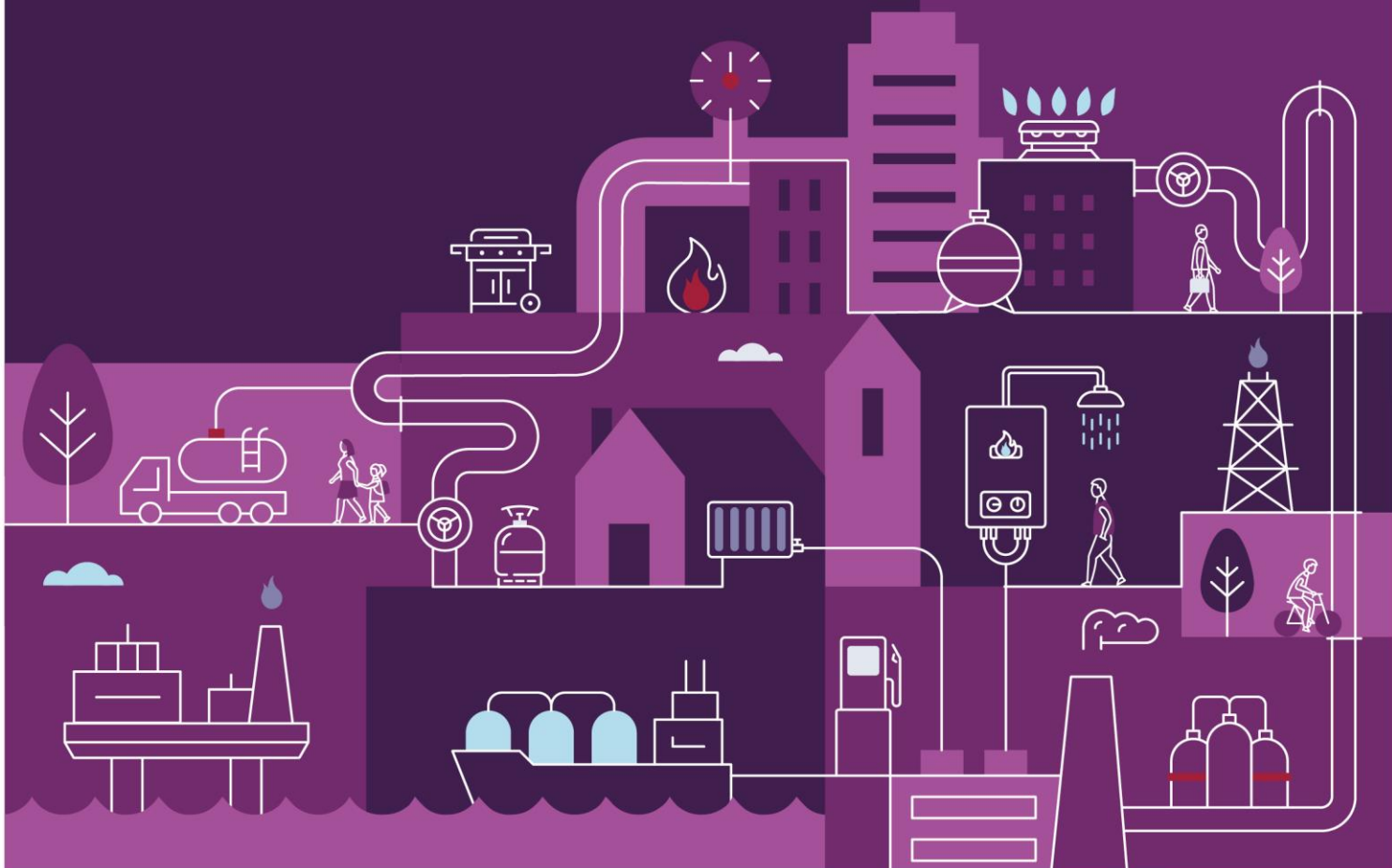# Discussion Paper ASX Wallumbilla Futures Product

February 2022

GSH Exchange Agreement changes to facilitate the ASX Wallumbilla Futures being physically delivered on the GSH.

AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

1 Purpose

The purpose of this paper is to seek feedback on proposed changes to the GSH Exchange Agreement (and related methodologies) to facilitate the delivery of the ASX Wallumbilla Gas Futures Product. The feedback provided by stakeholders will be considered by AEMO in the development of an Impact and Implementation Report (IIR) to assess the proposed changes.

2 Introduction

The current ASX gas futures contract is cash settled based on the Wallumbilla day-ahead benchmark price. There is no trading activity in the existing product, with participants concerned about basis risk associated with hedging using the product.

It is proposed that the existing Wallumbilla futures product is replaced by a new physical futures product on the ASX. This new physical product definition would result in any open positions at the expiry of trading being delivered through the AEMO Gas Supply Hub. This proposed approach to a physical gas futures product would eliminate the basis risk issue associated with the current ASX product. The proposal has been supported by the Commonwealth Government through the Wallumbilla review work. The development of the proposal has been industry-led and provides an opportunity to develop a liquid, transparent forward market for the trading of natural gas at Wallumbilla.
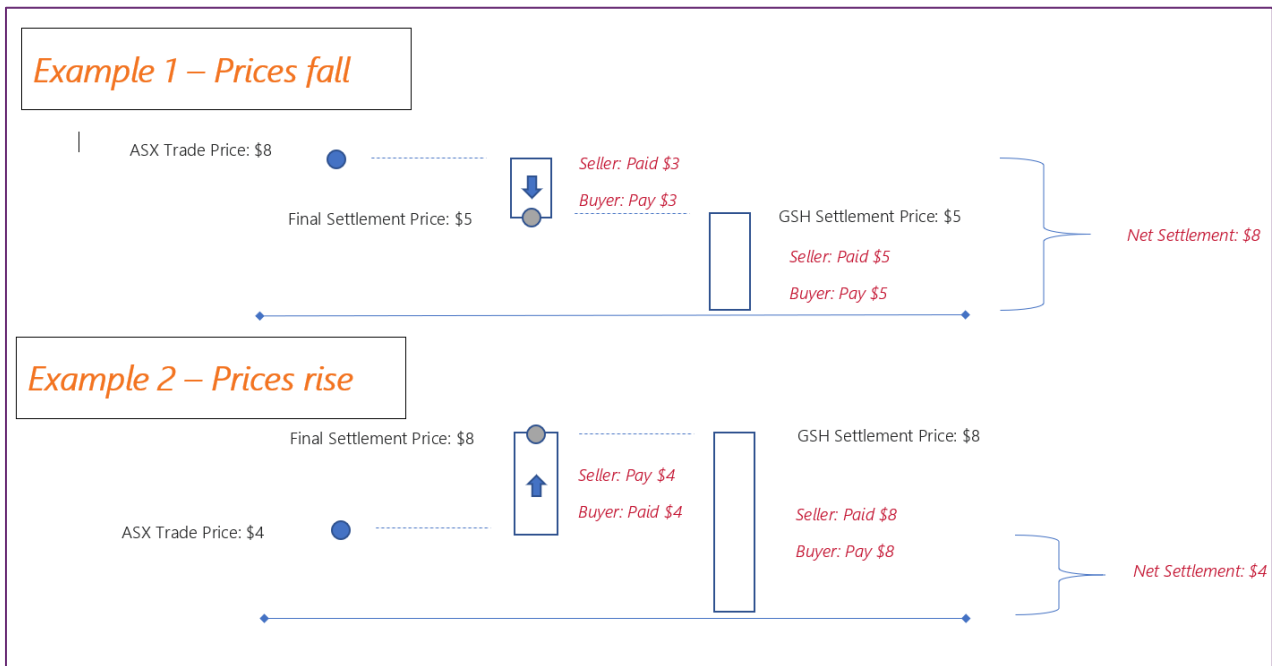
3 Overview of Approach

The ASX will amend the structure of the Wallumbilla Gas Futures to a physically delivered gas futures product. Physical delivery will be facilitated through AEMO's Gas Supply Hub (GSH) market as a monthly netted Trade at the Wallumbilla High Pressure Trade point.

AEMO understands that the ASX will list gas futures contracts with a trading window of up to 36 months. The futures trading arrangements will be consistent with current arrangements for the ASX electricity (NEM) and gas futures (Victoria) products with the determination of daily settlement prices and margining of positions (through the ASX clearing house). Futures products traded on the ASX will expire 5 business days prior to the first day of the relevant delivery month.
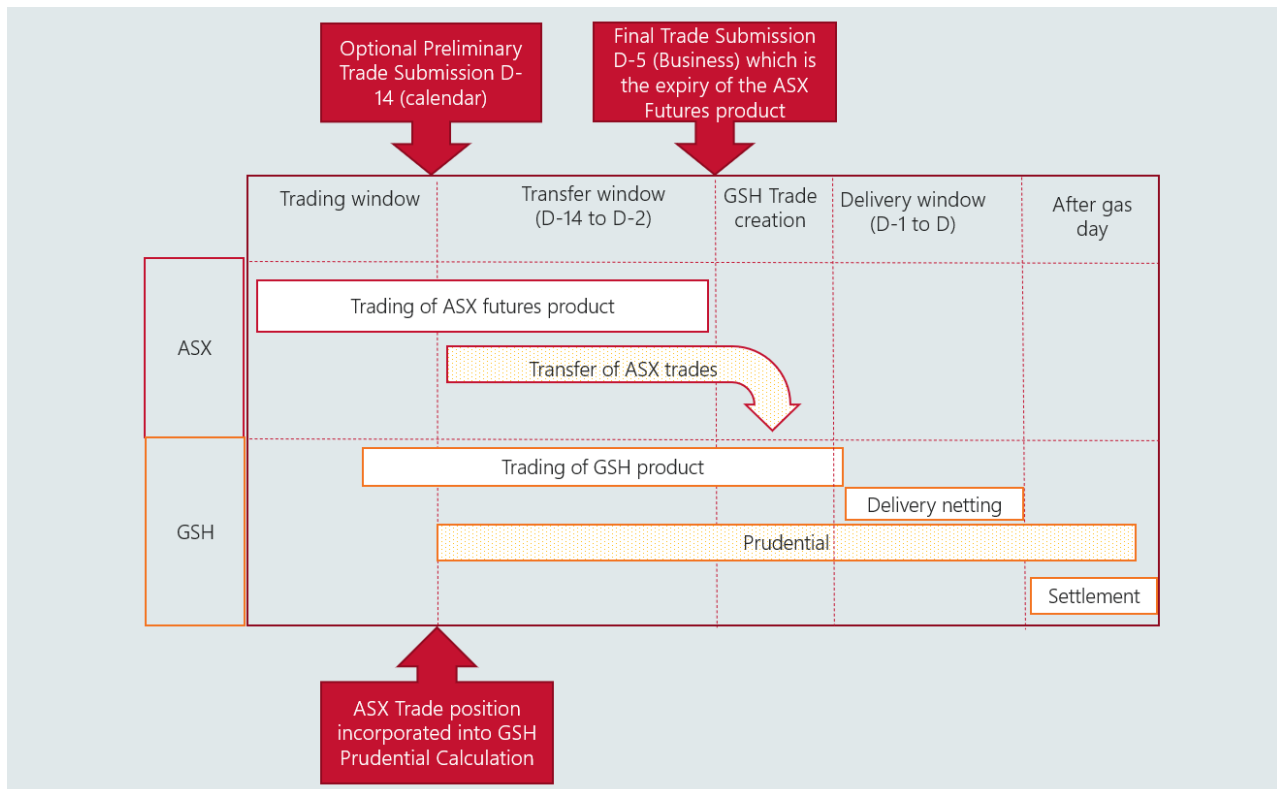
At expiry of the ASX gas futures product, open interest will be transferred into GSH Wallumbilla monthly transactions. Once open interest is transferred into the GSH, the trades will be treated like all other GSH Wallumbilla trades for the purpose of gas delivery, settlement (including fees) and prudential.

The total settlement of the product will in effect be across both the ASX via daily margining and on the GSH as per current arrangements for the settlement of transactions. For Trading Participants holding positions through to delivery, the net settlement across the markets will be equal to the original ASX Wallumbilla Futures trade price.

Settlement Examples

Example 1 – Prices fall

ASX Trade Price: $8

Final Settlement Price: $5

Seller: Paid $3
Buyer: Pay $3

GSH Settlement Price: $5

Seller: Paid $5
Buyer: Pay $5

Net Settlement: $8

Example 2 – Prices rise

Final Settlement Price: $8

ASX Trade Price: $4

Seller: Pay $4
Buyer: Paid $4

GSH Settlement Price: $8

Seller: Paid $8
Buyer: Pay $8

Net Settlement: $4

Futures transfer process from ASX to AEMO

Optional Preliminary Trade Submission D-14 (calendar)

Final Trade Submission D-5 (Business) which is the expiry of the ASX Futures product

	Trading window	Transfer window (D-14 to D-2)	GSH Trade creation	Delivery window (D-1 to D)	After gas day
ASX	Trading of ASX futures product	Transfer of ASX trades			
GSH		Trading of GSH product		Delivery netting	
		Prudential			Settlement

ASX Trade position incorporated into GSH Prudential Calculation
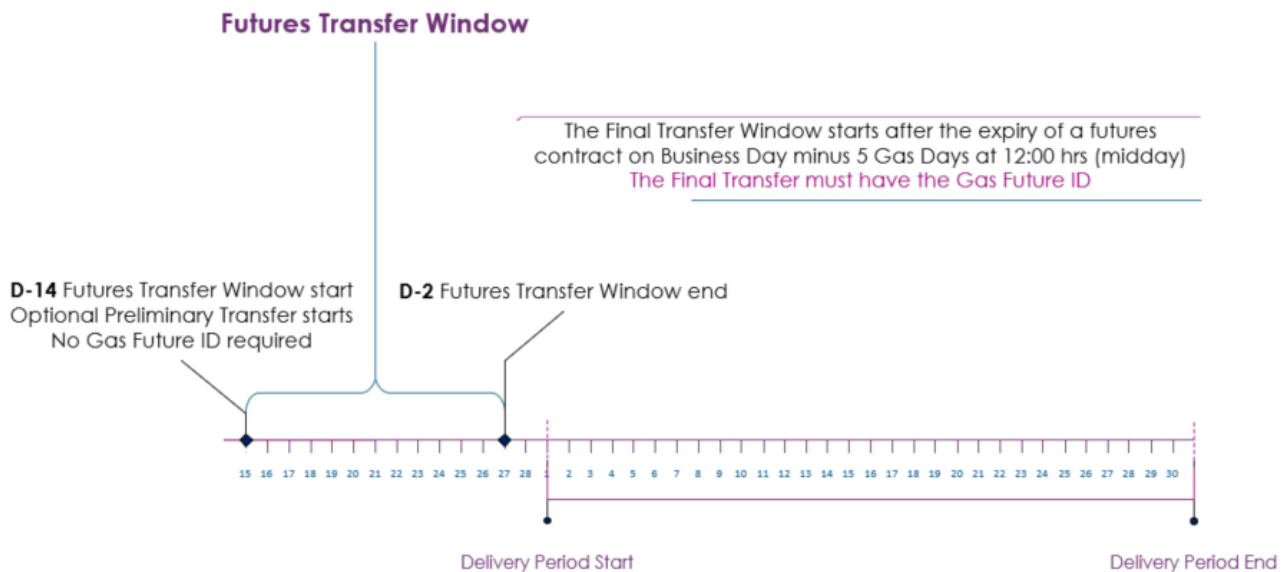
Preliminary transfer (optional)

Prior to the expiry of a futures contract, Trading Participants may provide AEMO with preliminary transfer information from 14 days prior to the delivery month (D-14), allowing time for registration and credit status to be checked if required by the ASX or clearing parties.

The preliminary transfer allows Trading Participants to show their clearing party that they are able to make the transfer to AEMO. This will provide time to either close out their open position or take steps to ensure the position is deliverable by posting more prudential with AEMO.

AEMO will use the preliminary transfer information in prudential calculations (see prudential calculation changes section in this paper for more detail).
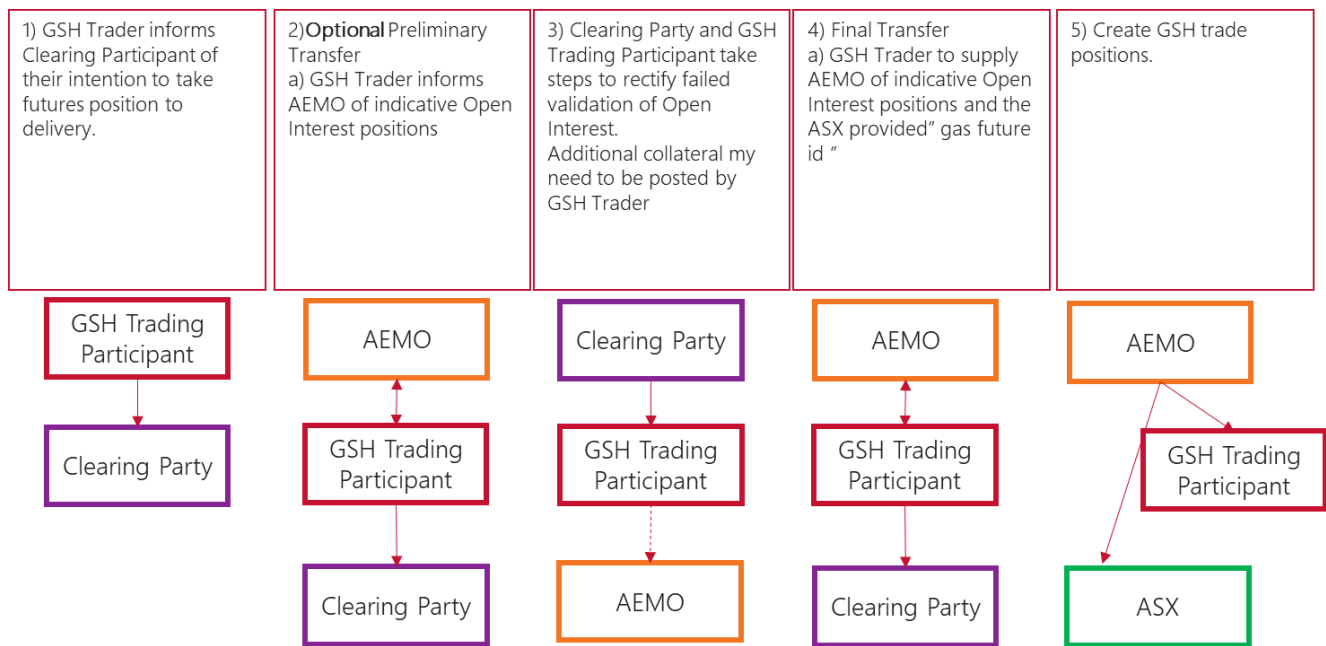
Final transfer

Following the expiry of a futures contract, Trading Participants must submit the final transfer information to AEMO (containing a 'gas future id'). The gas future id is provided by the ASX to Clearing Participants. Any transfer is deemed to be a final transfer if it includes a gas future id. The transfer submission window ends at the end of D-2.

Futures Transfer Window

The Final Transfer Window starts after the expiry of a futures contract on Business Day minus 5 Gas Days at 12:00 hrs (midday)
The Final Transfer must have the Gas Future ID

D-14 Futures Transfer Window start
Optional Preliminary Transfer starts
No Gas Future ID required

D-2 Futures Transfer Window end

15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Delivery Period Start

Delivery Period End

4 Facilitating the delivery of ASX Gas Futures

Futures Transfer Process

1) GSH Trader informs Clearing Participant of their intention to take futures position to delivery.	2) **Optional** Preliminary Transfer a) GSH Trader informs AEMO of indicative Open Interest positions	3) Clearing Party and GSH Trading Participant take steps to rectify failed validation of Open Interest. Additional collateral my need to be posted by GSH Trader	4) Final Transfer a) GSH Trader to supply AEMO of indicative Open Interest positions and the ASX provided" gas future id "	5) Create GSH trade positions.

End-to-end process for Information exchange and GSH Monthly Trade creation.

Step	Action	State	Who	Where	When
1.	Inform the Clearing Party of intent to make a Physical Delivery	Required	Trading Participants	Participant systems	Prior to the Preliminary Transfer Window
2.	Submit Preliminary Transfer Information (**without** gas future id)	Optional	Trading Participants	One of the submission interfaces(Markets Portal using webform or uploading CSV ,API)	During the Preliminary Transfer Window
3.	Validate Preliminary Futures Trade information	Required	AEMO	AEMO systems	

Step	Action	State	Who	Where	When
4.	Rectify any failed validation	If submission rejected	Trading Parties	Participant systems	
5.	Send reports	Valid submission	AEMO	For details, see reports	
6.	Utilise the Preliminary Transfer Information	If validated	AEMO	Prudential Calculations	
7.	Rectify any breaches	Close out unrectified positions	Trading Parties	Participant systems	
8.	Submit Final Transfer Information **with** gas future id	Required	Trading Participants	One of the submission interfaces(Markets Portal using webform or uploading CSV ,API)	During the Final Transfer Window
9.	Validate Final Futures Trade information	Required	AEMO	AEMO systems	
10.	Create GSH trade position	If validated	AEMO	AEMO systems	
11.	Send reports	GSH trade created	Trading Parties and ASX	For details, see reports	

Validations

Once the data transaction is processed, AEMO responds with a report to the ASX and Traders that will confirm the validation/rejection.

Unregistered GSH Trading Participants or those without sufficient Trading Margin in the GSH cannot transfer open interest into GSH trading positions.

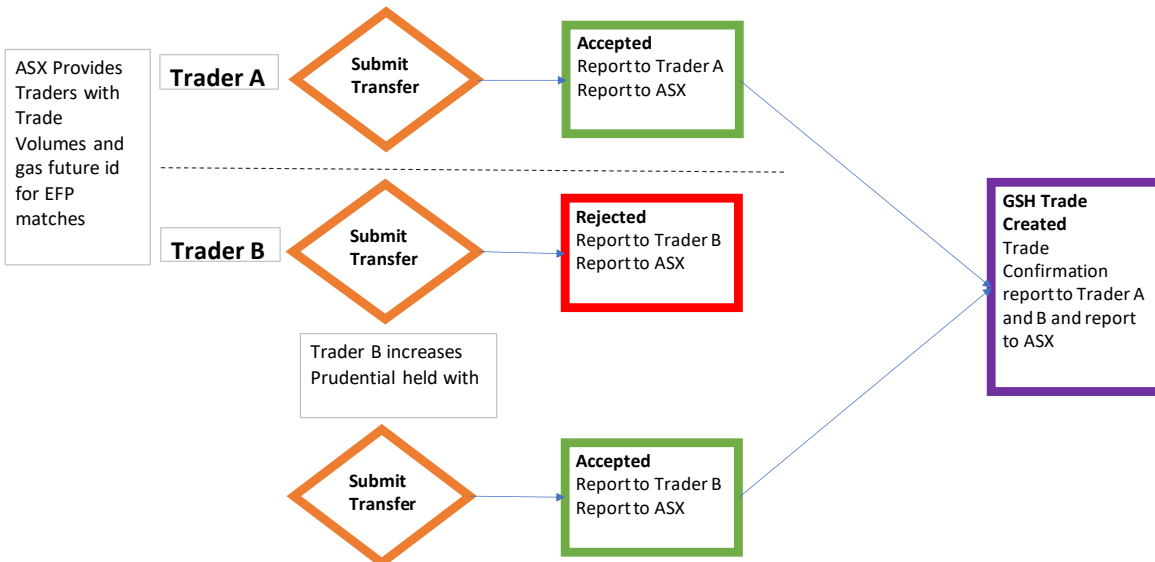The validations that will be performed include:

- Registration in the GSH
- Prudential sufficient to cover transfer
- Gas future id
- Contract Period

- Price

- Volume

- Buy/sell position

Information Transfer Process
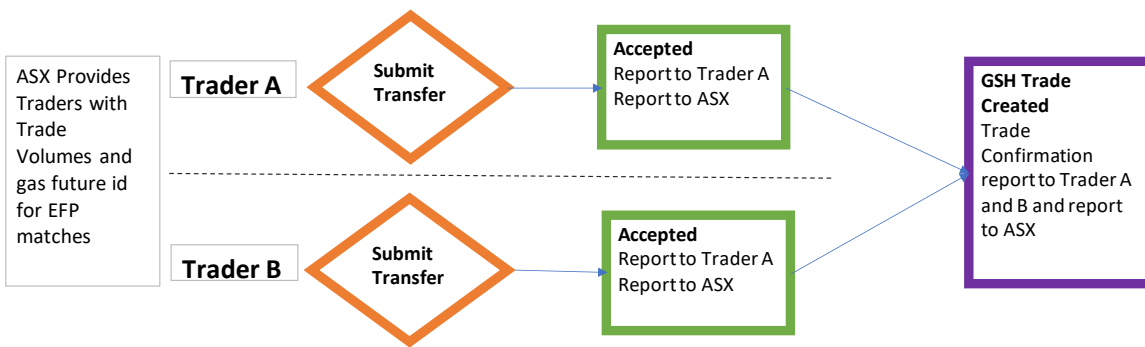
Information Transfer Process rejection work flow

Matching and GSH Trade creation

Following the final transfer and validation, when a matching (gas futures id) contract period, price, volume and position) validated trade is entered AEMO generates a GSH monthly netted trade.

Gas Delivery

Once transferred into the GSH, the gas futures positions would be treated like all other GSH trades for the purpose of gas delivery. A trader can adjust, or trade out of, a position in the GSH ahead of the daily delivery netting run.

As with all Wallumbilla trades, delivery netting would be performed at 1pm on the day prior to each gas delivery day. The delivery netting run considers all Monthly (including ASX transferred positions), Weekly and Daily trades for a specific gas day.

No change to the delivery netting process or systems are proposed.

Settlement

Financial settlement of positions transferred from the ASX would be in accordance with the regular settlement arrangements for Monthly products on the GSH. The final settlement price determined by the ASX would be used as the trade price for the purpose of GSH settlement.

The net settlement of a trade across the ASX and GSH equals the transaction value of the trade executed on the ASX. The proposed arrangement would mean that there is no risk that settlement prices become misaligned between the ASX and AEMO (as is possible under the current product).

Prudential calculation changes
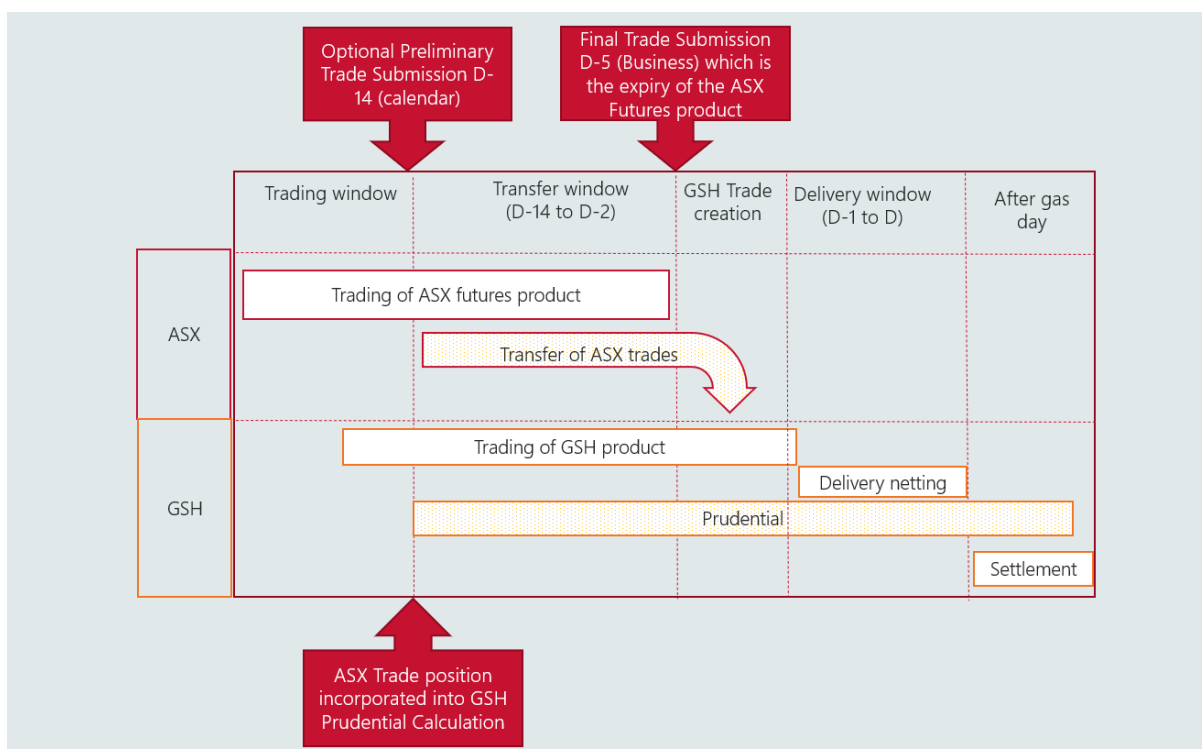
The GSH Prudential Calculation determines the potential credit exposure associated with the settlement of a Trading Participant's transactions in the GSH. This calculation is proposed to be amended to incorporate ASX positions, allowing:

A credit validation to occur when the Clearing Party transfers Open Interest information to AEMO.

Incorporation of likely exposures associated with ASX futures positions during the Futures Transfer Window, so a Trading Participant does not use up spare Trading Margin required for those trades.

A Trading Participant with offsetting buy and sell trades, like a Market Maker, to avoid unnecessary collateral requirements.

Inputs into the Prudential Calculation for Gas Futures Transfers are:

- Transaction price and volumes
- Order price and volumes
- *Futures trade price and volumes*

Gas Futures Transfers information is included in the Forward Exposure calculation between the Preliminary Transfer Window Start and End Dates.

See Appendix B for full details of the prudential changes.
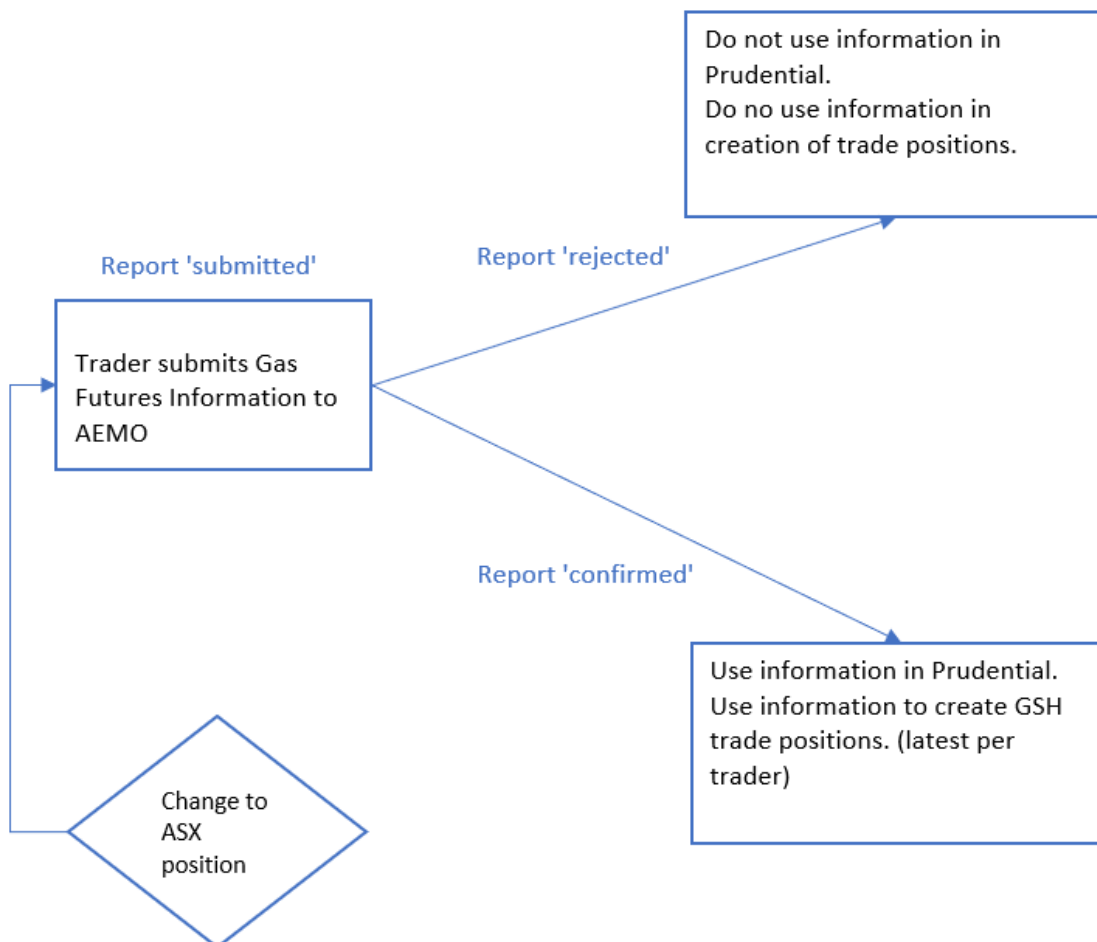
Reporting

The ASX already receive report information from AEMO in relation to NEM, GSH and DWGM futures. Data will be shared with the ASX using the existing report set-up.

NEM Reports will be used for reporting information to ASX and Traders.

Reports will be Event triggered: Produced each time there is a submission, matching and trade creation.

There will be a new report "GSH Transfer Information Report", which will be sent to both Trader and ASX every time there is a submission.

The "GSH Transfer Information Report" includes the following information

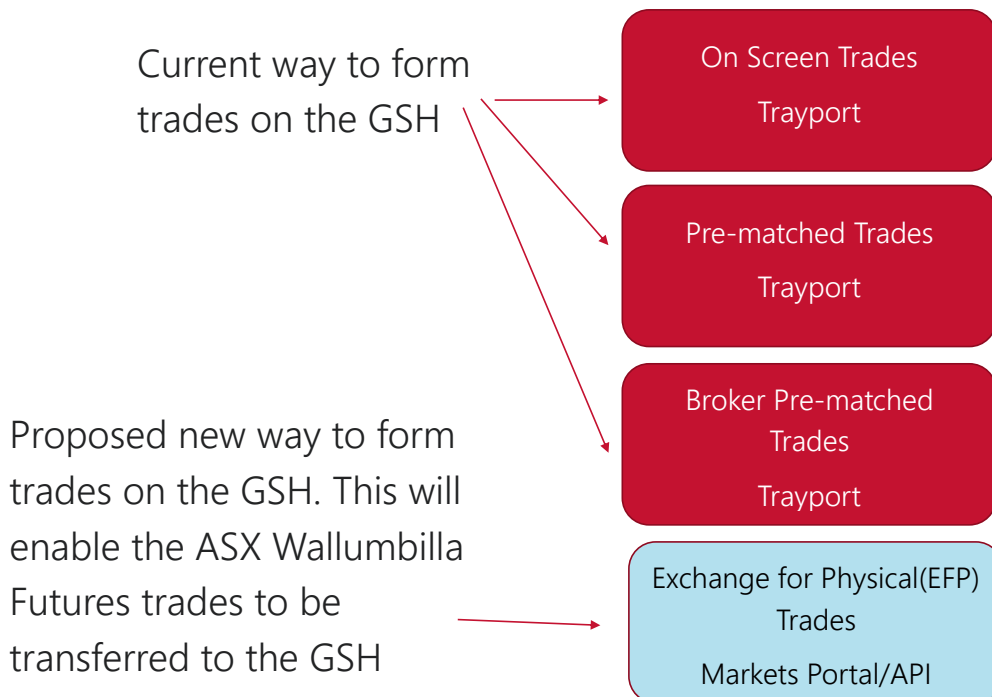|	Field	Description	Source
	Record ID	Unique record generated by AEMO when storing information in database.	Information generated on submission
Submission date and time	Date and time of submitting action taken		
	Submitting action	Submitted, Matched	
Validation	Pass, Fail		
	Validation reason	If record fails validation, record the reason for the failure. 'ABC Trader does not have sufficient trading margin'	
gas future id	ASX identifier for the transaction		
	PRODUCT_GROUP_CODE	GAS-WAL	Information provided by Trading Participant
PRODUCT_TYPE_CODE	Gas - NG Month		
	DELIVERY_POINT	WAL HP Trade Point	
Contract start date	Start and end gas day of contract designate the contract. GSH uses gas day start and end date to specify the trade period.		
	Contract end date	Start and end gas day of contract designate the contract. GSH uses gas day start and end date to specify the trade period.	

Trading Participant	GSH participant name as specified in the GSH participant register. Null for report to Exchange		
	Trade type	Buy or sell	
Volume	Open Interest. Measured in GJ as per GSH convention		
	Price	Latest settlement price determined by the ASX.	

The current Trade Confirmation report on the GSH will have an addition field to include the "gas future id" this Trade Confirmation report will be sent to Trading Participants only.

5 Exchange Agreement Changes

To enable trades to be formed through and Exchange for Physical (EFP) process there will need to be amendments to the GSH Exchange Agreement in section 13 Forming Transactions. Currently trades are able to be formed in 3 ways; On screen, Off market and Broker pre matched all via the Trayport platform. The amendments to the EA will include a new way to form transaction via EFP that will be done outside the Trayport platform utilising the Markets Portal (existing System) and will allow for both manual entry, csv upload and API functionality.

Current way to form trades on the GSH

On Screen Trades
Trayport

Pre-matched Trades
Trayport

Broker Pre-matched Trades
Trayport

Proposed new way to form trades on the GSH. This will enable the ASX Wallumbilla Futures trades to be transferred to the GSH

Exchange for Physical(EFP) Trades
Markets Portal/API

See Appendix A for excerpt of the proposed new EA drafting.

AEMO System Changes
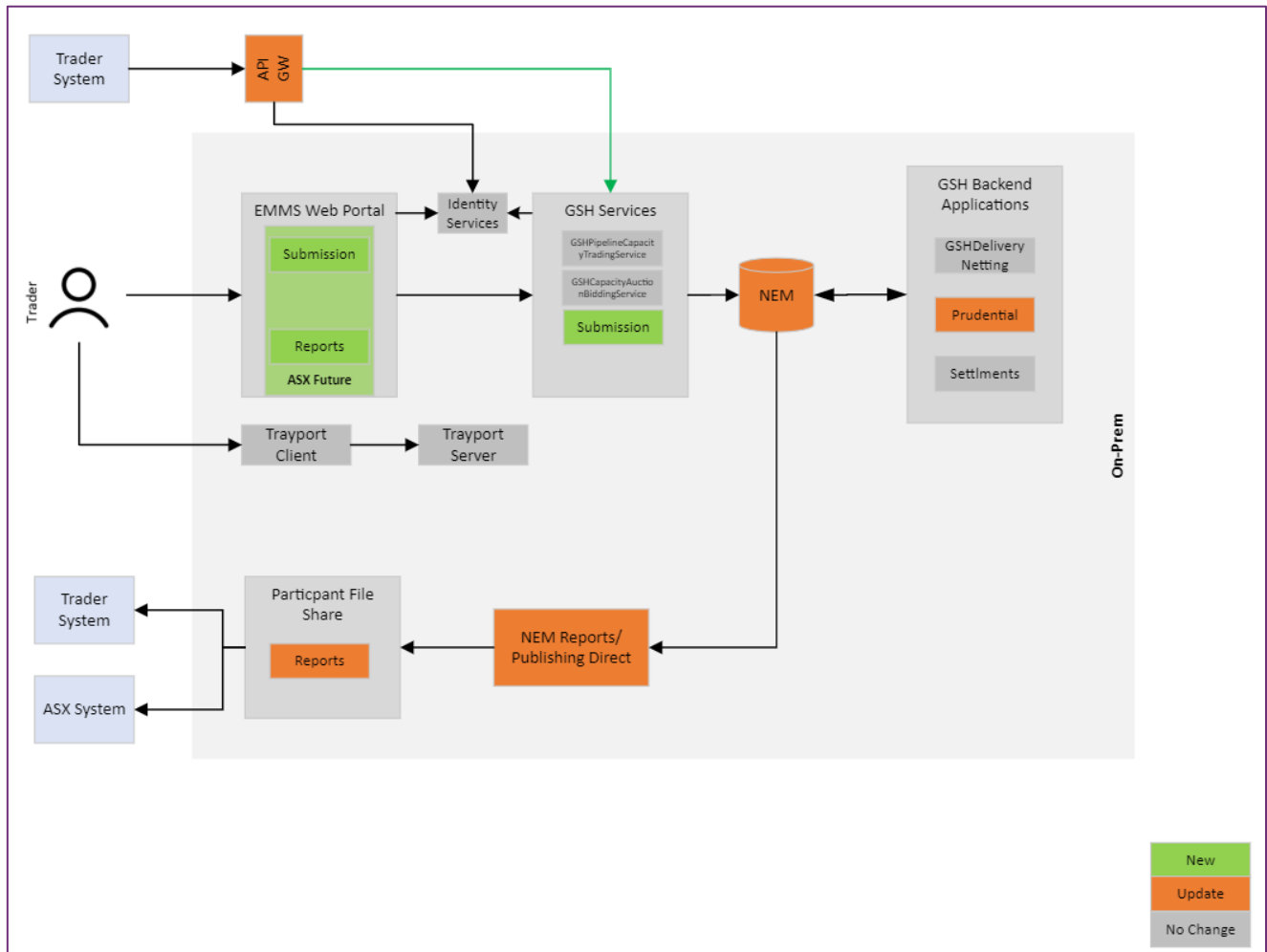
The changes to AEMO systems include a new web interface on Markets Portal, which will allow both manual entry and csv upload for the trade information that will be transferred from the ASX. An API option to upload will also be available.

There will also be new reports created from NEM Reports/Publishing direct.

The Prudential calculation will also need to be updated as outlined in this paper.

6 Targeted questions for Members Feedback

AEMO is requesting feedback from GSHRG members on the following questions. Responses are due by Friday 11th March 2022. Please send responses to gas_supplyhub@aemo.com.au

1. Should AEMO keep producing the Wallumbilla Benchmark price? If so, please explain how this information is useful to your business.
2. Is there any reason not to move all gas commodity products to have a minimum parcel size of 100GJ?
3. Other feedback to AEMO on the proposed changes to the Exchange Agreement and Prudential calculation regarding the changes to enable EFP transfer from the ASX Futures?

7 AEMO Next Steps

AEMO will collate feedback from consultation on this discussion paper and incorporate in an IIR. Consultation on the I&IR is expected to commence prior to the end of March 2022.

AEMO intends to release the new market system interfaces into the pre-production environment for industry testing in May 2022. The release into production, and the effective date for the Exchange Agreement changes, is planned for July to align with the ASX project timing.

A1. Appendix A

Excerpt of the **draft** changes to the GSH Exchange Agreement. Additions in Blue

13.4 Exchange for Physical (EFP) Trades

(a)   If permitted in the Product Specification for a particular Product;

    (i)   a Trading Participant for an EFP Trade for that Product may submit EFP Trade Information for the EFP Trade in the Trading System (**First EFP Trading Participant**); and

    (ii)   a Trading Participant that is the counterparty to that EFP Trade for that Product may submit EFP Trade Information for that EFP Trade in the Trading System (**Second EFP Trading Participant**),

during the EFP Trading Window for the Product.

(b)   Clauses 12.4 and 12.5 apply to the submission of EFP Trade Information for an EFP Trade.

(c)   In addition to clauses 12.4 and 12.5, the Operator must reject an EFP Trade in any of the following circumstances:

    (i)   the Gas Future ID in the EFP Trading Information submitted by the First EFP Trading Participant and the Second EFP Trading Participant does not match; or

    (ii)   the information in the EFP Trade Information submitted by the First EFP Trading Participant and the Second EFP Trading Participant does not match.

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(d)   The Operator will inform the First EFP Trading Participant and the Second EFP Trading Participant in the event the EFP Trade entered by the First EFP Trading Participant and the Second EFP Trading Participant is rejected.

(e)   An EFP Trade is formed between the Buyer and the Seller under that trade when the EFP Trade Information for the EFP Trade entered by the First EFP Trading Participant is matched and validated against the EFP Trade Information for the EFP Trade entered by the Second EFP Trading Participant in the Trading System.

(f)   To the maximum extent permitted by law, AEMO is not liable to any Member for any loss, damage, debt, obligation, action, cost (including legal costs, deductibles or increased premiums), expense, compensation, charge or liability of any kind (including fines or penalties) whether actual, prospective or contingent or currently ascertainable or not in connection with EFP Trade Information (including but not limited to any delay or failure to provide EFP Trade Information to AEMO) whether arising in contract, tort (including negligence) breach of duty or any other ground.

13.5 Confirmations

(a)   As soon as reasonably practicable after each Transaction is formed, the Operator must send a Confirmation to each Trading Participant whose Order was accepted.

(b)   Each Confirmation must specify the Trading System's identification number for the Transaction, whether the Trading Participant is the Buyer or Seller, the time the Transaction was entered into, the Product the subject of the Transaction, the details for the Transaction required by the

Product Specification and, where Delivery Netting does not apply, the identity of the other party to the Transaction.

(c)   Without limiting subclause (a) and (b), for an EFP Trade:

   (i)   a Confirmation must also specify Gas future ID; and

   (ii)   as soon as reasonably practicable after each EFP Trade is formed, the Operator must send a Confirmation to ASX and the Trading Participants for the EFP Trade are taken to consent to the disclosure of the Confirmation by the Operator to ASX.

A2. Appendix B

GSH Prudential equation amendment. Additions in Blue

Forward Prudential Exposure

Specification of Forward Exposure Calculation

ASX Trade Position: Is information provided to AEMO as part of a preliminary transfer submission.

1.   **Average Buy and Sell Price**
   a.   Average Buy Price for Member m, Gas Day d and Trading Location l:

$$ABP(m,d,l) = \Sigma_c\, \Sigma_{t'}\, (TP(t') \times TQ(t',d,c,l)) / \Sigma_c\, \Sigma_{t'}\, (TQ(t',d,c,l))$$

   Where t' is a Transaction, ASX Trade Position or Order where Member m is the Buyer.
   b.   Average Sell Price for Member m, Gas Day d and Trading Location l:

$$ASP(m,d,l) = \Sigma_c\, \Sigma_{t''}\, (TP(t'') \times TQ(t'',d,c,l)) / \Sigma_c\, \Sigma_{t^*}\, (TQ(t'',d,c,l))$$

   Where t'' is a Transaction or ASX Trade Position where the Member m is the Seller.

2.   **Trading Position**
   a.   Net Transaction Quantity for Member m for Gas Day d:

$$NTQ(m,d,l) = \Sigma_c\, \Sigma_{t'}\, TQ(t',d,c,l) - \Sigma_c\, \Sigma_{t''}\, TQ(t'',d,c,l)$$

   Where:
   i. t' is a Transaction, ASX Trade Position or an Order where Member m is the Buyer.
   ii. t'' is a Transaction where Member m is the Seller.
   b.   Offset Quantity for Member m for Gas Day d:

$$OFQ(m,d,l) = MIN(\Sigma_c\, \Sigma_{t'}\, (TQ(t',d,c,l)),\ \Sigma_c\, \Sigma_{t''}\, (TQ(t'',d,c,l)))$$

   Where:
   i. t' is a Transaction or an Order where Member m is the Buyer.
   ii. t'' is a Transaction or ASX Trade Position where Member m is the Seller.

3.   **Forward Trading Exposure**
   a. Forward Trading Exposure for Member m:

$$FTE(m) = \Sigma_d\, \Sigma_l\, [If\{ NTQ(m,d,l) > 0,$$
$$Then\ NTQ(m,d,l) \times ABP(m,d,l) \times B(d),$$
$$Else\ NTQ(m,d,l) \times ASP(m,d,l) \times S(d)\}$$
$$+ OFQ(m,d,l) \times (ABP(m,d,l) - ASP(m,d,l)) \times (1+GST(d))]$$

   Where Gas Day d ≥ processing day.

Worked example 1 for Gas Day 1st February as at 22nd Jan (in the preliminary transfer period)

ABC Gas Trading enter into GSH and ASX forward transactions:
- GSH Feb Month – 5TJ at $4
- GSH Week 31/1 to 6/2 – 5TJ at $5
- GSH Day 1 Feb – 5TJ at $6
- ASX Feb Gas Futures – 5TJ at $7

1.   Average Buy and Sell Price for 1 February (as at 22 January)
Average Buy Price

$$ABP(m,d,l) = \Sigma_c \Sigma_{t'} (TP(t') \times TQ(t',d,c,l)) / \Sigma_c \Sigma_{t'} (TQ(t',d,c,l))$$

= (20,000 + 25,000 + 30,000 + 35,000) / (5,000 + 5,000 + 5,000 + 5,000)

= 110,000 / 20,000

= $5.50 / GJ

    2.   Trading Position

Net Transaction Quantity

$$NTQ(m,d,l) = \Sigma_c \Sigma_{t'} TQ(t',d,c,l) - \Sigma_c \Sigma_{t''} TQ(t'',d,c,l)$$

= 5,000 + 5,000 + 5,000 + 5,000

= 20,000

Worked example 1 continued for GD 1st February as at 31st Jan (The trade has been matched in the staging table and the GSH trade created)

ABC Gas Trading enter into GSH and ASX forward transactions:
- GSH Feb Month – 10TJ at $5.5
- GSH Week 31/1 to 6/2 – 5TJ at $5
- GSH Day 1 Feb – 5TJ at $6

    2.   Average Buy and Sell Price for 1 February (as at 22 January)

Average Buy Price

$$ABP(m,d,l) = \Sigma_c \Sigma_{t'} (TP(t') \times TQ(t',d,c,l)) / \Sigma_c \Sigma_{t'} (TQ(t',d,c,l))$$

= (55,000 + 25,000 + 30,000) / (10000 + 5,000 + 5,000)

= 110,000 / 20,000

= $5.50 / GJ

    3.   Trading Position

Net Transaction Quantity

$$NTQ(m,d,l) = \Sigma_c \Sigma_{t'} TQ(t',d,c,l) - \Sigma_c \Sigma_{t''} TQ(t'',d,c,l)$$

= 10,000 + 5,000 + 5,000

= 20,000