Trading Participants for a Preliminary EFP Trade Submission:

- Volume
- Quantity and price
- Trade type (buy or sell)
- Product month

6.2 Final EFP trade

Information required from Trading Participants for a Final EFP Trade:

- Same as the Preliminary EFP Trade Information plus the Gas Future ID (EFP Trade ID) and the Final Price.

6.3 EFP submission interfaces

To submit EFP Trade Information to AEMO, GSH Trading Participants can use the following interfaces:

1. **GSH Markets Portal > GSH Future Submission:** Enter your EFP Trade Submission directly in the web interface. For examples, see Markets Portal on page 32. Recommended for **small** data submissions.
2. **GSH Markets Portal > GSH Future Submission > Upload File:** Allows automated EFP Trade Submission. Recommended for **larger** data submissions. For examples, see Markets Portal on page 32.
3. **API submission:** Allows automated EFP Trade Submission from participants API Gateway to AEMO's API gateway. Details provided in Postman as the design progresses. Recommended for **larger** data submissions.

6.4 Submission rules

The following submission rules apply:

- One Submission Payload or JSON schema can have many EFP Trade records.
- Each row or item list in a submission is an individual EFP Trade record.
- Each record is processed separately:
 - Records passing validation are matched.
 - Records not passing validation are rejected.
 - Every row in the Payload is validated.
- The failure to pass validation of one record does not result in the rejection of all records (the entire Submission).
- AEMO informs Trading Participants of the validation status.
- Records not passing validation are not effective and you must resubmitted.
- The latest Pending record is the effective record.
- If there are multiple records with the same Gas Future ID, AEMO uses the most recent record.
- The **reports** are triggered on a valid record.

6.5 User rights access (URM)

AEMO's security model prevents others seeing your trades. Only Participant Users of the Participant ID with access rights can see or submit EFP Trades.

For access to submit and view trades using any interface, Participant Administrators (PAs) provide the following entity for their Participant Users access to submit EFP Trades information:

- GSH Future Submission

AEMO encourages PAs to only provide access to their Traders who need to submit or view EFP Trades.

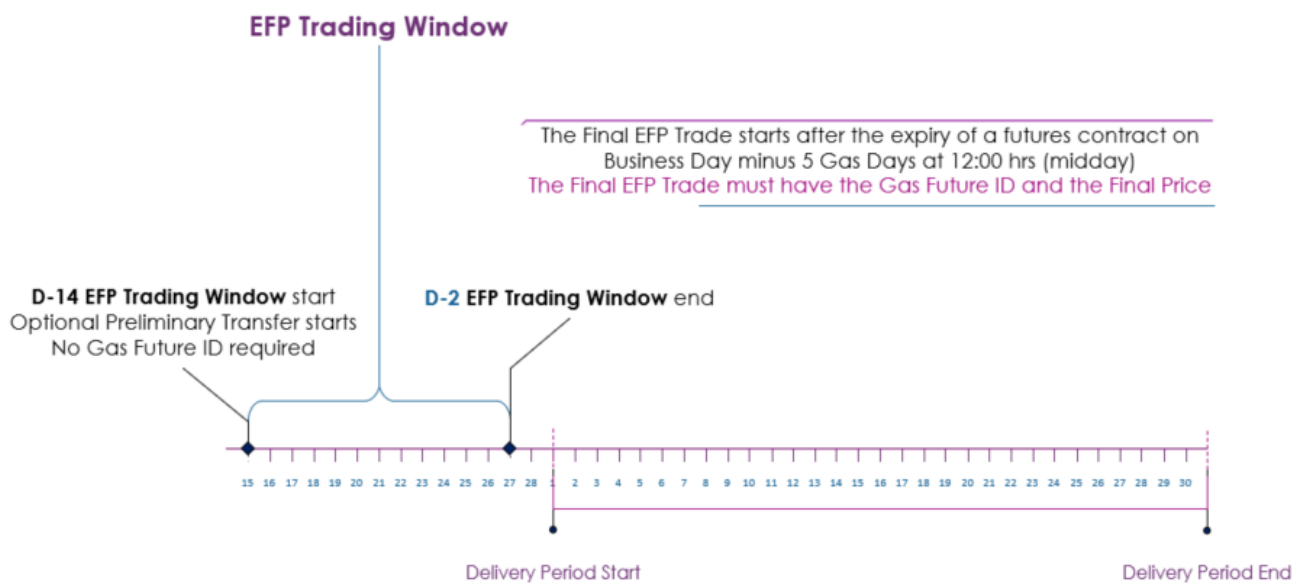
For details about participant administration, see [Guide to User Rights Management](#).

6.6 Submission period

The submission interfaces are only available during the EFP Trading Window.

Trading Participants can submit EFP Trade Information to AEMO during the EFP Trading Window only:

- Start Date: Gas Day minus 14 Calendar Days
- End Date: Gas Day minus 2 Calendar Days




6.7 Submission format

Participants can use the following formats to submit EFP Trades information:

1. Upload a csv payload to the Markets Portal > [GSH Future Submission interface](#).
2. Submit a [JSON schema](#) to AEMO’s API Gateway. For help, see [converting the csv payload to a JSON schema](#).

6.8 Submission status

Status	Description
FAIL	The record did not pass validation



Status	Description
PENDING	The Preliminary EFP Trade passed validation and is included in the Forward Exposure Prudential calculation
OVERRIDE	A recent trade record replaced this trade
MATCH	The GSH trade position is created The EFP Trade is no longer included in the Forward Exposure Prudential calculation

7 Web submission csv payload

Do not include quotation marks in your payload.

7.1 Payload parameters

Field name	Description	Status	Data type	Format	Example
GasFutureId	The EFP ID for the Final EFP Trade	Optional for a Preliminary EFP Trade Submission Required for Final EFP Trade	20 alphanumeric characters	ASX-AEMO-nnnn-NNNNNN	ASX-AEMO-1234-AA5678
StartDate	Start of Delivery Period	Required	Date	YYYY/MM/DD Include leading zeros in dates	2021/04/01
EndDate	End of Delivery Period	Required	Date	YYYY/MM/DD Include leading zeros in dates	2021/04/30
TradeType	Buy or sell	Required	Varchar	BUY SELL Must be uppercase	BUY
Price	Trade price	Required	Number	2 decimal places Correct: 100.20, 100 Incorrect: 100., 100.00001 No \$ sign Currency is in Australian dollars	5.23

Web submission csv payload

Field name	Description	Status	Data type	Format	Example
Volume	EFP Trade quantities measured in GJ for each Gas Day in the Delivery Period	Required	Number	Gigajoules (GJ) Must be a whole number	234
product_group_code	Participants can submit but data is not saved by AEMO	Optional	n/a	n/a	GAS-WAL
product_type_code					Gas – NG Months
delivery_point					WAL HP Trade Point
lots					10
counterparty_clearer					JPM
beneficiary_detail					CPXYZ Ltd
series					GZU22

7.2 Payload naming rules

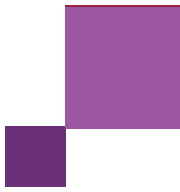
Except for the extension which **must** be csv, there is no format for the payload name for either interface. Spaces are accepted. For example:

- ParticipantID-yyyymmdd.csv

If your payload does not have the csv extension it is rejected.

7.3 Payload structure

- The field name format is important, see [Payload parameters](#).
- Extra or optional columns are ignored and not saved in AEMO's systems.
- The column order doesn't matter.



7.4 Csv payload example

Do not include quotation marks in your payload.

Example with optional fields.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	GasFutureId	StartDate	EndDate	TradeType	Volume	Lots	Series	Price	ProductLocation	ProductType	DeliveryPoint	CounterpartyClearer	BeneficiaryDetail
2	ASX-AEMO-0722-AA0008	2022/06/01	2022/06/30	Sell	27000	270	GZN22	8.85	GAS-WAL	GAS-NG Month	WAL HP Trade Point	DBA	aab ltd
3	ASX-AEMO-0722-AA0014	2022/06/01	2022/06/30	Sell	3000	30	GZN22	8.85	GAS-WAL	GAS-NG Month	WAL HP Trade Point	JPM	aab ltd
4													

7.5 Text payload example

Example with optional fields.

```
GasFutureId,StartDate,EndDate,TradeType,Volume,Lots,Series,Price,ProductLocation,ProductType,DeliveryPoint,CounterpartyClearer,BeneficiaryDetail
ASX-AEMO-0722-AA0008,2022/06/01,2022/06/30,Sell,27000,270,GZN22,8.8500000,GAS-WAL,GAS-NGMonth,WALHPTradePoint,DBA,aabltd
ASX-AEMO-0722-AA0014,2022/06/01,2022/06/30,Sell,3000,30,GZN22,8.8500000,GAS-WAL,GAS-NGMonth,WALHPTradePoint,JPM,aabltd
```

8 Markets Portal

Trading Participants can enter EFP Trade Information directly in the Markets Portal web interface, for details, see draft version of [Guide to GSH Future Submission](#) (requires access to MarketNet).

9 EFP Trade Submission API Endpoints

To submit and receive GSH EFP Trade Information via API, there are new endpoints in the **Capacity Auction API** (TBC).

You can find a detailed reference and specifications for API development in [Postman: GSH EFP Trade Submission Endpoints API Reference](#).

10 Validation

10.1 Submission validation rules

The following rules apply for all **submission interfaces**. Once an EFP Trade is processed, AEMO responds to the Trading Participant identifying any records failing validation.

- Trading Participants must be registered in the GSH to submit EFP Trades.
- You must have sufficient trading margin to submit an EFP Trade.
- A Final EFP Trade **must have** a Gas Future ID.
- Once an EFP Trade for the delivery EFP Trading Window is Matched, AEMO rejects any subsequent submissions with the same Gas Future ID.
- If the **payload structure** is invalid the entire submission is rejected. The submission validation continues for each payload row even if the **payload parameter** data is invalid. A **validation message** is provided for each invalid row.

10.2 Validation messages

Field	Message	Status
Participant ID (API only)	Trading Participants must be registered in the GSH	FAIL
Price	Enter a price range between minus 100 and 999 e.g: 1050.23	FAIL
Price	Enter a price with only 2 decimal places, e.g: 1050.23	FAIL
Price (trading margin)	Submission rejected because the <Trading Participant> has insufficient Trading Margin.	FAIL
Trade type	Enter a trade type of either: BUY or SELL	FAIL
Gas future ID	Enter your Gas Future ID (EFP Trade ID) for the final EFP Trade	FAIL
Gas future ID	The Gas Future ID cannot be more than 20 characters e.g: ASX-AEMO-1364-AB3267	FAIL
Gas future ID	The Gas Future ID must in this format ASX-AEMO-NNNN-NNNNNN e.g: ASX-AEMO-1364-AB3267	FAIL
Gas future ID	Submission rejected because this Gas Future ID is previously matched. The Gas Future ID must be unique for each BUY/SELL trade pair.	FAIL
Volume	Enter a positive whole number for the volume, e.g: 234.	FAIL
End date	Enter an end date in the following format: YYYY/MM/DD, e.g: 2022/04/30.	FAIL
Start date	Enter a start date in the following format: YYYY/MM/DD, e.g: 2022/04/30.	FAIL

Validation

Field	Message	Status
End date & Start date	The start and end date must match the Preliminary EFP Trade Submission	FAIL
All	Submission matched	MATCHED
All	Submission successful	PENDING

10.3 Changing a pending trade

To change the details of a pending an EFP Trade Submission:

- **GSH Markets Portal > GSH Future Submission:** Change the Trade directly in the web interface.
- **GSH Markets Portal > GSH Future Submission > Upload File:** Upload a new payload for this same Trade with the changed details.
- **API submission:** Submit a new JSON schema for this same Trade with the changed details.

11 Reports

11.1 Trade execution report (existing)

11.1.1 Purpose

Provides the participant buyers and sellers with a confirmation whenever a trade is executed and daily after the end of trades for the current Gas Day.

11.1.2 Report recipients and contents

- Relevant Trading Participants: Private EFP Trade Submissions.

11.1.3 Report trigger

The report is sent:

- Each time there is an EFP Trade creation.
- At the end of each Business Day.

11.1.4 Report format

The report is in **csv file format**.

11.1.5 Data model report names

- GSH_TRADE_SINGLE (existing)
- GSH_TRADE_RANGE (existing)

11.1.6 Report delivery

You can retrieve the reports using the following methods:

- **GSH Publishing Direct**
- **Participant File Server > <#PARTICIPANTID>\IMPORT\REPORTS\CSVReports**
- **Data Interchange**

11.1.7 Report changes

New field	Description
Gas Future ID	ASX identifier for the transaction

11.1.8 Report details

For Data Model table details, see [GSH_TRADES](#)

Field Name	Examples
MARKET_ID	GSH
BUYER_PARTICIPANT_CODE	ABCD
BUYER_PARTICIPANT_NAME	ABC Energy Retail Ltd
SELLER_PARTICIPANT_CODE	ARRO
SELLER_PARTICIPANT_NAME	Arrow Energy Trading Pty Ltd
FROM_GAS_DATE	9/12/2021 0:00
TO_GAS_DATE	9/12/2021 0:00
TRADE_ID	16276
TRADE_DATETIME	8/12/2021 9:59
TRADE_TYPE	OFF_MARKET_TRADE
PRODUCT_LOCATION	WAL
PRODUCT_TYPE	Gas - NG DA Days
TRADE_QUANTITY	10000
TRADE_PRICE	12
DELIVERY_POINT	WAL HP Trade Point
ORDER_ID	47081
LAST_UPDATED	8/12/2021 10:00
LASTCHANGED	8/12/2021 10:00
BUYER_USER_NAME	abcd_trader1
SELLER_USER_NAME	arro_trader2

Reports

Field Name	Examples
RELATIONSHIP_ID	0
RECEIPT_POINT	Preston Withdrawal
VALID_SERVICE_REFERENCE	
VALID_STTM_CONTRACT_REFERENCE	
VALID_DWGM_REFERENCE	
TRADE_STATUS	FIRM
GAS_FUTURE_ID	ASX-AEMO-0722-AA0008

11.2 GSH future trade submission report (new)

11.2.1 Purpose

Reporting EFP Trade Information to Trading Participants.

11.2.2 Report recipients and contents

Relevant trading participants

Contains all relevant records with an end date in the future, confirming EFP Trade submissions. This report is sent to each relevant Trading Participant with their submissions only.

11.2.3 Report trigger

The report is sent:

1. Each time there is an EFP Trade Submission.
2. Each time there is an EFP Trade match.

11.2.4 Report format

The report is in **csv file format**.

11.2.5 Data model report name

- GSH_FUTURE_TRADE_SINGLE (new)

11.2.6 Report delivery

You can retrieve the report using the following methods:

- **GSH Publishing Direct**
- **Participant File Server > <#PARTICIPANTID>\IMPORT\REPORTS\CSVReports**
- **Data Model/Data Interchange**

11.2.7 Report details

Report details

For data model table details, see [New table: GSH.TRADES_STAGING](#).

Field Name	Example
MARKET_ID	GSH
GAS_FUTURE_ID	ASX-AEMO-1234-BT2949
PRODUCT_GROUP_CODE	GAS-WAL
PRODUCT_TYPE_CODE	Gas - NG Months
DELIVERY_POINT	WAL HP Trade Point
START_DATE	1/4/2022
END_DATE	30/4/2022
TRADE_TYPE	SELL
VOLUME	55
PRICE	13.65
STATUS	Pending
VALIDATION_MSG	Enter a price with only 2 decimal places, e.g: 1050.23
SUBMITTED_TIME	30/4/2022 15:23:12



11.3 Report examples

11.3.1 Trade execution report example

A	B	C	D	E	F	G	H
1	C NEMT15.WORLD	GSH_TRADE_SINGLE	AEMO	ABCCOMP	25/02/2020	9:10:26	304062725 GSH
2	I GSH	TRADES	3	MARKET_ID	BUYER_PARTICIPANT_CODE	BUYER_PARTICIPANT_NAME	SELLER_PARTICIPANT_CODE
3	D GSH	TRADES	3	GSH	ABCD	ABC Energy Retail Ltd	
4	C END OF REPORT		4	ASX-AEMO-1234-AB5678			
5							

L	M	N	O	P	Q	R	S	T	U	V
1										
2	TRADE_ID	TRADE_DATETIME	TRADE_TYPE	PRODUCT_LOCATION	PRODUCT_TYPE	TRADE_QUANTITY	TRADE_PRICE	DELIVERY_POINT	ORDER_ID	LAST_UPDATED
3	6236	25/02/2020 9:09	AUTO_MATCHED	ICF	Gas - NG DA Days	500	1.1	Preston Injection	47081	25/02/2020 9:09
4										
5										

Y	Z	AA	AB	AC	AD	AE
1						
2	RELATIONSHIP_ID	RECEIPT_POINT	VALID_SERVICE_REFERENCE	VALID_STTM_CONTRACT_REFERENCE	VALID_DWGM_REFERENCE	TRADE_STATUS
3	0	Preston Withdrawal				FIRM
4						GAS_FUTURE_ID
5						AEMO-1234-AA5678

11.3.2 GSH future trade submission report example

A	B	C	D	E	F	G	H	I	J	K	L
1	C NEMT15.WORLD	GSH_FUTURE_TRADE_SINGLE	AEMO	PARTID	26/04/2022	15:14:03	351626158	GSH	351626157		
2	I GSH	TRADES	1	RECORD_ID	MARKET_ID	GAS_FUTURE_ID	PRODUCT_GROUP_CODE	PRODUCT_TYPE_CODE	DELIVERY_POINT	START_DATE	END_DATE
3	D GSH	TRADES	1	nnnnn	GSH		GAS-WAL	Gas - NG Months	WAL HP Trade Point	1/05/2022 0:00	31/05/2022 0:00
4	C END OF REPORT		4								
5											

12 Gas Data Model

This Release includes the EFP Trade Submission reports only.

For details about the Gas Data Model version 2.2 with the changes to packages, tables, files, reports, and interfaces for this project, see [Technical Specifications > Gas Markets and systems > Gas Data Model v2.2 - Technical Specification - September 2022](#).

Gas participants can use the pdrBatcher and pdrLoader to load INT reports into their Data Interchange instances.



13 FAQs

13.1 What is the format of the Gas Future ID?

ASX-AEMO-NNNN-NNNN

13.2 What is the length of the Gas Future ID?

20 Alphanumeric characters.

13.3 Is the Gas Future ID sequential or random e.g. can it be easily guessed?

The Gas Future ID is private. Only Participant Users of the Participant ID with access rights can see it.

13.4 Can another trader see a trade I submitted?

No AEMO's security model prevents others seeing your trades. Only Participant Users of the Participant ID with access rights can see your EFP Trades.

13.5 How do I submit a trade?

You can submit an API, upload a csv Payload to the Markets Portal, or enter the EFP Trade manually in the Markets Portal interface. For more details, see [EFP Trade Submission](#).

13.6 How do I change a pending trade?

See [Changing a pending trade](#) on page 35.

13.7 Is there a preferred date format?

Yes, YYYY/MM/DD.



13.8 Is it a date/time or just a date?

Just a date.

13.9 How do you access the reports?

From GSH Publishing Direct in the Markets Portal. For details, see [Report delivery](#).

13.10 When is a EFP trade created?

When the buyer and seller submit EFP Trade Information and the Gas Future IDs match.



14 Implementation

14.1 Transition

For details, see [Participant Impact](#).

14.2 Upgrading

You can upgrade your pre-production or production Data Model environments once you receive the Data Model scripts. Applying the scripts sets up the new Data Model structure on your local database. You receive the same data until the new versions of fields, files, and reports are released into pre-production or production and you update your subscriptions.

For help, see:

- [Upgrading your DI environments](#)
- [Updating your subscriptions](#)

14.3 Implications

To maintain systems in-line with AEMO's market systems, participants need to:

- Review and assess the impact on their market systems with respect to the changes implemented as part of this Release.
- Change their systems prior to the implementation of this Release.
- Schedule staff and resources to upgrade their market systems for the production implementation of this Release.

14.4 Risks

- No risks identified.

15 Terms

15.1 Rule and agreement terms

You can find the following terms defined in the [National Gas Rules \(NER\)](#) and the [GSH Exchange Agreement and Guides](#):

Term	Term	Term
AEMO	Exchange Agreement	Registered Participant
ASX	Gas Day	Settlements
Business Day	Market Participants	Trader
Delivery Netting	Monthly	Trading Margin
Delivery Period	Monthly product	Trading Participant
D-n	Physical Delivery	EFP Trading Window
EFP Trade	Product	Transactions
Exchange for Physical	Prudential Requirements	
Exchange	Reallocation	

15.2 Glossary

Abbreviation/Term	Explanation
AEST	Australian Eastern Standard Time
Data Interchange	A set of cooperating applications used to replicate data between AEMO's energy market systems and a participant's DBMS conforming to the Data Model
Data Model	The definition of the interface to participants for data published by AEMO
EFP	Exchange of futures for physical
EFP Trade	EFP Trade Submission having 1 sell and 1 buy with a matching Gas Future ID
EFP Trade ID	Gas Future ID
EFP Trade Information	The information submitted to AEMO in an EFP Trade Submission

Abbreviation/Term	Explanation
EFP Trade Record	A row or itemList in an EFP Trade Submission
EFP Trade Submission	EFP Trade Information (Preliminary or Final) provided to AEMO by Trading Participants stored in the GSH database for matching and audit purposes
EFP Trading Window	Between the Start and End Dates: Start Date: First Gas Day of the Delivery Period minus 14 Calendar Days End Date: First Gas Day of the Delivery Period minus 2 Calendar Days
Final EFP Trade Submission	Information provided to AEMO by Trading Participants during the EFP Trading Window with the Gas Future ID and the Final Price. Providing the information passes validation, AEMO uses it in Prudential Calculations
Final Price	The final price for the EFP Trade must be an amount equal to the final settlement price for the ASX Futures Contract.
GD	Gas Day
GSH	Gas Supply Hub
Gas Future ID	The EFP Trade Identifier required for a Final EFP Trade Submission
Legacy File	AEMO market system software releases support the Latest (n) and Legacy (n-1) integrations to AEMO's market systems, allowing maintenance of participant interfaces across the system implementation at the AEMO end AEMO refers to the previous version as the Legacy version, for example NETWORK_OUTAGE_LEGACY AEMO expects participants to complete the corresponding release implementation at their end, moving from Legacy to Latest. Once participants upgrade their systems to the latest release, there is no requirement to maintain the Legacy report subscriptions
Markets Portal	Software, hardware, network, and related processes to implement the Energy market for Registered Participants. Requires access to MarketNet.
Participant ID	Registered participant identifier
Payload	The csv file
Preliminary EFP Trade Submission	Optional information provided to AEMO by Trading Participants prior to the expiry of an EFP Trade (does not have a Gas Future ID). The Preliminary EFP Trade Submission price is the most recent daily settlement price of the Futures product. The price used in the Preliminary EFP Trade Information is indicative only and may change for the Final EFP Trade Submission.
Prudential Calculation	GSH Settlements and Prudential Methodology
Release	GSH - Technical Specification - October 2022

Terms

Abbreviation/Term	Explanation
Release Dates	Pre-production: Friday 2 September 2022? Production: Thursday 6 October 2022
TBC	To be confirmed



16 References

Guide to AEMO's e-Hub APIs: Provides details about using AEMO's e-Hub as an interface to communicate information with AEMO. It assists Wholesale electricity and gas participants developing their own APIs.

Guide to User Rights Management: Assists participant administrators (PAs) to use the user rights management functions in the Markets Portal.

Guide to Information Systems: Information about AEMO's Market Systems.

16.1 GSH

Exchange Agreement and Guides: Guides, forms, and agreements relating to the operation of the Gas Supply Hub (GSH).

16.2 Prudentials

Information about GSH prudential support.

16.3 Data interchange and data model resources

16.3.1 About

Information about setting up a Data Interchange environment: Data Interchange Help > [About Data Interchange](#).

16.3.2 Help

- [Data interchange online help](#)

16.3.3 Software

You can find Data Interchange software in the following locations:

- Data Interchange Help > [Software Releases](#).

- Releases directory on the participant file share: FTP to 146.178.211.2 > Data Interchange, pdrBatcher, pdrLoader, or pdrMonitor.

16.3.4 Reports

- Data Interchange Help > [Data Model Reports](#).

16.3.5 Releases

- Data Interchange Help > [Release Documents](#).

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