

Gas Supply Hub Overview

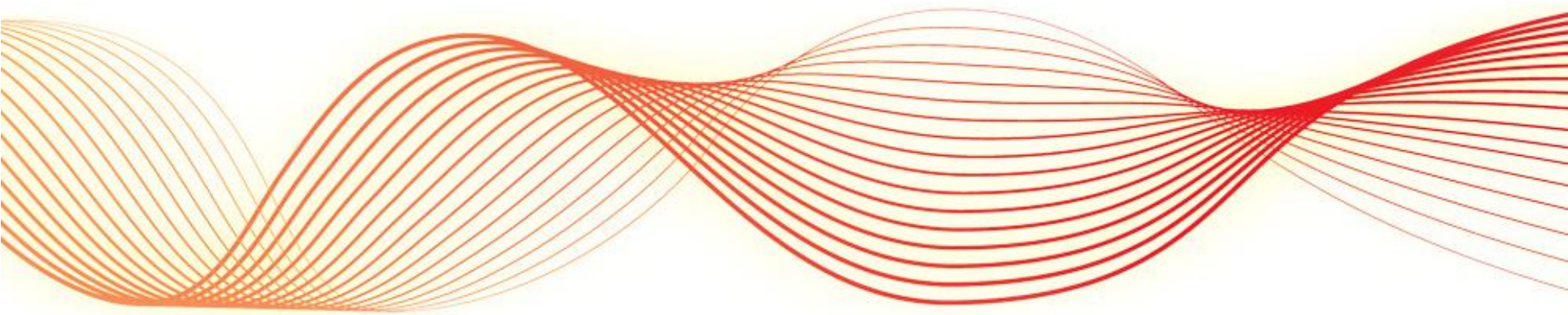
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Introduction



Agenda

- Background
- Trading – Products and Location
- Trade Execution
- Pipeline Capacity Listing Service
- Benchmark Price
- Market Operation
- Market Conduct
- Gas Delivery and Netting
- Settlements and Reallocations
- Prudential Monitoring
- Market Support
- Market Systems
- Registration
- Other Sources of Information

- **SCER initiative to review wholesale gas trading**
- **2012 AEMO delivered two reports to SCER**
 - Cost and Scoping Report: single trading zone vs. Brokerage model
 - Detailed Design: Brokerage model – physical trading locations
- **Consultation with industry throughout 2012**

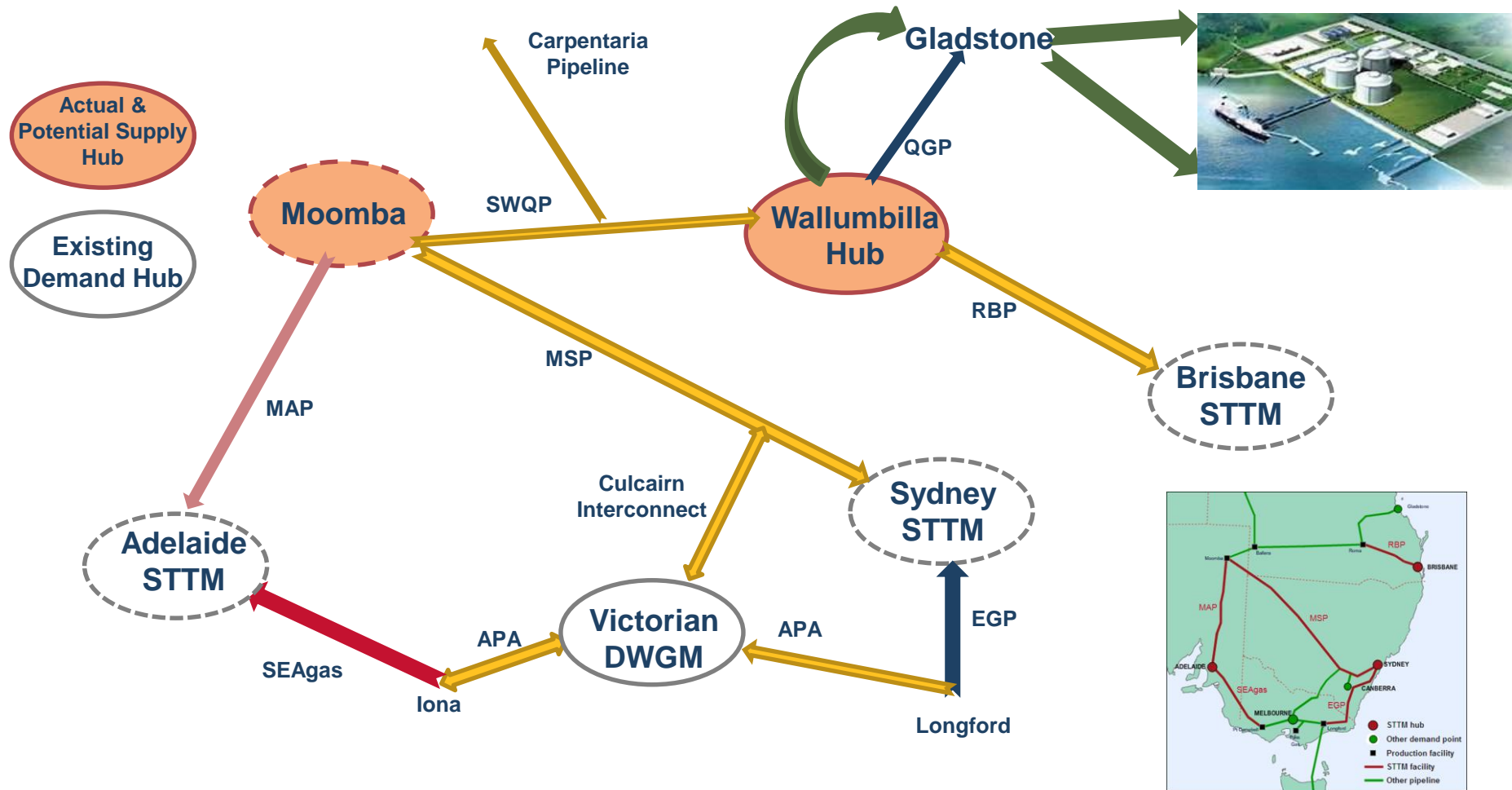
• AGL	Incitec Pivot	Macquarie Bank	GLNG
• Arrow Energy	APA Group	Infratil	GDF-Suez
• BG (QGC)	EPIC Energy	Jemena	AEMC
• BP	Santos	ICAP	AER
• BHP	Origin Energy	Rio Tinto	Commonwealth
• ExxonMobil	ERM	Energy Australia	Total (TPG)
• Stanwell	AP&G	Alinta Energy	

Background



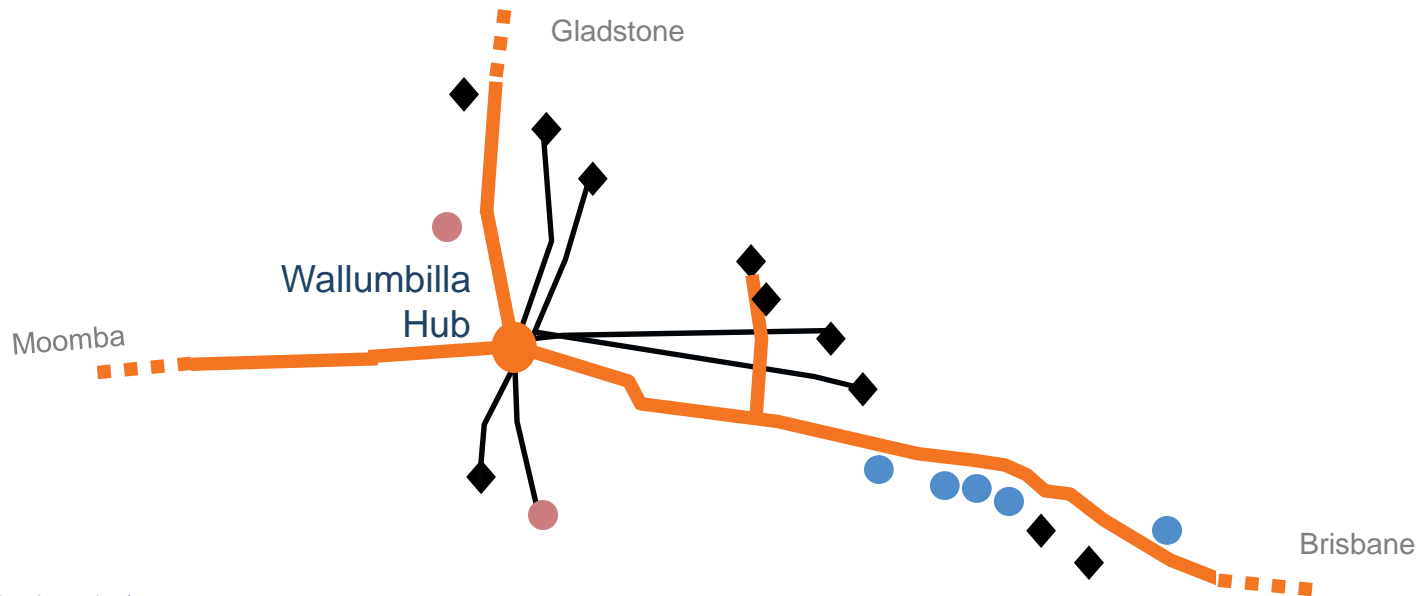
- **December 2012 – COAG Energy Council (SCER) requested AEMO to:**
 1. Implement Gas Supply Hub ‘brokerage model’ at Wallumbilla
 2. Develop forward-dated products
 3. Develop a mechanism to facilitate voluntary shipper-to-shipper trading of pipeline capacity
 - Capacity listing service
 - Standardised contracts
- **Gas Supply Hub commenced 20 March 2014**

East Coast Gas Market



Why Wallumbilla?

- Pipeline Interconnection
- Gas Fields
- Gas Storage
- Gas Demand



Legend

- Pipeline (with Trading Location)
- Other transmission pipeline
- ◆ Gas producer
- Power station
- Storage

Why a Gas Exchange?

Issues

- Growing need for short term transactions for portfolio management
- Long lead time for transaction approval
- Transaction costs
- Difficulty pairing gas commodity and capacity trades
- Lack of transparency



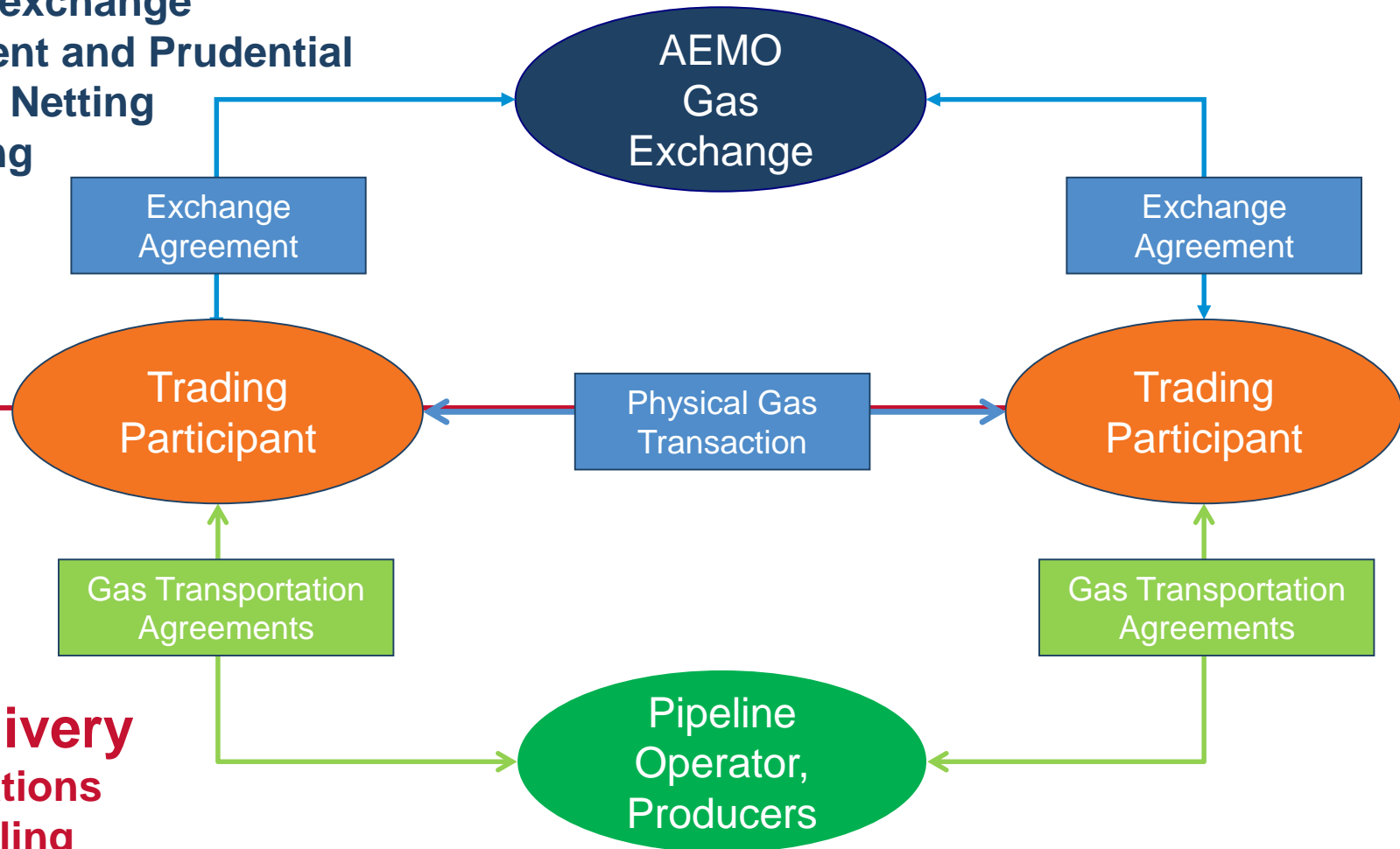
Outcomes

- Standardised terms for gas commodity and capacity trading
- Low cost transaction model
- Efficiency
- Capacity listing service
- Transparency

Market Framework

Gas Supply Hub

- Trading exchange
- Settlement and Prudential
- Delivery Netting
- Reporting



Gas Delivery

- Nominations
- Scheduling
- Metering and allocations

- **Voluntary participation**
- **Exchange traded contracts for physical delivery**
 - Anonymous order submission
 - Standardised contracts
 - Trades matched on price
 - Traders warrant ability to deliver and receipt gas
- **Gas Delivery**
 - Participants responsible for gas delivery
- **Centrally settled and cleared**
 - Lodge security with AEMO
 - Reallocations

Legal Framework



NGL

- AEMO statutory function to operate the market through which participants may trade.

NGR

- Provide for AEMO to make the Exchange Agreement the defining code for operation of the market
- Bind eligible participants to trading rules, market conduct.

Exchange
Agt.

- General criteria for participation.
- Trading, Gas Delivery, Settlement and Prudential processes.

Product
Spec.

- Specification of terms unique to each product including the Trading Location and Delivery Period.

Gas Trading Exchange



Server:

Time:



Ticker RBP
QGP SWQP

Ticker

Wallumbilla GSH Activity Ticker

15:20:46 - Inserted [QGP Balance Of Day Offer] 25 @ 5.75
 15:20:26 - Inserted [QGP Balance Of Day Offer] 25 @ 6.00
 15:18:57 - Inserted [QGP DA Sat 21/09/13 Offer] 2,000 @ 7.20
 15:18:30 - Inserted [QGP DA Sat 21/09/13 Bid] 3,000 @ 5.70
 15:18:04 - Inserted [QGP Sun 22/09/13 Offer] 1,000 @ 5.00
 15:18:02 - [DEAL] QGP Day] 25 @ 6.00

Trading Locations

Delivery Period

Paddy Trader A



QGP



RBP

	Qty	Bid	Offer	Qty	Qty	Bid	Offer
+ Balance Of Day	50	5.50	5.75	25			
			6.00	25			
+ DA Sat 21/09/13	3,000	5.70	7.20	*2,000			
+ Sun 22/09/13			5.00	1,000			
+ Mon 23/09/13	1,000	5.00					

Orders for Trading Products

Trading Products

Trading Products

- Physical gas delivery
- Multiple **Trading Locations** and **Delivery Periods**

Trading Locations: Wallumbilla receipt location on the **RBP**, **SWQP** & **QGP** pipelines

Delivery Periods:

- Balance of Day
- Day-ahead
- Daily
- Weekly
- Monthly

	QGP				RBP		
	Qty	Bid	Offer	Qty	Qty	Bid	Offer
+ Balance Of Day	50	5.50	5.75	25			
			6.00	25			
+ DA Sat 21/09/13	3,000	5.70	7.20	*2,000			
			5.00	1,000			
+ Sun 22/09/13							
+ Mon 23/09/13	1,000	5.00					
+ Tue 24/09/13							
+ Wed 25/09/13							

Trading Hours

- 9am to 5pm, 7 days a week
- Market time is Eastern Standard Time (EST)

Market systems

- Web interface for market support functions

Market Support

- 24 hour IT support
- Market and settlement support on business days

Published information

- Trading statistics
- Average historical prices

Capacity Listing Service

- List in bulletin board format consistent with exchange traded commodity screen
- Facilitate liquidity and movement of gas between nodes and inter-connected markets

Capacity trading standard terms

- Firm shipper-to-shipper (*bare-transfer*) pipeline capacity trading
- Short term forward trades
- Standardised terms and conditions for trading, operational and settlement processes
- Transaction document to streamline negotiation

Additional Trading Location - Moomba

- A hub at Moomba, like the Wallumbilla hub, would support short-term balancing outcomes between northern and southern gas markets in eastern Australia

Single Trading Product

- To pool potential buyers and sellers together within a single market generating the highest potential for trading liquidity

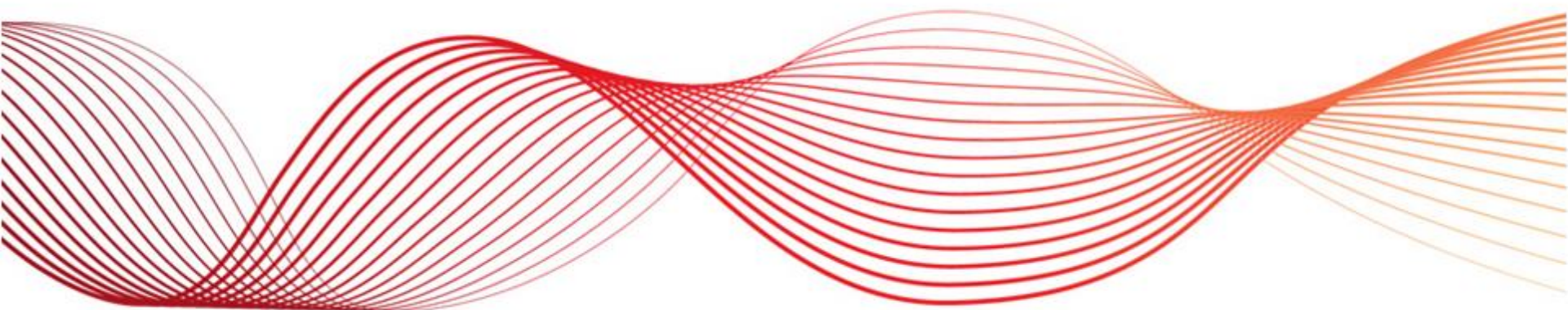
GSH Market Activity



All locations	Trades	Trade Volume (GJ)	Trade Value (\$)	Vol Wtd (\$/GJ)	Highest Trade (GJ)	Low Price (\$)	High Price (\$)
	680	3,283,075	\$8,826,660	\$2.69	70,000	\$0.18	\$8.50
Balance of Day	63	161,075	579,890	\$3.60	6,300	\$0.70	\$8.00
Day Ahead	286	1,090,000	3,059,420	\$2.81	20,000	\$0.18	\$8.40
Daily	294	1,220,000	3,368,960	\$2.76	20,000	\$0.20	\$8.50
Weekly	37	812,000	1,818,390	\$2.24	70,000	\$0.75	\$4.00
Total	680	3,283,075	\$8,826,660	\$2.69			

- Data as of market close 10 May 2015

TRADING



Gas Supply Hub Design

- Exchange for the wholesale trading of gas
- AEMO is the operator of the exchange
- Trading participants responsible for gas delivery

Legal Framework

- Exchange Agreement contains the trading, gas delivery and settlement terms common to all Trading Products
- Product specifications contain details unique to each Trading Product
- Procedures for settlement & prudential methodology and detailed market processes

Physical Delivery of Gas

- All Trading Products require physical gas delivery
- Gas specifications vary by Trading Location (pipeline)

Transaction Price

- Set as a function of the matching process (\$/GJ)

Transaction Quantity

- Traded on “quantity per gas day” basis (GJ/day)
- Balance-of-day is GJ/hour and then converted to a daily quantity

Gas Day

- Gas day (D) is a 24 hour period from 8am

Trading Products

Trading Products

- Physical gas delivery
- Multiple **Trading Locations** and **Delivery Periods**

Trading Locations: Wallumbilla receipt location on the **RBP**, **SWQP** & **QGP** pipelines

Delivery Periods:

- Balance of Day
- Day-ahead
- Daily
- Weekly
- Monthly

		QGP				RBP		
		Qty	Bid	Offer	Qty	Qty	Bid	Offer
+ Balance Of Day		50	5.50	5.75	25			
				6.00	25			
+ DA Sat 21/09/13		3,000	5.70	7.20	*2,000			
+ Sun 22/09/13				5.00	1,000			
+ Mon 23/09/13		1,000	5.00					
⏏ + Tue 24/09/13								
+ Wed 25/09/13								

Trading Products: Delivery Period



Trading Day



Balance of Day



Day-Ahead

***Individual
Contract
Delivery***



Daily

***Netted for
Delivery***

Weekly

Wk 1 (Sun – Sat)

Wk 4

Monthly

Month 1

Month 3

Trading Products: Delivery Period



Balance-of-day

- 'on the day' trading product
- Order Quantity is GJ / Hour
- Total quantity calculation commences at the start of the hour that is one clear hour after the transaction and finishes at the end of the gas day

Day-Ahead / Daily

- Gas day products are the same except for the netting of gas deliveries associated with Daily products

Weekly

- 'Daily' gas delivery from Sunday to Saturday

Monthly

- 'Daily' gas delivery for 1 full calendar month

Trading Products: Delivery Period



Delivery Periods: Each **Trading Product** has a **specific delivery period**.

		QGP			
		Qty	Bid	Offer	Qty
Balance of Day	+ Balance Of Day (GJ/h)	25	5.00	15.00	25
Day-Ahead	+ DA Thu 23/4/15				
	+ Fri 24/04/2015				
Daily	+ Sat 25/04/2015				
	⤴ + Sun 26/04/2015				
	+ Mon 27/04/2015				
	+ Tue 28/04/2015				
Weekly	+ Wed 29/04/2015				
	+ Wk 26/04 - 02/05				
	⤴ + Wk 03/05 - 09/05				
	+ Wk 10/05 - 16/05				
Monthly	+ Wk 17/05 - 23/05				
	⤴ + Mth 01/05/15 - 31/05/15				
	+ Mth 01/06/15 - 30/06/15				
	+ Mth 01/07/15 - 31/07/15				

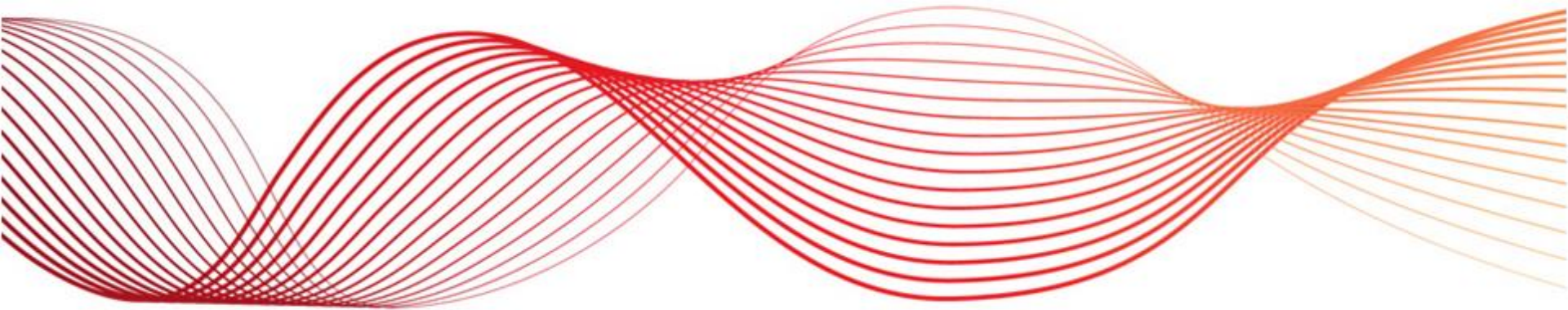
Trading Products: Delivery Period



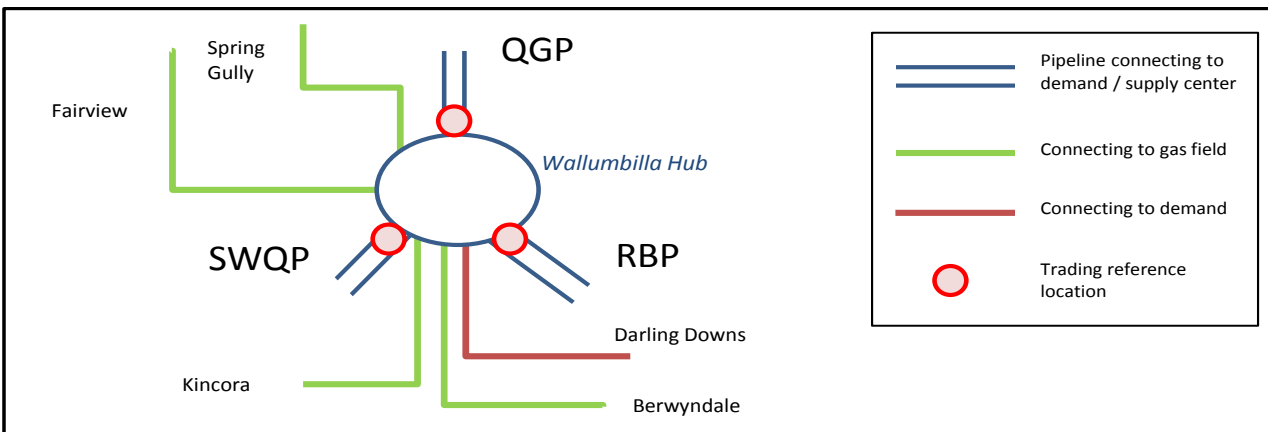
EXCHANGE PRODUCTS	Trading Days	Trading Hours (EST)	TENOR	TRADING WINDOW STARTS	TRADING WINDOW ENDS
Balance of Day	7 days	09:00 – 17:00	14 – 21 Hrs	D	D
Day-Ahead	7 days	09:00 – 17:00	1 Gas Day	D-1	D-1
Daily	7 days	09:00 – 17:00	1 Gas Day	D-7	D-2
Weekly	7 days	09:00 – 17:00	7 Gas Days	D-29	D-2
Monthly	7 days	09:00 – 17:00	1 calendar month	3 calendar months and 1 calendar day prior to the calendar month in which Gas Day D falls	D-2 prior the commencement of the calendar month in which Gas Day D falls.

- **Trading window** defines when a product is listed on exchange
- For a tenor \leq Gas Day, D is the gas delivery day
- Weekly products end trading on the Friday prior to the first gas delivery day

TRADING LOCATION



Trading Locations



Trading locations are a group of delivery points at which gas is receipted into the **SWQP, RBP & QGP** pipelines

Each Trading Product has a specific **Trading Location** for the delivery of gas

Ticker		RBP		Qty		Status		Qty		Status		Qty		Status	
QGP		SWQP													
COMA, Paddy Trader A				QGP		>>		RBP		>>		SWQP		>>	
		Qty	Bid	Offer	Qty	Qty	Bid	Offer	Qty	Qty	Bid	Offer	Qty		
+ Balance Of Day		50	5.50												
+ DA Sat 21/09/13															

Trading Location - Delivery Points



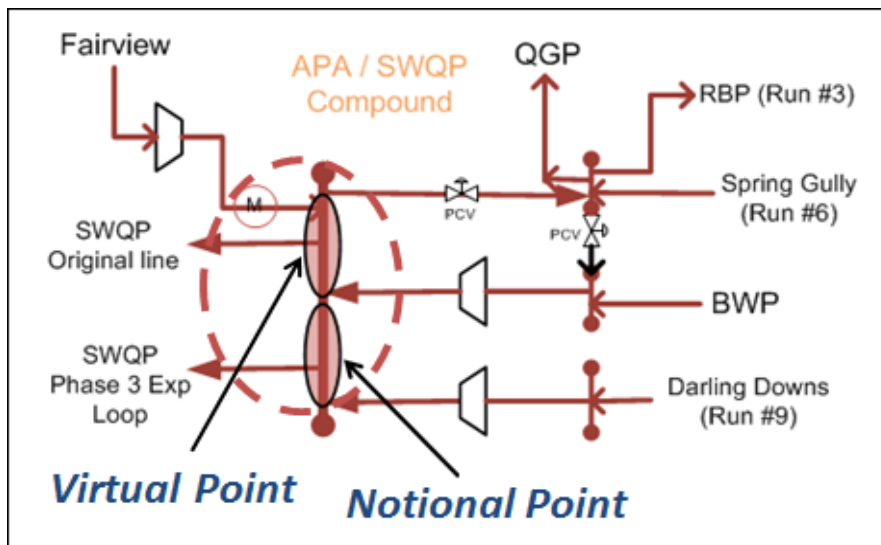
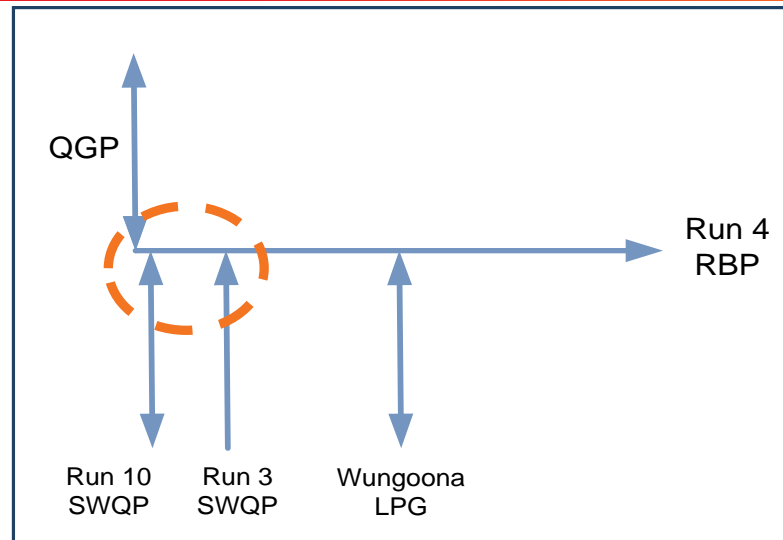
- A Trading Location may comprise multiple delivery points
- A ***Delivery point*** may be either ***physical*** or ***virtual points***:
 - A ***physical point*** is one that is defined by a specific connection point to the location which is metered (and allocated) for the purposes of title transfer
 - A ***virtual point*** is one which covers a nominal location in which gas is contained and where gas is deemed to be transferred by the infrastructure owner

Multiple Delivery Points

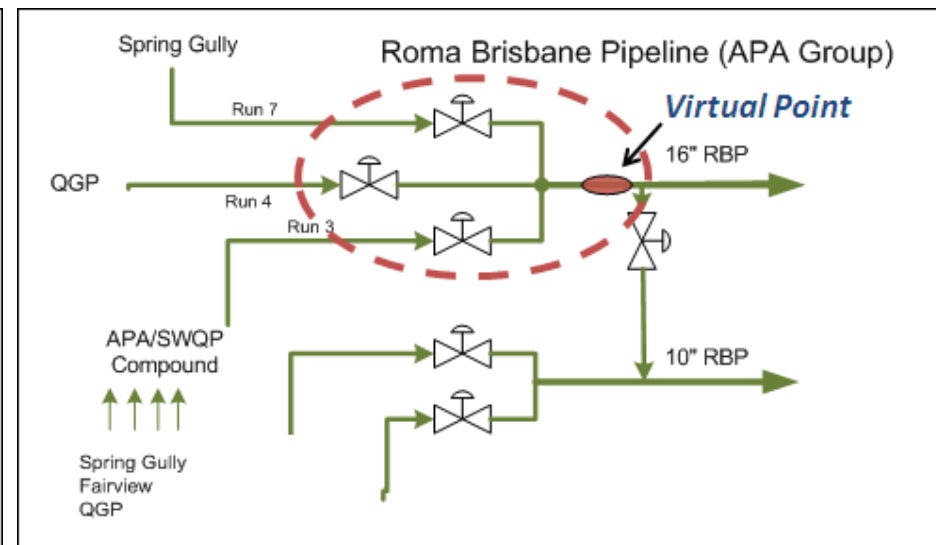
- **Buyers** must be able to contractually receipt gas at all delivery points within the grouping (*Trading Location*)
- Seller must specify the delivery point at time of order entry
- The delivery point specified by seller will become the transaction delivery point. ***Unless product is netted for delivery (see later)***
- Buyer will nominate for the receipt of the transaction at the confirmed delivery point
- Title transfer will occur in accordance with allocation agreement for the transaction delivery point

Trading Locations – Delivery Points

QGP



SWQP



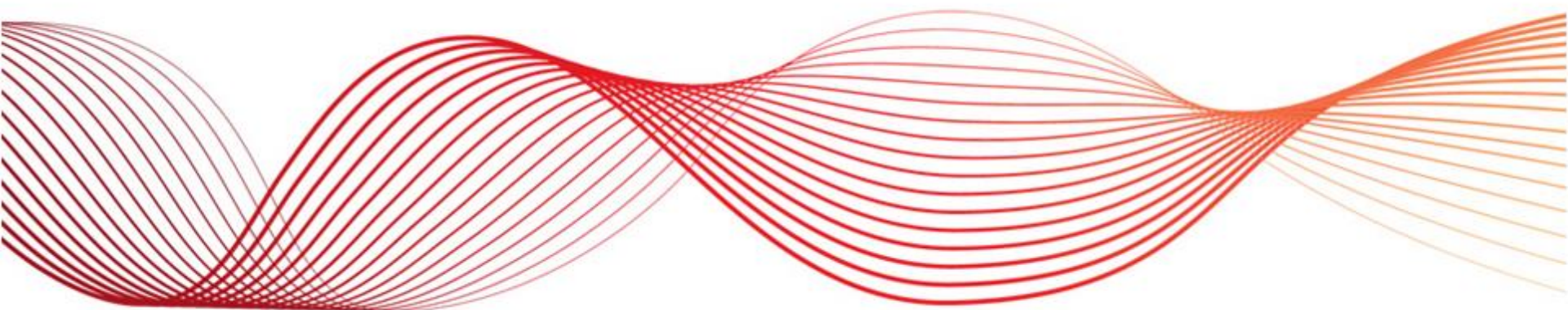
RBP

Trading Locations and Delivery Points



Trading Location	Facility Operator	Delivery Point	Description
RBP	APA Group	Run 3	Delivery point - the entry of the RBP from the SWQP through Wallumbilla Run 3
		Run 4	Delivery point - the entry of the RBP from the QGP through Wallumbilla Run 4
		Run 7	Delivery point - the entry of the RBP from the Spring Gully pipeline through Wallumbilla Run 7
		RBP In-Pipe trade point	Any virtual point nominated by the Gas Transporter at which transfers of title in gas can be effected.
QGP	Jemena	Run 3	Run 3 at the intersection of the SWQP and the QGP
		Run 10	Run 10 at the intersection of the SWQP and the QGP
SWQP	APA Group	Fairview Delivery Point	Delivery point - means the interconnection of the SWQP and the Fairview Pipeline
		SWQP In-Pipe trade point	Any virtual point nominated by the Gas Transporter at which transfers of title in gas can be effected.
		Wallumbilla Notional Point	Nominated by the Gas Transporter, within the SWQP Wallumbilla Compound from which Gas may be directed to or from SWQP

TRADE EXECUTION



Gas Trading Exchange

- The **Gas Trading Exchange** is built on Trayport's Global Vision Exchange Trading System (**ETS**)
- Trayport is a specialist provider of energy trading solutions to traders, brokers and exchanges worldwide including ICE Endex and Powernext
- The **Exchange Trading System** consists of:
 - A front-end for **direct trader access** to the exchange,
 - Real-time **matching engine** to form transactions,
 - **Order management** and **transaction reporting**

Gas Trading Exchange

File Edit View Help

Wallumbilla GSH Activity Ticker

15:20:46 - Inserted [QGP Balance Of Day
 15:20:26 - Inserted [QGP Balance Of Day
 15:18:57 - Inserted [QGP DA Sat 21/09/13
 15:18:30 - Inserted [QGP DA Sat 21/09/13
 15:18:04 - Inserted [QGP Sun 22/09/13
 15:18:02 - [DEAL] [QGP Balance Of Day] 25 @ 6.00 ([B] Company B,

Server: norvughapp1
 Time

Delivery Periods

Trader short cuts

Trading Locations

Orders for Trading Products

	QGP				RBP				SWQP			
	Qty	Bid	Offer	Qty	Qty	Bid	Offer	Qty	Qty	Bid	Offer	Qty
+ Balance Of Day	50	5.50	5.75 6.00	25 25								
+ DA Sat 21/09/13	3,000	5.70	7.20	*2,000								
+ Sun 22/09/13			5.00	1,000								
+ Mon 23/09/13	1,000	5.00										

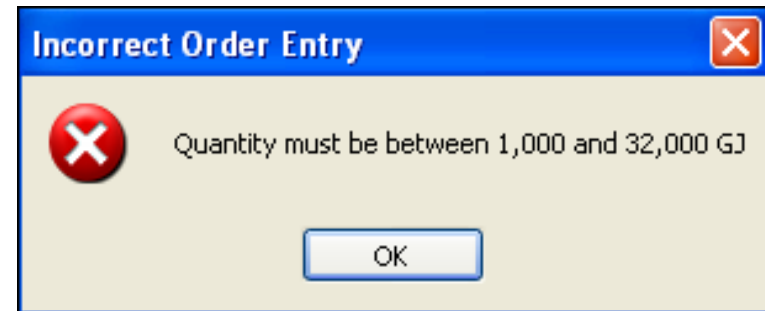
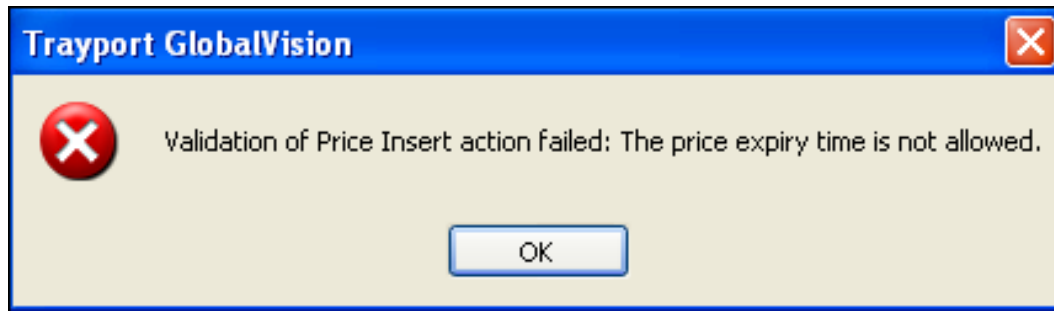
- An array of **Trading Products**, covering multiple **Trading Locations** and **Delivery Periods**, are available for trading
- Trading Participants submit **orders** onto the exchange to initiate the trading process
- Orders must only be placed for Trading Products that a participant can fulfil the gas delivery obligations

AEMO does not verify contracts or trading rights

- There are potential financial and regulatory consequences if **gas delivery obligations** are breached

Order Submission

- Trading Participants submit orders directly onto the exchange
- All orders are **anonymous** on the exchange
- Orders **validated on submission**; must be correctly formatted and the participant must have sufficient credit



- Once validated a **market report** will be issued to the Trading Participant

Order Components

Bid / Offer

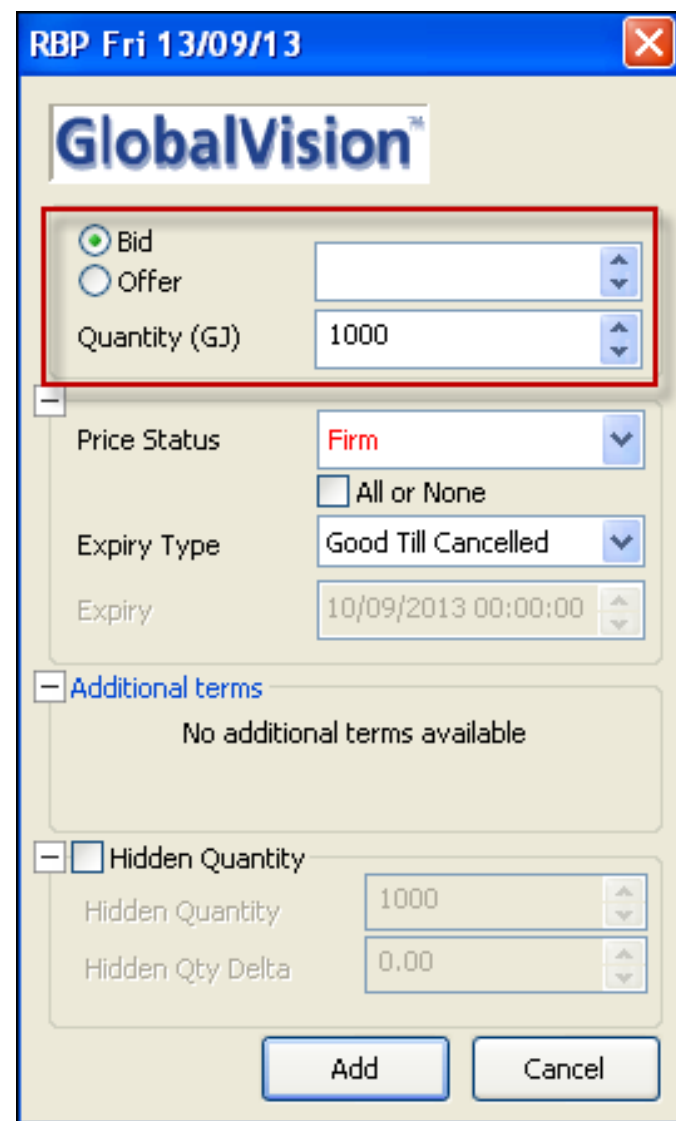
- Bids to buy, offers to sell

Price

- Price increments of 0.01 \$ / GJ
- Maximum price of 999 \$ / GJ
- Minimum price of 0.00 \$ / GJ

Quantity

- Minimum quantity and parcel size of 1,000 GJ
- Balance-of-day product has a minimum quantity and parcel size of 25GJ / hour



RBP Fri 13/09/13

GlobalVision™

☒ Bid
☐ Offer

Quantity (GJ) 1000

Price Status Firm

☐ All or None

Expiry Type Good Till Cancelled

Expiry 10/09/2013 00:00:00

☐ Additional terms
No additional terms available

☐ Hidden Quantity

Hidden Quantity 1000

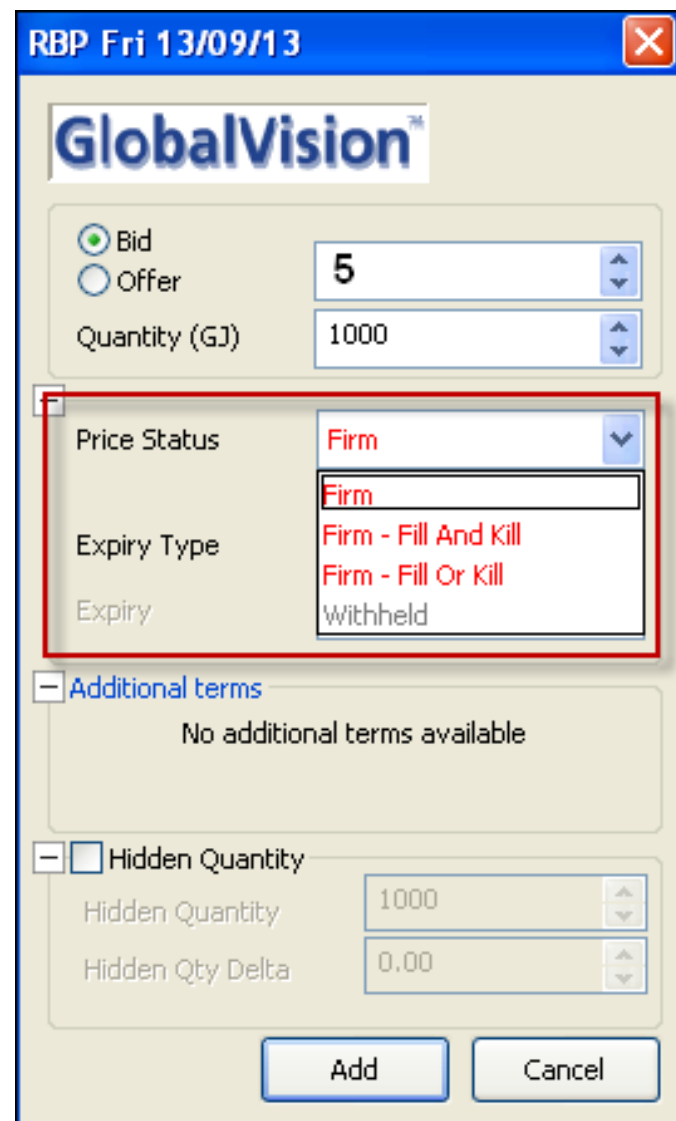
Hidden Qty Delta 0.00

Add Cancel

Order Characteristics

Price Status

- How an order is processed:
 - *Firm*,
 - *Fill or Kill*,
 - *Fill and Kill*,
 - *Withheld*
- All-or-none = *no partial acceptance* of order, highlighted on trading screen (*)



RBP Fri 13/09/13

GlobalVision™

☒ Bid
☐ Offer

Quantity (GJ) 5

Quantity (GJ) 1000

Price Status **Firm**

Expiry Type

Expiry

Additional terms
No additional terms available

Hidden Quantity

Hidden Qty Delta

1000

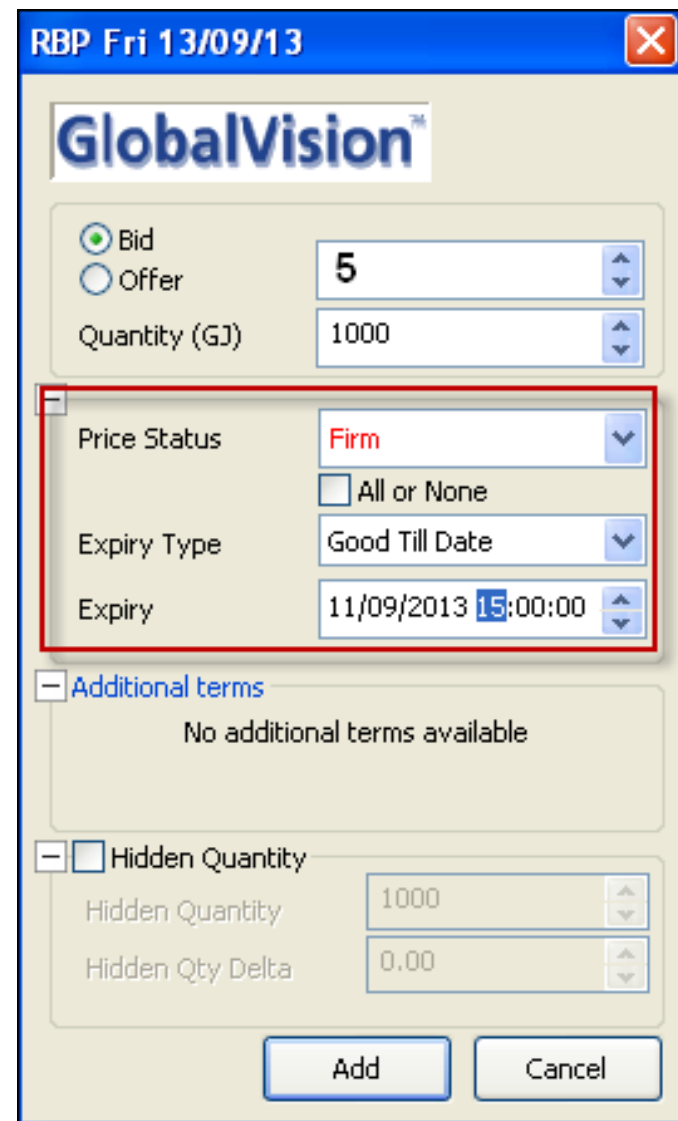
0.00

Add Cancel

Order Characteristics

Expiry Type

- Good till cancelled,
- Good for a Day,
- Good till date (activates *Expiry* field)
 - Order expires at time specified (for example, the cut-off time for pipeline nominations)
- All orders withdrawn prior to the start of the next trading day



RBP Fri 13/09/13

GlobalVision™

☒ Bid
☐ Offer

Quantity (GJ) 5

Quantity (GJ) 1000

Price Status Firm

☐ All or None

Expiry Type Good Till Date

Expiry 11/09/2013 15:00:00

☐ Additional terms

No additional terms available

☐ Hidden Quantity

Hidden Quantity 1000

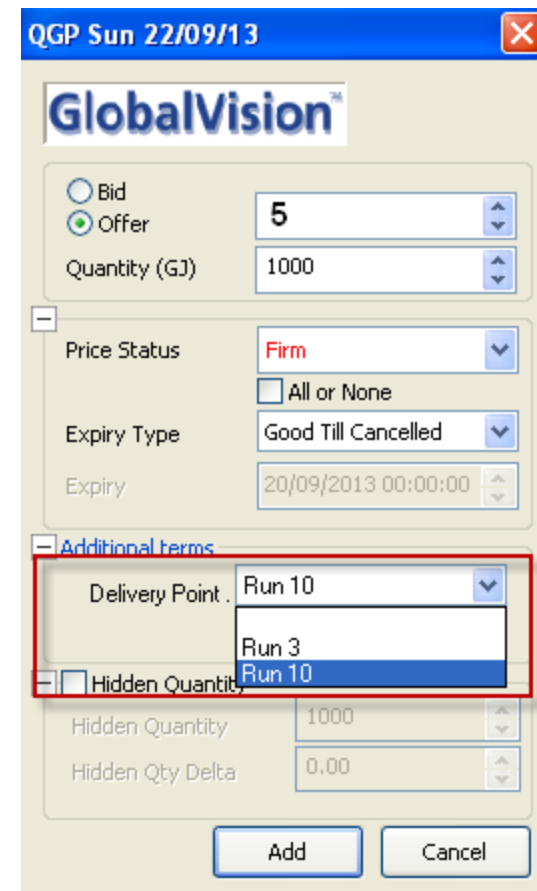
Hidden Qty Delta 0.00

Add Cancel

Order Characteristics

Delivery Point

- Sell orders require the specification of a **Delivery Point**
- If transacted, the Delivery Point specified in the order will be the location for **gas delivery**
- The Delivery Point is selected from a list of points associated with the selected **Trading Location**



QGP Sun 22/09/13

GlobalVision™

☐ Bid
☒ Offer

Quantity (GJ) 5

Quantity (GJ) 1000

Price Status Firm

☐ All or None

Expiry Type Good Till Cancelled

Expiry 20/09/2013 00:00:00

Additional terms

Delivery Point Run 10

Run 3

Run 10

☐ Hidden Quantity

Hidden Quantity 1000

Hidden Qty Delta 0.00

Add Cancel

Hidden Quantity

Hidden Quantity

- Allows a participant to enter an order with a portion of the order quantity not visible to other participants on the exchange
- As order quantity is matched, additional quantity is released for trade

Bid

- Positive delta will reduce price

Offer

- Positive delta will increase price

QGP Thu 19/09/13

GlobalVision™

☒ Bid
☐ Offer

Quantity (GJ) 5 1000

Price Status Firm

☐ All or None

Expiry Type Good Till Cancelled

Expiry 17/09/2013 00:00:00

☐ Additional terms

No additional terms available

☒ Hidden Quantity

Hidden Quantity 2000

Hidden Qty Delta 0.50

Add Cancel

Real-time Prudential Assessments

- Each time a buy order is submitted the impact on the participant's Trading Margin is assessed

Prudential Assessments

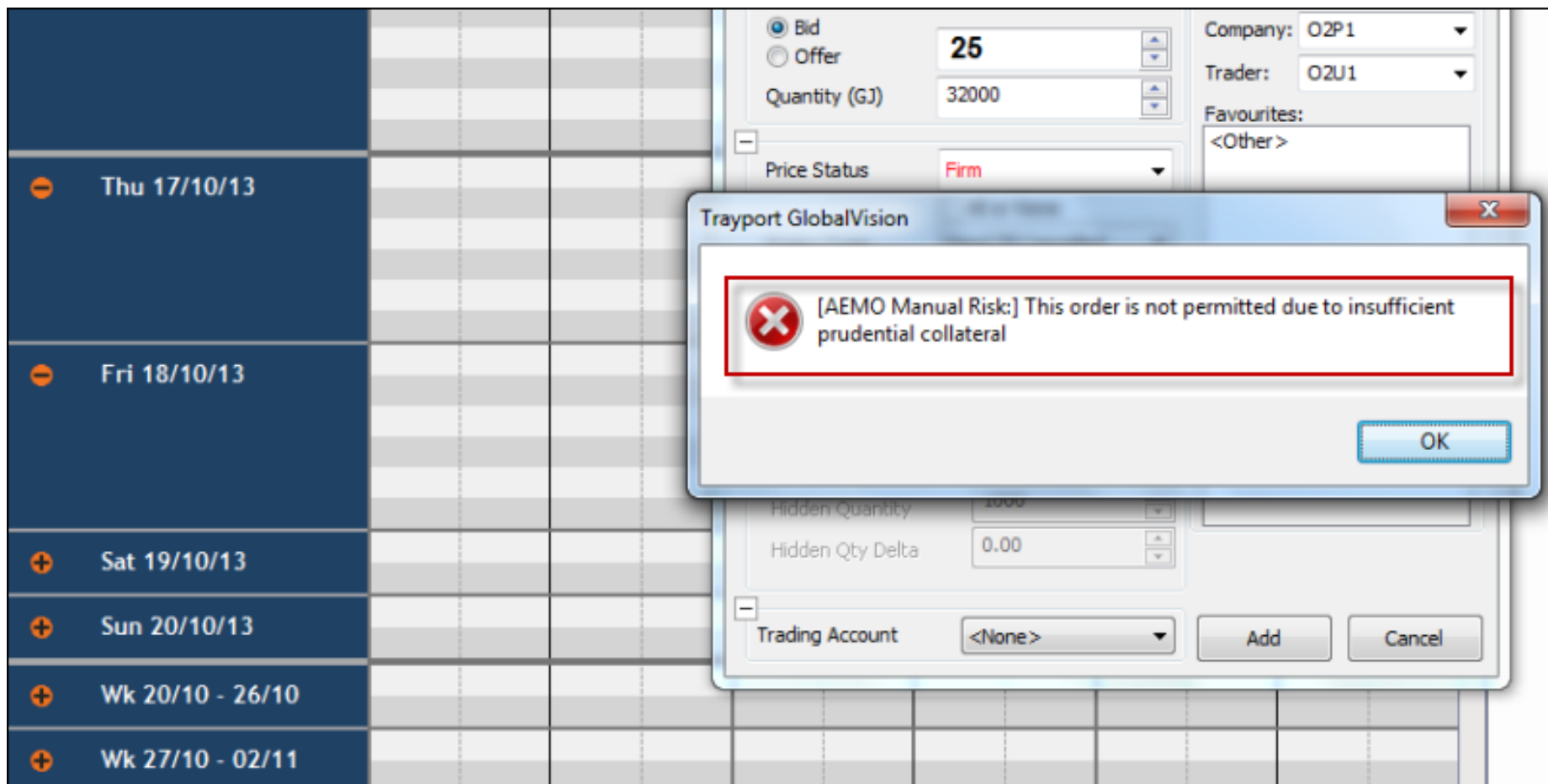
- Performed regularly every day to assess the Trading Margin of each Trading Participant
- Trading Margin includes active buy orders on the exchange

Breach of Trading Limit

- Trading Participant will not be able to submit new orders

Risk Check On Order Submission

The ETS will provide Trading Participants with feedback when an order is **rejected** owing to **insufficient Trading Margin**



Thu 17/10/13

Fri 18/10/13

Sat 19/10/13

Sun 20/10/13

Wk 20/10 - 26/10

Wk 27/10 - 02/11

☒ Bid
☐ Offer

Quantity (GJ) 25 32000

Price Status Firm

Company: O2P1
Trader: O2U1
Favourites: <Other>

Trayport GlobalVision

[AEMO Manual Risk:] This order is not permitted due to insufficient prudential collateral

OK

Hidden Quantity 1000
Hidden Qty Delta 0.00

Trading Account <None> Add Cancel

Changes to active orders

- Trading Participants can amend an order that remains unexecuted within the exchange

Cancellation of orders


- Trading participants can cancel unexecuted orders, and the unexecuted portion of partially filled orders

Orders lapse either at the end of the trading window for that product or at the expiry time specified

- The matching process combines bids and offers for a given product based on price/time priority:
 - Orders are ***first matched based on price priority***, with new offers matched against the highest price bid, and new bids matched against the lowest price offer
 - Where two or more orders for a product share the same price and are 'in the money', the order with the ***earlier submission time will be matched first***

Trading - Order Matching

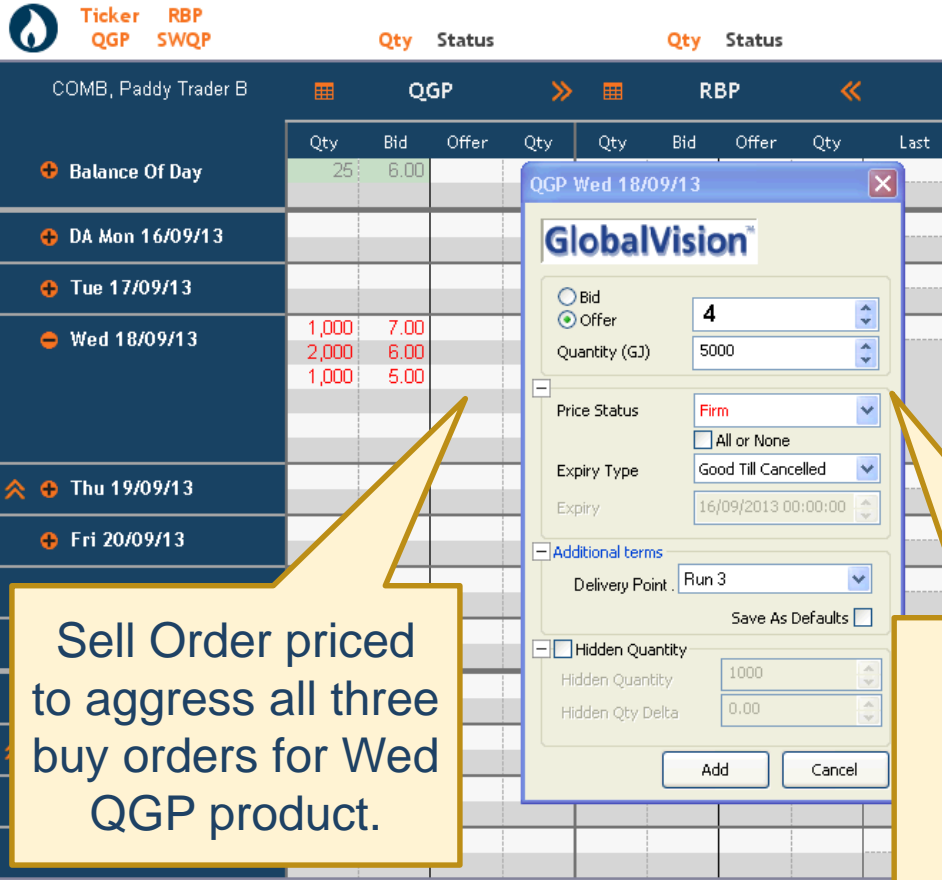
- The **Transaction Price** is set at the **initiator's** order price

Bid Qty		Bid Price			Offer Price	Offer Qty
Buyer aggresses the Initiator's offer					6.85	3,000
					6.75	5,000
4,000		6.50				
2,000		6.25				

- It is possible that a bid and offer may overlap in price if:
 - orders are entered around the same time (or the pre-open period), or
 - When a participant intends to deal multiple orders at once

Trading - Order Matching

A participant can deal multiple orders within a single submission by entering an order for the cumulative volume at the highest (buying) or lowest (selling) order price



Ticker	RBP	Qty	Status
QGP	SWQP		
COMB, Paddy Trader B			
		Qty	Status
+		25	6.00
+			
+			
-		1,000	7.00
		2,000	6.00
		1,000	5.00
+			
+			

GlobalVision™

☐ Bid
☒ Offer

Quantity (GJ) 5000

Price Status: Firm

Expiry Type: Good Till Cancelled

Expiry: 16/09/2013 00:00:00

Additional terms: Run 3

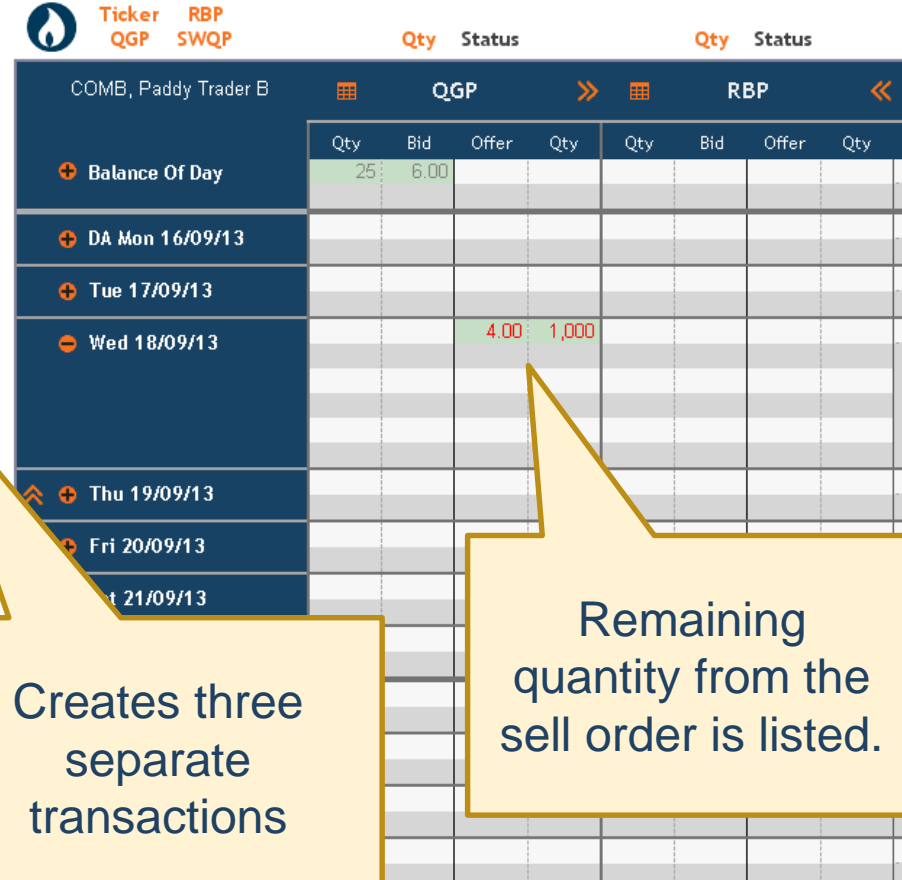
Delivery Point: Run 3

Save As Defaults

Hidden Quantity: 1000

Hidden Qty Delta: 0.00

Add Cancel



Ticker	RBP	Qty	Status
QGP	SWQP		
COMB, Paddy Trader B			
		Qty	Status
+		25	6.00
+			
+			
-		4.00	1,000
+			
+			

Creates three separate transactions

Remaining quantity from the sell order is listed.

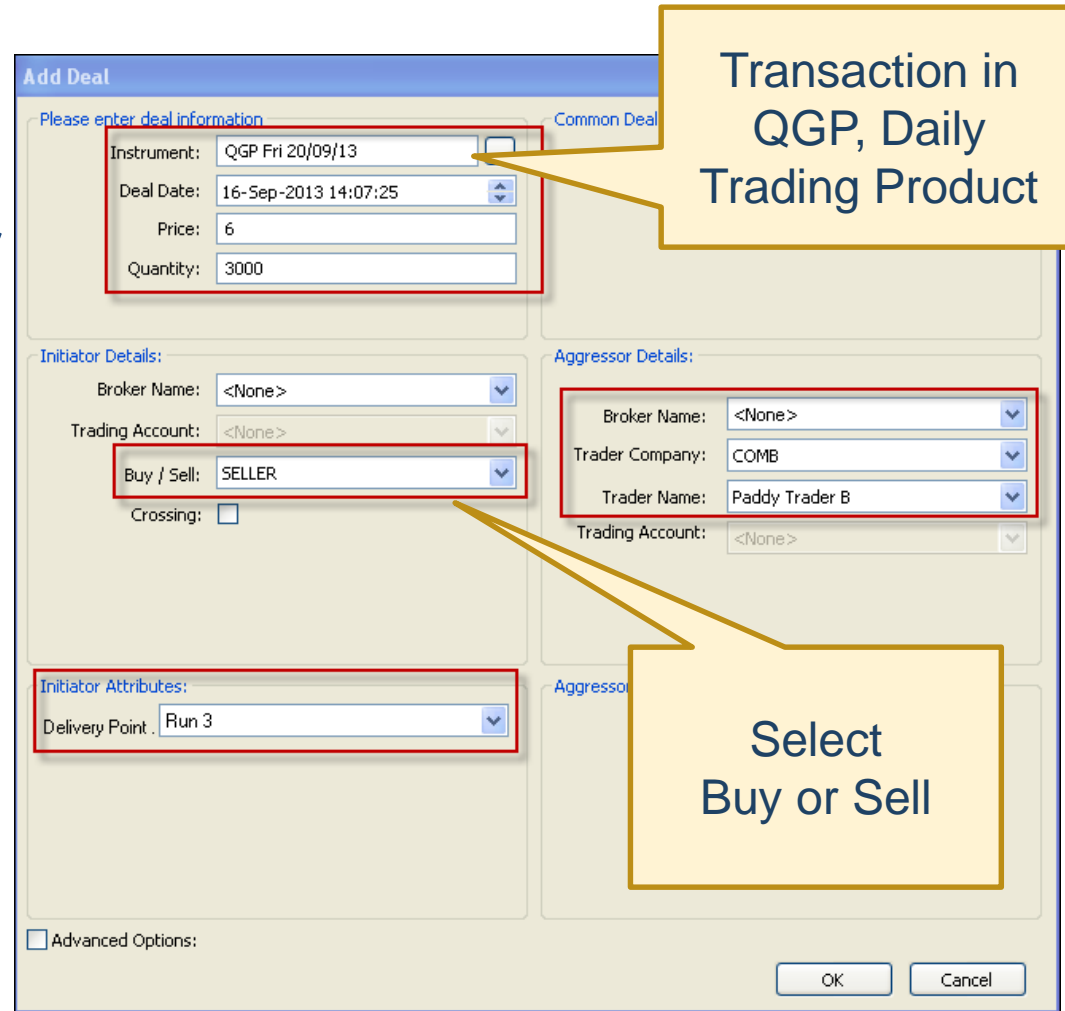
Pre-matched Trades

- Exchange provides a mechanism for participants to bring a ***bilateral trade*** to the market for settlement
- All ***gas delivery and settlement obligations*** are in accordance with the Trading Product for which the trade is registered against
- The facility can be used by parties:
 - that do not have bilateral trading arrangements,
 - prefer the centralised settlement and credit support of the exchange, and
 - For the netting of gas delivery obligations against other exchange transactions

Pre-matched Trades - Deal Entry

Trading participant submits pre-matched trade:

- Select the product under which the agreed trade will be registered.
- Selects trading action; buy or sell
- Seller enters delivery point
- The **Trader Name** will be the only counterparty representative that can confirm the trade



Add Deal

Please enter deal information

Instrument: QGP Fri 20/09/13
Deal Date: 16-Sep-2013 14:07:25
Price: 6
Quantity: 3000

Initiator Details:
Broker Name: <None>
Trading Account: <None>
Buy / Sell: SELLER
Crossing: ☐

Aggressor Details:
Broker Name: <None>
Trader Company: COMB
Trader Name: Paddy Trader B
Trading Account: <None>

Initiator Attributes:
Delivery Point: Run 3

Advanced Options: ☐

OK Cancel

Transaction in QGP, Daily Trading Product

Select Buy or Sell

Pre-matched Trades

On selecting OK a window containing the deal details will pop-up and require confirmation

Trader that can confirm

Confirmation - Add Deal [X]

You are about to Add this deal. Please review your changes and confirm below.

Name	Value
Deal ID	0
Instrument	QGP Fri 20/09/13
Price	6.00
Quantity	3,000 GJ
Reporting Party Buy/Sell	Seller
Delivery Point	Run 3
Reporting Party Trader Company	Company A
Reporting Party Trader Name	Paddy Trader A
Reporting Party Broker Company	AEMO
Reporting Party Broker Name	Paddy Trader A
Counterparty Trader Company	Company B
Counterparty Trader Name	Paddy Trader B
Counterparty Broker Company	AEMO
Counterparty Broker Name	Paddy Trader B
Deal Date	16/09/2013 2:08:51 PM
PNC	Yes
Voice	Yes
Manual	Yes
Deal Confirm State	Initiator Confirmed, Aggressor Action Pending

☐ I confirm that these details are correct

Print List OK Cancel

Pre-matched Trades - Counterparty confirmation



The counterparty to the pre-matched trade will be required to confirm the details within Trayport:

- If the trader selected is on-line then a pop-up will appear on the trading screen
- Otherwise unconfirmed trades can be accessed from the deal window

Deal Confirmation Request - Buyer Side

Please review the deal and confirm below

Name	Value
Deal ID	113
Instrument	QGP Fri 20/09/13
Price	6.00
Quantity	3,000 GJ
Reporting Party Buy/Sell	Seller
Reporting Party Trader Company	Company A
Reporting Party Trader Name	Paddy Trader A
Reporting Party Broker Company	AEMO
Reporting Party Broker Name	Paddy Trader A
Counterparty Buy/Sell	Buyer
Counterparty Trader Company	Company B
Counterparty Trader Name	Paddy Trader B
Counterparty Broker Company	AEMO
Counterparty Broker Name	Paddy Trader B
Deal Date	16/09/2013 3:05:19 PM
PNC	Yes
Voice	Yes
Manual	Yes
Price-Setting	Yes

Trading Account:

Additional terms

☐ I confirm that these details are correct

Deals

File View

Current Deals | **Unconfirmed Deals** | Deleted Deals

Deal ID	Price	Instrument	Quantity	Unit	Aggressor Company	Initiator Company	Time	Value	Delivery Point
113	6.00	QGP Fri 20/09/13	3,000	GJ	Company B	Company A	16/09/2013 3:05:19 PM	18,000.00	

Investigate Deal Ctrl+I
Confirm Buyer Alt+N
Auto-Size Columns Alt+A
Select All Ctrl+A
Copy Ctrl+C

Pre-matched Trades - Trade Confirmation



On confirmation by Company B both traders will receive a confirmation of the deal.

- Pre-matched trades will have **'Confirmed'** against the *Deal Confirm State*
- Company's not involved in the deal will have no record of the trade within the deal window
- ***'Pre-matched' trades will not be included in average price statistics***

Deal Confirmation Notification

Name	Value
Deal ID	113
Instrument	QGP Fri 20/09/13
Price	6.00
Quantity	3,000 GJ
Reporting Party Buy/Sell	Seller
Delivery Point	Run 3
S Reporting Party Trader Company	Company A
Reporting Party Trader Name	Paddy Trader A
Reporting Party Broker Company	AEMO
Reporting Party Broker Name	Paddy Trader A
Counterparty Buy/Sell	Buyer
B Counterparty Trader Company	Company B
Counterparty Trader Name	Paddy Trader B
Counterparty Broker Company	AEMO
Counterparty Broker Name	Paddy Trader B
Deal Date	16/09/2013 3:05:19 PM
PNC	Yes
Voice	Yes
Manual	Yes
Deal Confirm State	Confirmed
Price-Setting	Yes

Print List Close

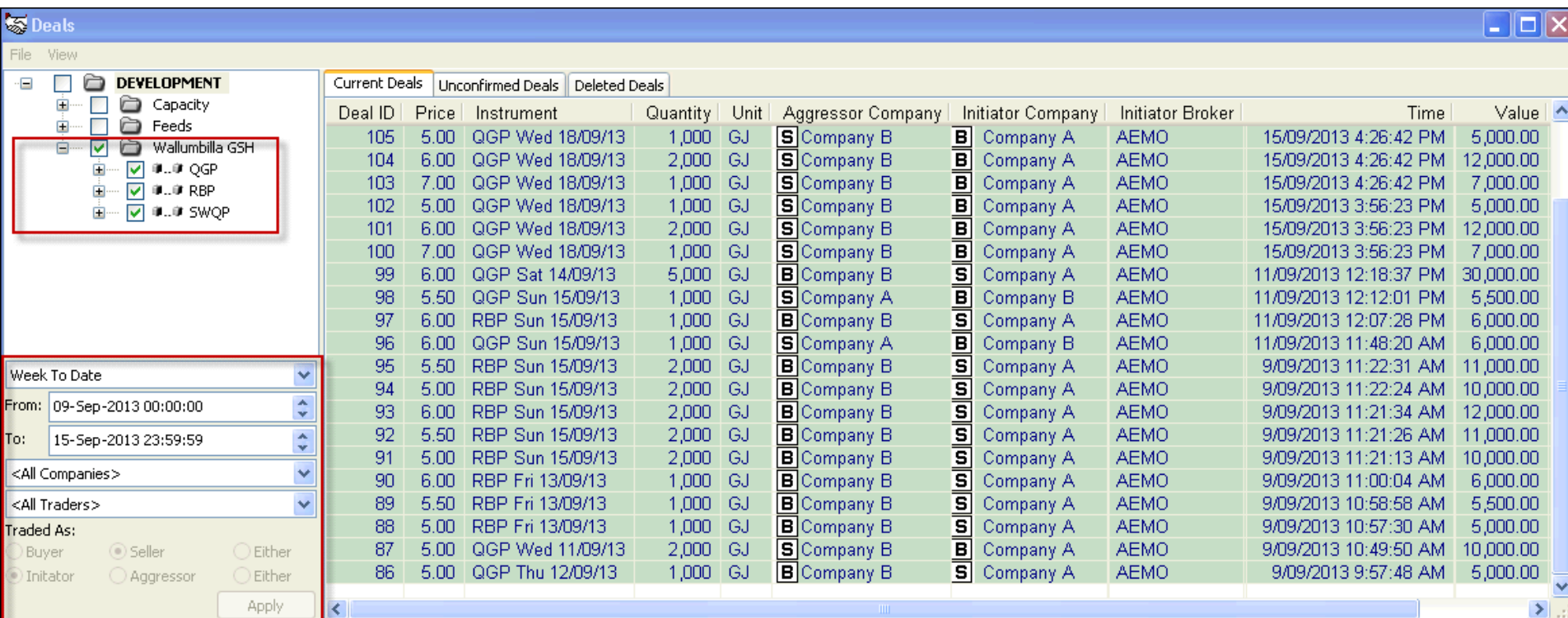
- Counterparties to a trade will be notified that a trade has been executed through the **Trade Confirmation Report**
- A report will be issued for each transaction with a summary report issued at the end of the trading day
- If the product is one where delivery netting applies then the trade confirmation will not contain the details of counterparty and delivery point

Participants can also review transaction history within Trayport through the Deal Window

Trayport Deal Window

Deals Window

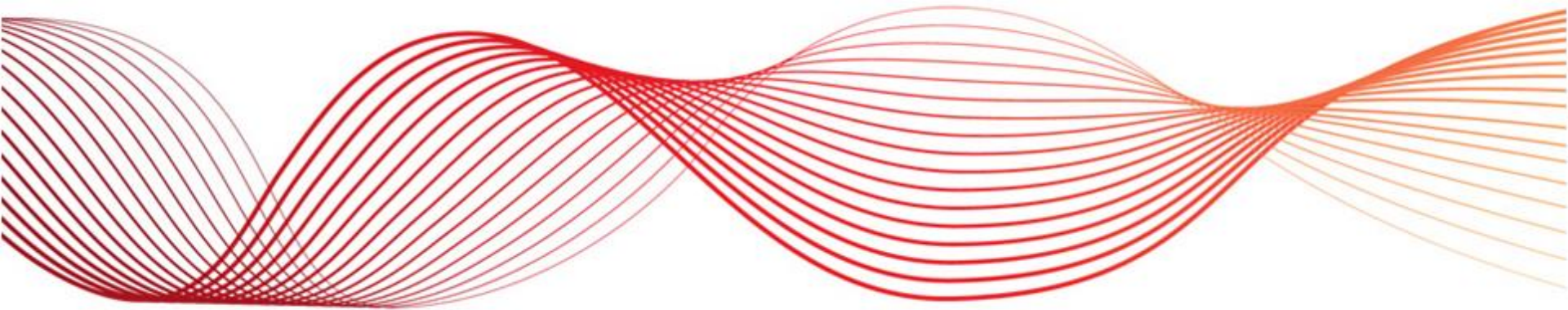
- Participants can review transaction history
- The deals window will show details of the most recent 1000 deals held in the ETS



The screenshot displays the 'Deals' window in the AEMO system. The window is divided into several sections:

- Left Panel:** Contains a tree view under 'DEVELOPMENT' with sub-items like 'Capacity', 'Feeds', 'Wallumbilla GSH', 'QGP', 'RBP', and 'SWQP'. Below this is a filter section with 'Week To Date' dropdown, 'From' and 'To' date pickers (set to 09-Sep-2013 00:00:00 and 15-Sep-2013 23:59:59), '<All Companies>', '<All Traders>', and 'Traded As' radio buttons (Buyer, Seller, Either, Initiator, Aggressor, Either).
- Top Tabs:** 'Current Deals', 'Unconfirmed Deals', and 'Deleted Deals'. 'Current Deals' is selected.
- Main Table:** A table with columns: Deal ID, Price, Instrument, Quantity, Unit, Aggressor Company, Initiator Company, Initiator Broker, Time, and Value. It lists 20 deals, mostly involving QGP and RBP instruments, with prices ranging from 5.00 to 7.00 and quantities from 1,000 to 5,000 GJ.

PIPELINE CAPACITY – LISTING SERVICE



Capacity Listing Service



- Allows supply hub participants to ***advertise an interest to buy or sell*** spare gas transportation services
- Developed to support voluntary shipper-to-shipper (Bare Transfer) trading of pipeline capacity
- The listing functionality can also be used for other services such as storage or compression services

Access available to viewing and trading participants

- Access to the capacity listing service is through the ETS
- Both viewing and trading participants can use the ETS to list capacity
- The capacity listings are shown on a screen adjacent to the gas commodity trading screen

Listing functionality is similar to commodity trading

- Once a participant has submitted their capacity listing it will be made available for other participants to view through the ETS
- The capacity listing will be displayed up until the expiry date submitted by the listing party

Capacity Listing Service



The facility allows shippers with a matching interest to obtain the contact details of the listing party so that they can initiate the ***bilateral negotiation*** of a capacity trade with that listing party

Server: **norvughapp1**

Time: **11:48:27 AM**

11:44:10 - Inserted [CAPACITY GAS Offer] 1,000 @ 5.00

11:03:38 - [DEAL] [QGP DA Sat 12/10/13] 1,000 @ 6.00

11:03:22 - Inserted [QGP DA Sat 12/10/13 Bid] 1,000 @ 6.00 (Company B, Paddy Trader B)

Capacity Gas Listing												
Listing Company	Side	Price	Qty	Pipeline	Receipt Point	Delivery Point	Product Type	From Date	To Date	Contact Details	Comments	
COMB Company B	Offer	1.40	1,000	RBP	Wallumbilla	STTM Brisbane	Firm Transportation	23/10/2013	30/10/2013	0403039622	AEMO Standard Terms & Conditions	
COMA Company A	Offer	5.00	1,000	RBP	Wallumbilla	STTM Brisbane	Firm Transportation	18/09/2013	25/09/2013	0403066389	No imbalance charges	
COMC Company C					b	b	Storage Rights	7/10/2013	7/10/2013	b	b	
COMA Company A					a	a	Firm Transportation	7/10/2013	7/10/2013	a	a	
COMC Company C					b	b	Storage Rights	7/10/2013	7/10/2013	b	b	
COMC Company C					b	b	Storage Rights	7/10/2013	7/10/2013	b	b	

GlobalVision™

☒ Bid
☐ Offer

Quantity (GJ)

Price Status

Expiry Type

Expiry

Additional terms

Pipeline

Receipt Point

Delivery Point

Product Type

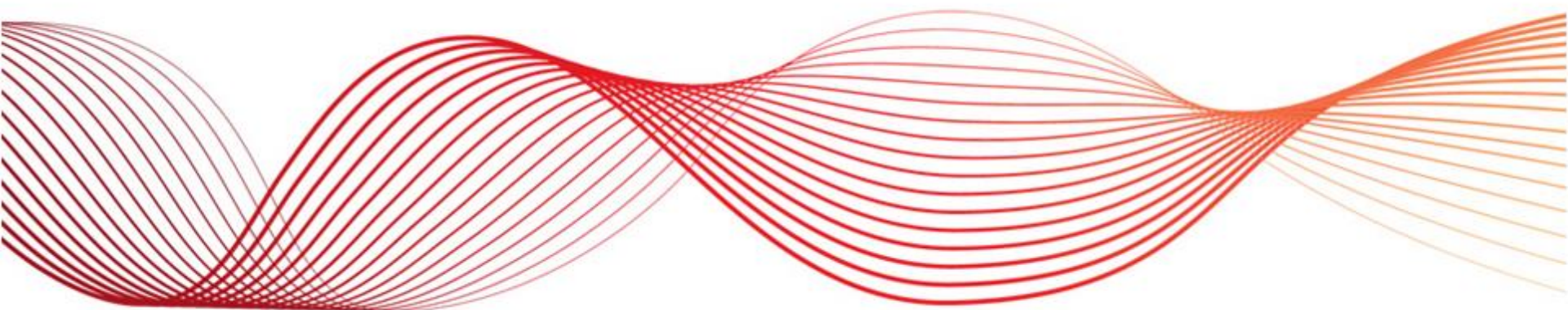
From Date

Key:

Balance of Day (GJ Per Hr)

Daily & Weekly (GJ Per Day)

MARKET OPERATION



- Gas supply hub market time is Eastern Standard Time (EST)
- Business Days for the supply hub are National Business Days (the same as other AEMO operated wholesale markets)
- The gas supply hub is available for trade 7 days a week

- At the gas supply hub each trading day (24 hours) is divided into three distinct periods:
 - Pre-Open 08:30 – 09:00 EST
 - Trading Hours (trading session) 09:00 – 17:00 EST
 - Market Closed 17:00 – 08:30 EST
- Pre-open is where participants can ‘firm up’ and amend existing orders prior to opening of the trading session
- The ETS operates the matching process in a mode of continuous trading throughout the trading session

Pre-Open Period

- 30 minute period prior to the opening of trade
- At the commencement of this period (8:30 am) all current orders (firm or otherwise) will have their status automatically changed by the ETS to 'withheld'
- No matching of orders

Opening Procedure

- Orders may accumulate over the pre-open period, resulting in a price overlap (buys above sells) within the central order book
- Trayport utilises an 'opening procedure', which matches the overlapping bids and offers received in aggregate at a single clearing price
- The ETS runs this opening procedure at 9:00 a.m. just prior to the commencement of trading

Trading Hours (continuous trading period)

- The ETS has a status of '*market open*' and transactions can be executed
- Trading Participants can enter, amend and cancel orders during this period

Market closed

- No trading permitted during this period
- Trading participants can cancel orders
- ETS allows new orders to be entered or existing orders amended, but these orders will be assigned the status of withheld and thus require firming up in one of the other status periods so that they are accessible for matching

Following slide provides an outline on what alternatives are available to trading participants with respect to managing their order book within the ETS periods

Market Operation



Market Status	Permitted actions on new orders	Status of order if not amended	Permitted actions on existing orders
Pre-Open	Trading participants can: <ul style="list-style-type: none"> • Enter new orders with status 'firm' • Enter new orders with status 'withheld' 	Withheld	Trading Participants can: <ul style="list-style-type: none"> • Withhold and re-firm orders • Cancel Orders • Modify orders • Pre-matched trades can be entered and confirmed
Market Open		Firm	
Market Closed	Trading participants can: <ul style="list-style-type: none"> • Enter new orders with status 'withheld' 	Firm	Trading Participants can: <ul style="list-style-type: none"> • Withhold & Cancel Orders • Modify orders but orders will be withheld on updating

Trading Suspension



- AEMO will suspend the operation of the exchange where it confirms that there is a problem with the trading system

Suspension Triggers

- Connection to the Trading System has been unavailable to Trading Participants for a period of 15 minutes or longer
- Core trading functionality of the exchange isn't available:
 - Order submission,
 - Execution of transactions, or
 - Prudential validation of orders

Normal supply hub processes such as settlement and delivery confirmation will continue during trading suspension to the extent possible

Market Suspension Process

1. AEMO decides that a trigger event has occurred.
2. AEMO suspends operation of the exchange and checks that orders are withheld
3. AEMO issues a notice to Exchange Members of the trading suspension; provide as much notification and information on the expected duration as possible
4. Suspension may be by product or by market – the process will be the same

Process to Re-open Market

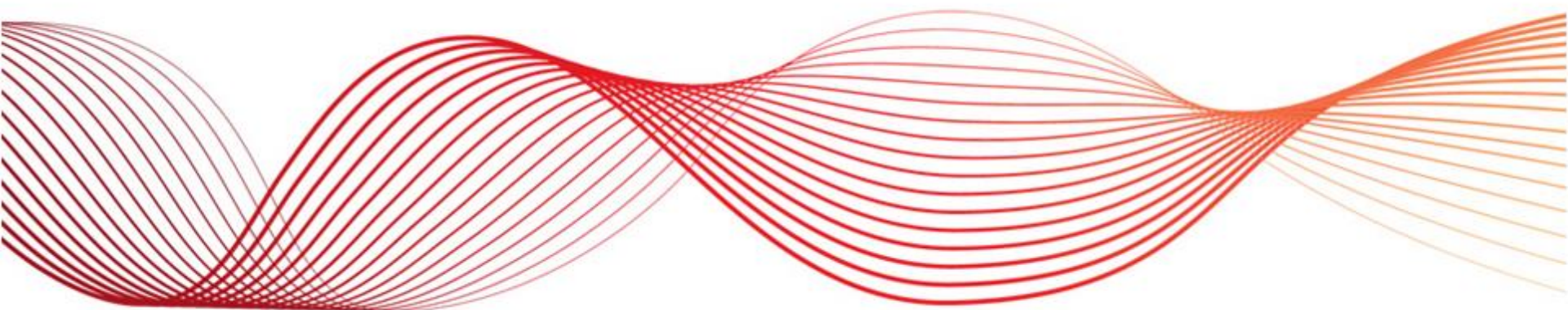


AEMO will notify participants as soon as practicable of the expected duration and anticipated time of conclusion of the suspension event and when normal trading operation will be resumed

Re-opening process

1. AEMO issue notice to participants advising when suspension will be lifted
2. A pre-opening period (30 min) will precede the re-commencement of trading and begin when AEMO lifts the trading suspension. 'Opening procedure' will run just prior to trading resuming
3. All open orders will be withheld upon the commencement of the pre-opening period
4. Resume continuous trading post the pre-opening period

MARKET CONDUCT



Part 22 (Division 5) of the National Gas Rules for the Gas Supply Hub includes Rules relating to market conduct

- The market conduct Rules seek to protect the integrity of the market
- **Exchange Members** have a general obligation to observe high standards of market conduct and to act with due skill, care and diligence in using the trading system and performing transactions
 - Specific conduct obligations will extend to the submission of orders, the provision of information to AEMO, compliance and performance of transactions

Monitoring by AEMO

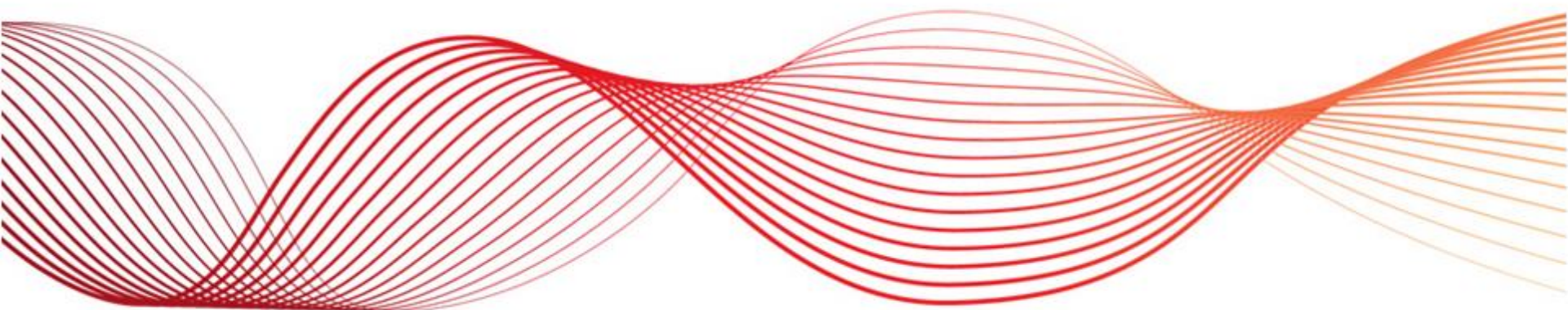
- If AEMO believes a Member has breached the Rules, AEMO may raise the matter with the Member concerned and, if it is satisfied with the Member's response, take no further action
- AEMO may also refer the conduct to the Australian Energy Regulator (AER)

Monitoring by AER

- The AER is charged with monitoring compliance with the market conduct rules (NGR)
- The AER may in conjunction with its monitoring role request that AEMO suspend a Member in relation to market conduct.
AEMO must comply with this request (EA 19.2(c))

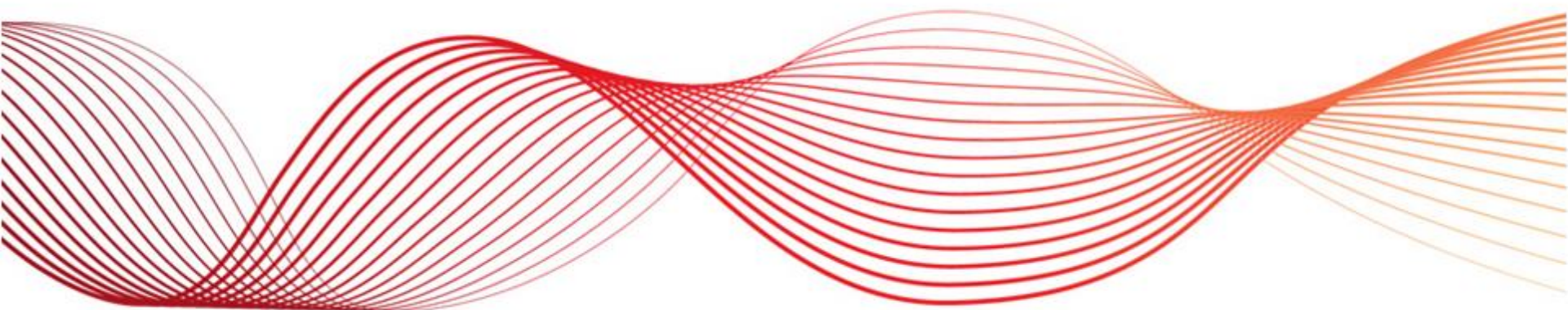
A breach of the Market Conduct Rules may lead to AEMO declaring that a Default Event has occurred

BENCHMARK PRICE



- To assist in the facilitation of derivative markets and products, AEMO publishes a daily end-of-day (EOD) benchmark price for GSH products for each trading location (RBP, SWQP and QGP), as well as the “Wallumbilla Benchmark Price” (a total of four separate price indices).
- The EOD benchmark prices are calculated by referencing trades and orders in ‘Day Ahead’ products on every calendar day.
- Prices are published on AEMO’s website under Gas > Market Data > Gas Supply Hub

GAS DELIVERY



Gas Delivery

- The Seller must deliver gas and the Buyer must take receipt of that gas
- Traders must arrange the delivery of gas using existing contractual arrangements
 - Gas delivery is between buyer, seller and relevant pipeline operator
 - AEMO does not play a role in the delivery of gas

Transactions



- ***Daily gas delivery obligations*** for all transactions:
 - Balance-of-day transactions converted to gas day quantity
 - ***Weekly and Monthly*** transactions traded on a ***delivery per gas day*** basis
- Gas delivery obligation linked to:
 - Delivery schedule for netted transactions, or
 - The Transaction if netting is not applicable
- Delivery point specified by the Seller in their order submission

- Uniform gas delivery across gas day
 - Parties (with the relevant pipeline operator) can negotiate an alternative delivery point or non-uniform flow rate
- Gas delivered must meet the **quality** and **pressure** specification relevant to the Trading Product
- The Exchange Agreement contains a process for managing off-specification gas

Delivery Netting - Concept

- Participant only required to deliver their net position
- Offsetting buy and sell exchange transactions are aggregated together to determine a net delivery position

<i>Trade</i>	<i>Participant A</i>	<i>Participant B</i>	<i>Participant C</i>
1	15		-15
2		-10	10
3	-10	10	
Total	Buy 5	Zero	Sell 5

Delivery Netting - Concept



- Netting is across transactions for a single **Trading Location** and **Gas Day**
- AEMO matches net buy and net sell positions to form a **gas delivery schedule**
- Trading parties **anonymous** until the gas delivery schedule is issued to participants
- All exchange transactions are financially settled

Delivery Netting – Trading Products



- Physical Gas transactions that are entered into ***just prior*** to or on the delivery gas day are ***not netted***
- Physical Gas transactions entered into ***two or more days prior*** to delivery ***are netted*** against other exchange transactions for the purpose of gas delivery

Trading Product	Trading Window	Netting
Balance of Day	On the day	<i>Netting not applicable</i>
Day-Ahead	Day prior	
Daily	2 to 7 days prior	<i>Gas delivery obligations are netted</i>
Weekly	Next 4 weeks	
Monthly	Next 3 months	

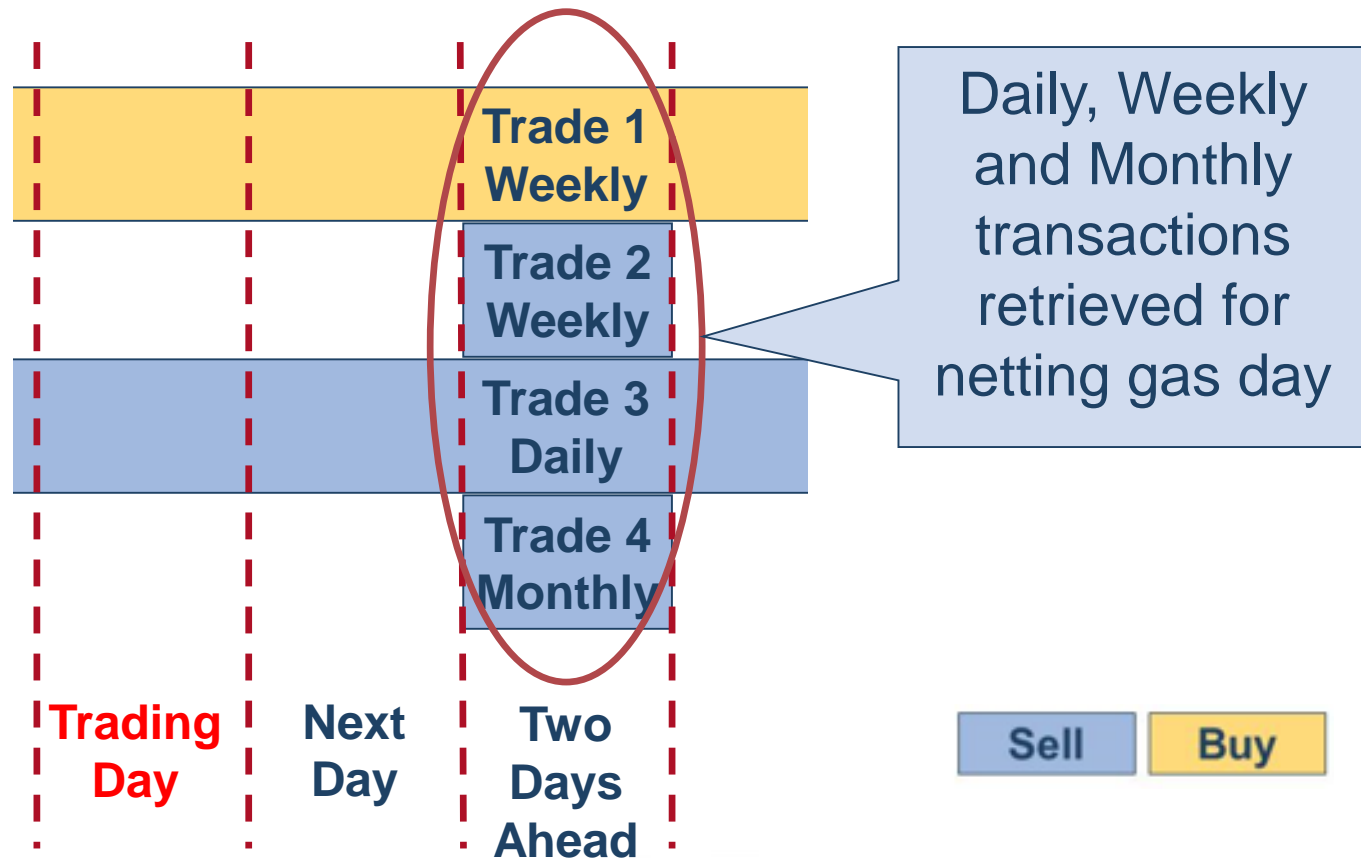
Overview of Process:

1. Retrieve transactions in netted Trading Products
 2. Determine net transaction position for each Trading Participant
 3. Match net buy and sell positions
 4. Issue delivery schedule to participants
- Netting process runs after the end of each trading day
 - Process is run separately for each Trading Location

Delivery Netting:

1) Netted Transactions

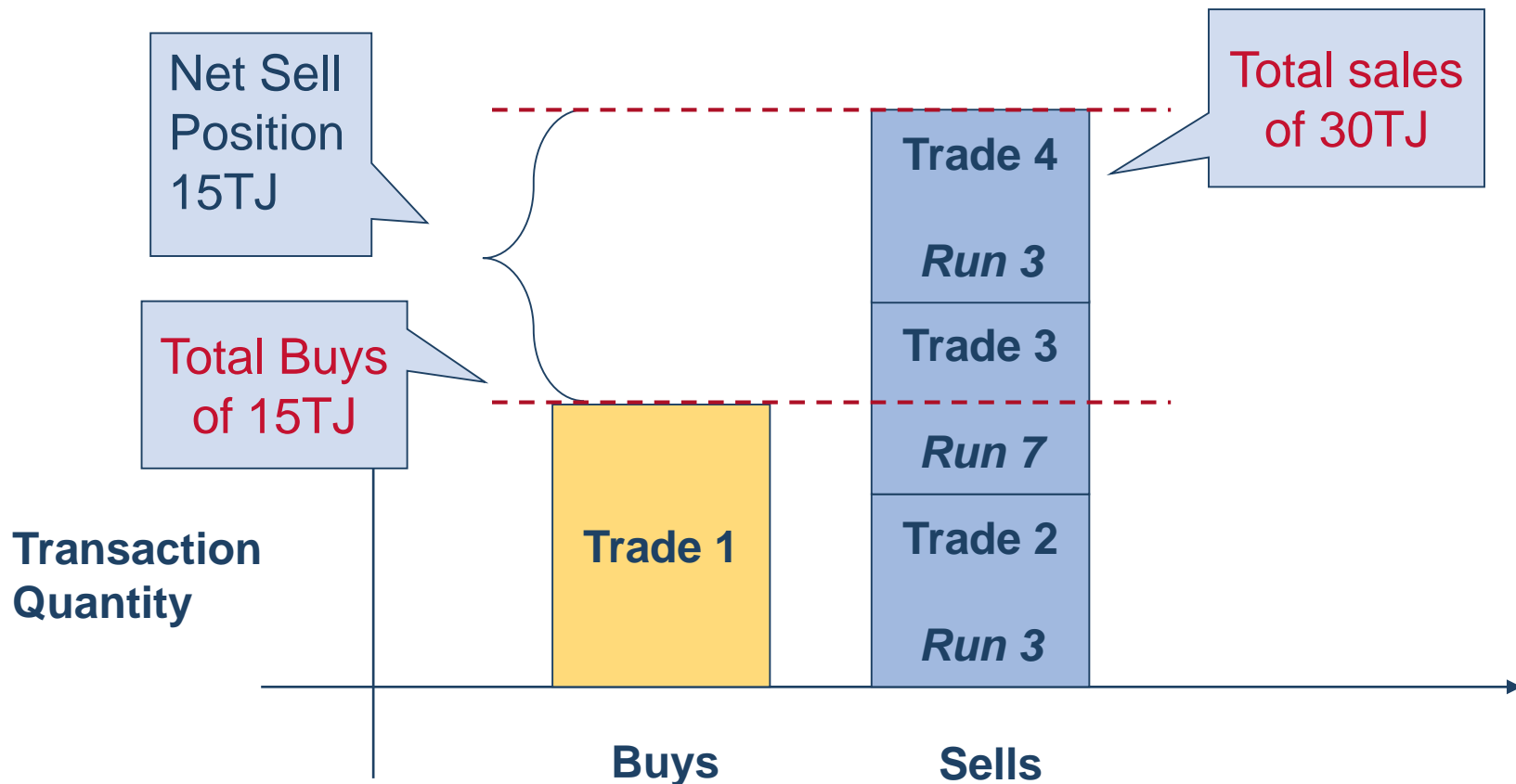
- Netting gas day is ***two days in the future***
- Retrieve transactions in netted Trading Products covering the ***Gas Day*** and ***Trading Location***



Delivery Netting:

2A) Net Transaction Position

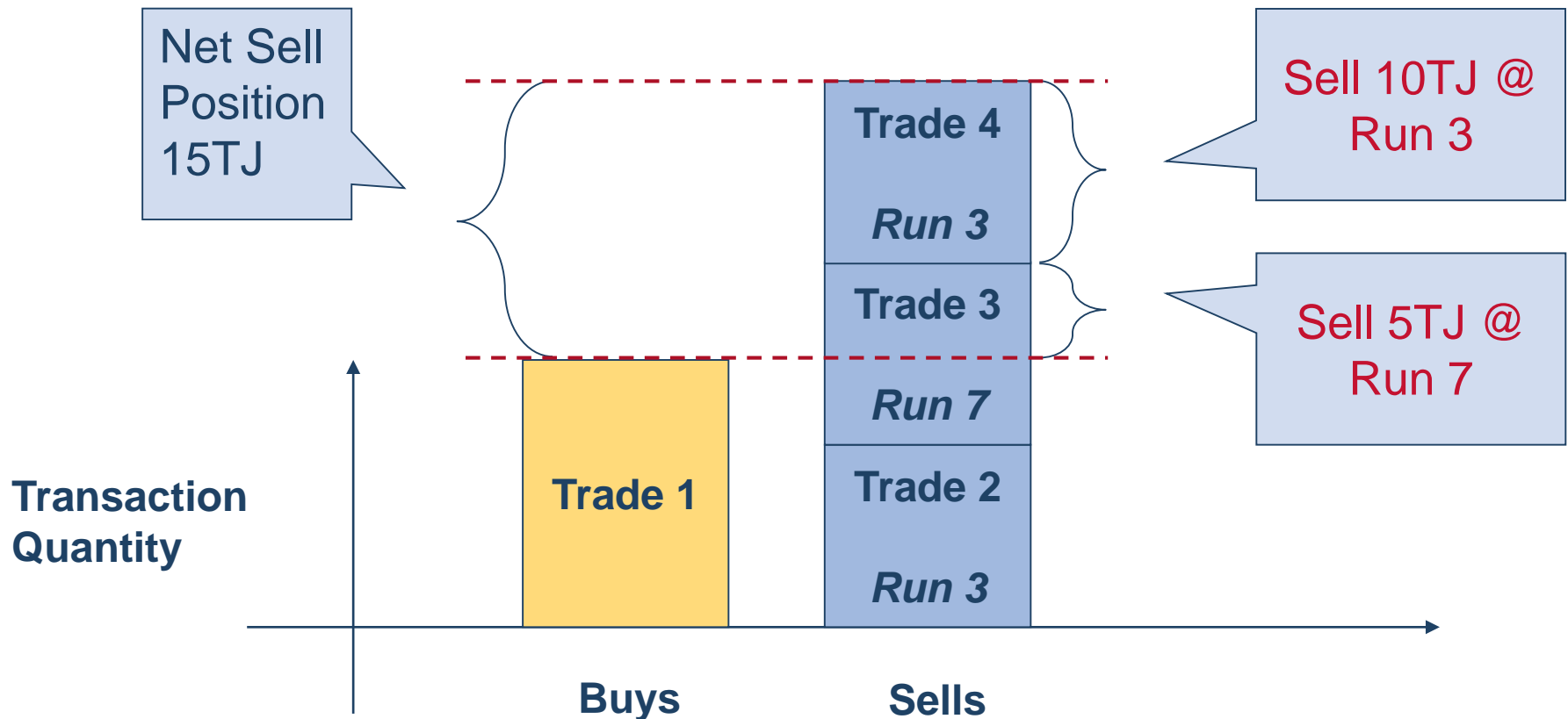
- Net transaction position is the difference between a participant's total buy and sell transaction quantity for each **Gas Day** and **Trading Location**



Delivery Netting:

2B) Net Sell Position

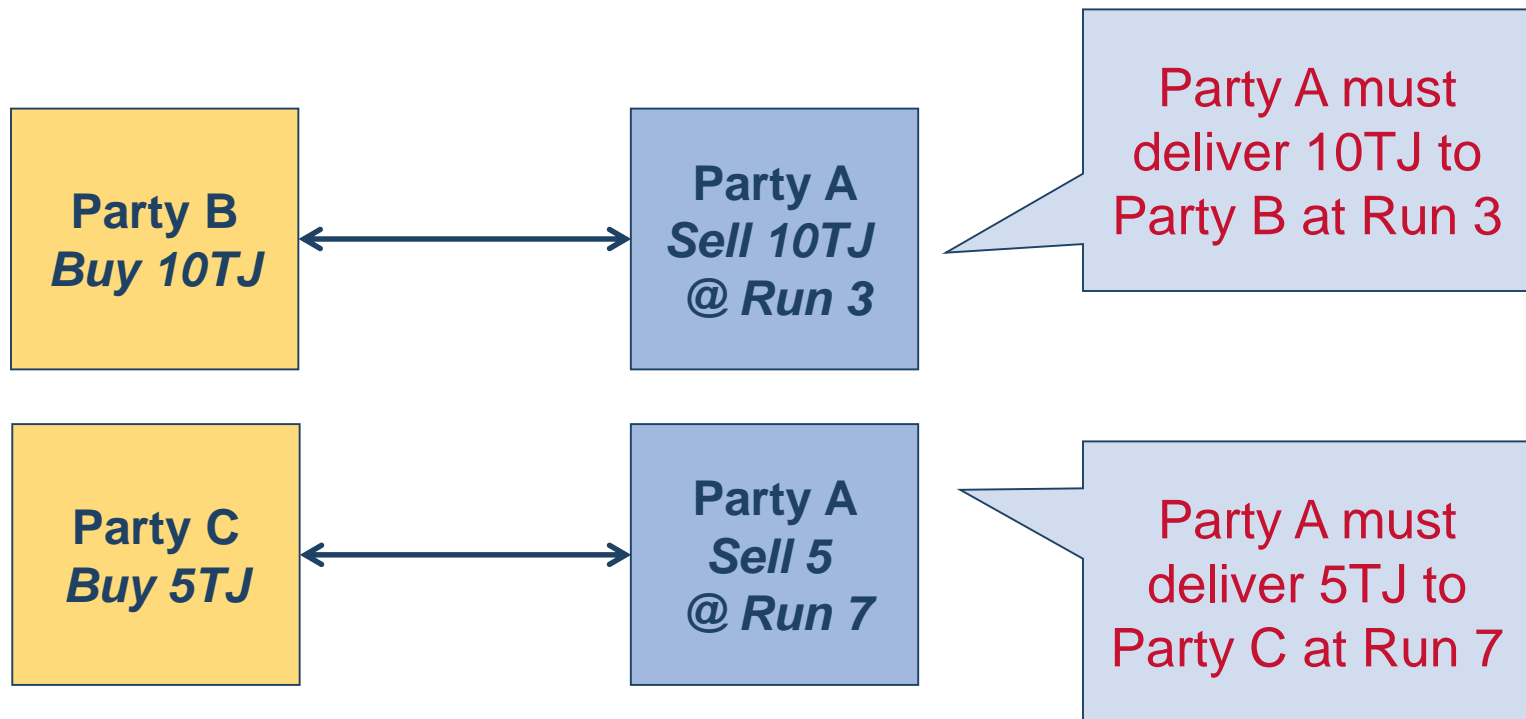
- Assign delivery point to net sell position
- Latest transaction information is applied
- Split net sell position if multiple delivery points exist



Delivery Netting:

3) Delivery Schedule

- Match net buy and sell positions to form **gas delivery obligation** schedule
- Simple matching algorithm that aims to minimise the number of matched delivery obligations



Delivery Netting:

4) Gas Delivery Information



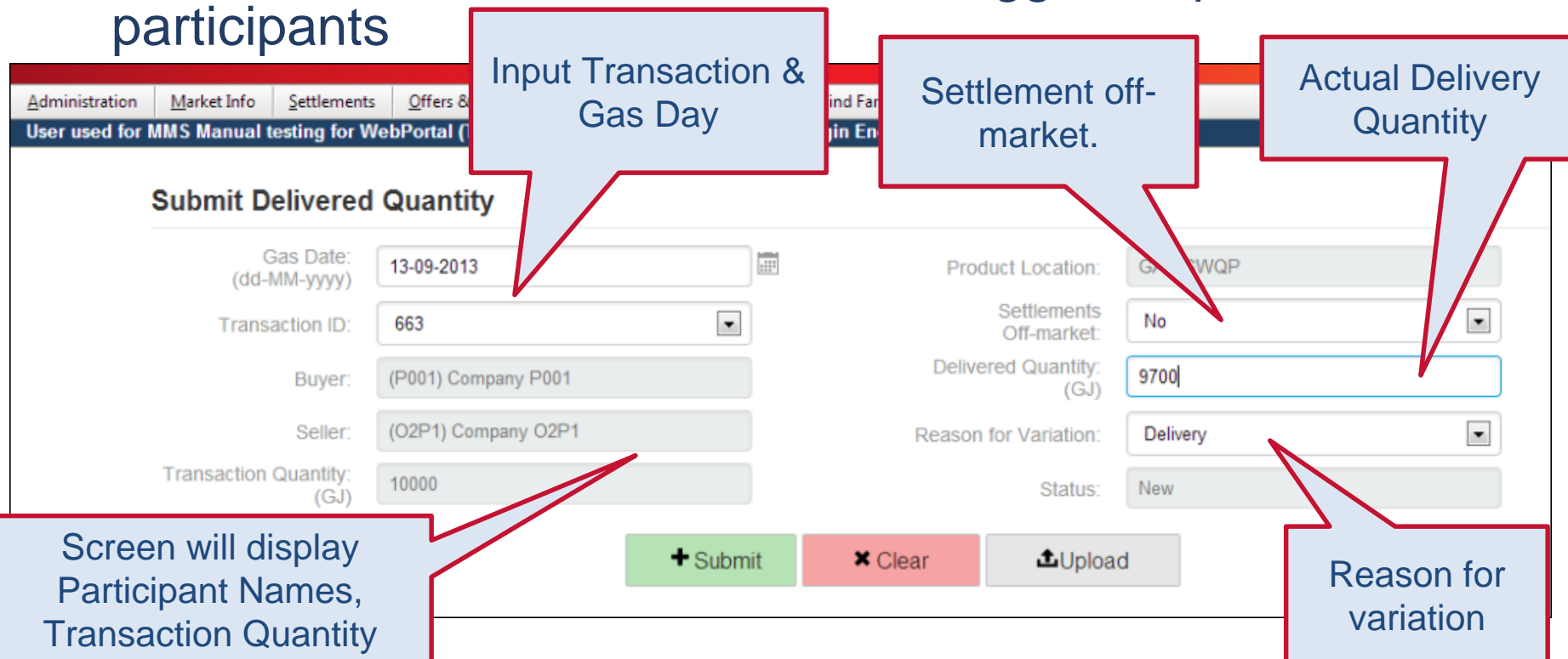
- Gas delivery schedule is reported to participants at the completion of the delivery netting process
- The ***Gas Delivery Obligation Report*** contains:
 - Gas day
 - ***Delivery counterpart***
 - Gas delivery quantity
 - Delivery point
- The report is also *triggered* by a ***transaction*** in a product that is not netted

Actual Delivered Quantity

- Actual Delivered Quantity determined by **Trading Participants** in accordance with the relevant delivery point **allocation agreement**
- A variation from the gas delivery obligation can be settled between the parties:
 - **Off market:** to allow parties to physically transfer gas,
OR
 - **Market Settlement:** through the GSH settlement process

Delivered Quantity Interface

- A **web-based interface** allows Trading Participants to communicate actual delivery information
- Data submission and confirmation triggers report to the participants



The screenshot shows the 'Submit Delivered Quantity' form with the following fields and callouts:

- Input Transaction & Gas Day:** Points to the 'Gas Date' field (13-09-2013) and the 'Transaction ID' dropdown (663).
- Settlement off-market:** Points to the 'Settlements Off-market' dropdown (No).
- Actual Delivery Quantity:** Points to the 'Delivered Quantity (GJ)' input field (9700).
- Reason for variation:** Points to the 'Reason for Variation' dropdown (Delivery).
- Screen will display Participant Names, Transaction Quantity:** Points to the 'Buyer' ((P001) Company P001) and 'Seller' ((O2P1) Company O2P1) fields.

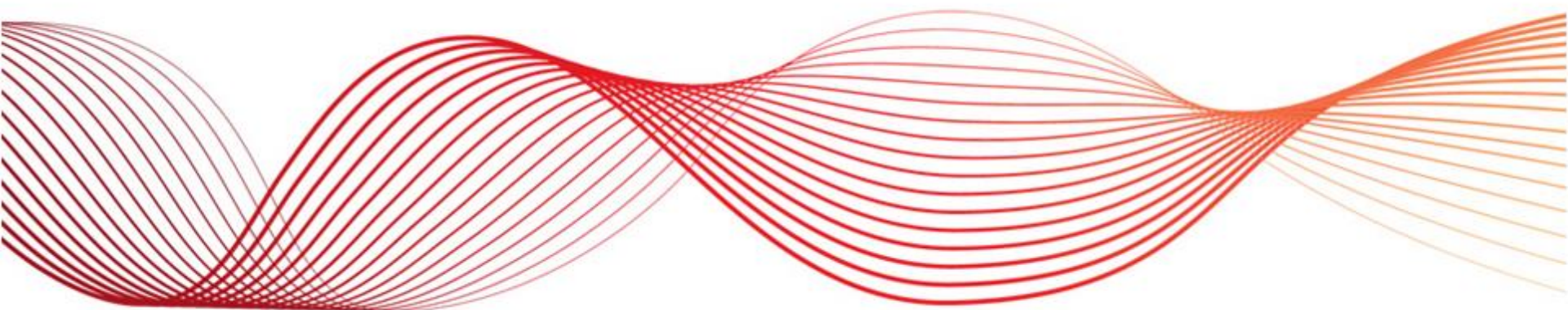
Other visible fields include 'Product Location' (G...WQP), 'Transaction Quantity (GJ)' (10000), and 'Status' (New). At the bottom are buttons for '+ Submit', 'x Clear', and 'Upload'.

Actual Delivered Quantity records can also be submitted in a bulk file upload using the **Participant File Share**

Delivery Variance Settlement

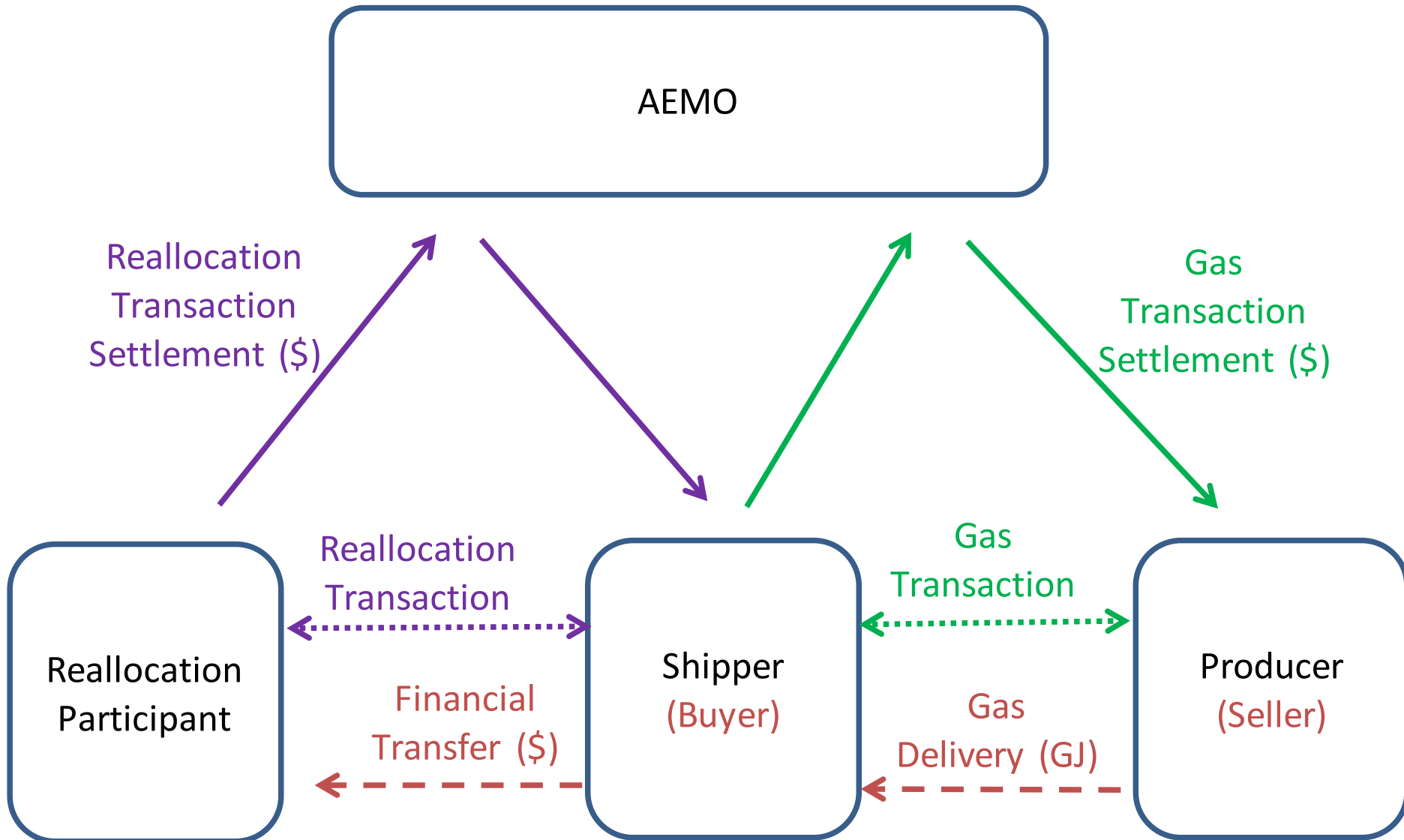
- Sole remedy within the EA for a breach of the gas delivery obligations is the ***Delivery Variance Settlement*** mechanism
- Settlement comprises:
 1. ***true-up*** of variation, and
 2. ***compensation*** if variance outside tolerance
- Variance settled by AEMO if actual gas delivery information is confirmed by both participants

REALLOCATIONS



- Financial arrangement between two Market Participants and AEMO to transfer settlement amount from one participant to another
 - The credit participant transfers their obligation to make a payment to the market to the debit participant
- Reallocation types:
 - Dollar Reallocation (\$)
 - Energy Reallocation (GJ)
- Financial participants are able to register as a Reallocation Participant.
- Market Participants lodge written request for authorisation to use reallocations

Reallocation Cashflow



Reallocation Process

1. Market Participants have an agreement for financial transfer (off-market)
2. Submit Reallocation Request
3. Confirm Reallocation Request
4. Incorporate Reallocation transactions in Prudential Exposure calculations
5. Market Participants make a settlement “true up” (including any applicable service fee) to reflect Reallocation Transaction (off-market)
6. Incorporate Reallocation transactions in Billing Period settlement process

Reallocation Request

Agreement Confirmation

Submitter's role in reallocation

Agreement references

Counterparty

☐ Check this box to confirm there is a contract that underpins this reallocation then click 'Submit' to create the reallocation.

Reallocation Role ☐ Credit ☒ Debit

Reference REF #RW32.RW

Start Date (dd/MM/yyyy) Wednesday, 4 September 2013

Agreement Type Fixed Quantity Amount (GJ)

Agreement Amount Per Day

Apply to all

Counterparty Participant (ESTR) Stella Enterprises

Counterparty Reference

End Date (dd/MM/yyyy) Thursday, 19 September 2013

Product Location GAS-RBP

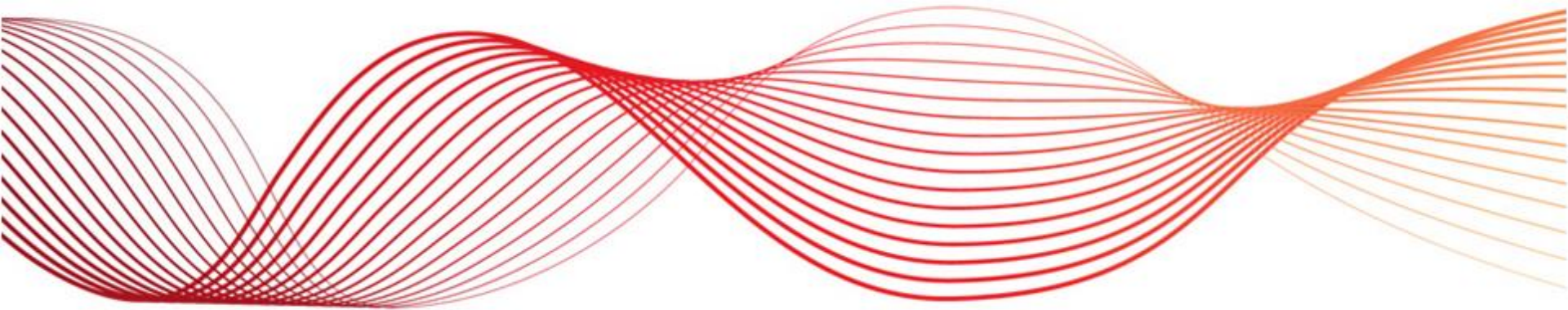
Agreement Type

Reallocation Amount

Start and End Date

Trading Location: Energy Reallocations

SETTLEMENTS AND CREDIT RISK MANAGEMENT



Centralised Settlement

- AEMO calculates settlement amounts and issues statements to participants
- AEMO collects funds from buyers and makes payment to sellers

Centralised credit risk management

- Participants post collateral to cover their potential settlement exposure
- Credit risk associated with the gas supply hub will be managed separately from other markets operated by AEMO

Settlement Components:

- Participation Fee, Transaction Fee
- Physical Gas Transaction Settlement
- Delivery Variance Settlement
- Reallocation Settlement Amounts
- Ad hoc Settlement Amounts
 - Close Out Settlement, Offset Settlement

Settlement calculations:

- All settlement is calculated for a gas day
- Gas day amounts are settled in the monthly Billing Period
- Payments to a Market Participant have a negative sign

Participation Fees



Trading Participants	Fixed Fee – One user account licence	\$14,500 p.a. licence fee
	Fixed Fee – additional user account licences	\$5,500 p.a. licence fee
	Variable Transaction Fee	\$0.03/GJ gas day products; \$0.02/GJ weekly product \$0.01/GJ monthly product
Reallocation Participants	Fixed Fee	\$9,000 p.a.
Viewing Participants	Fixed Fee	\$5,500 p.a. licence fee

- Fee paid monthly by Trading and Reallocation Participants

Physical Transaction Settlement

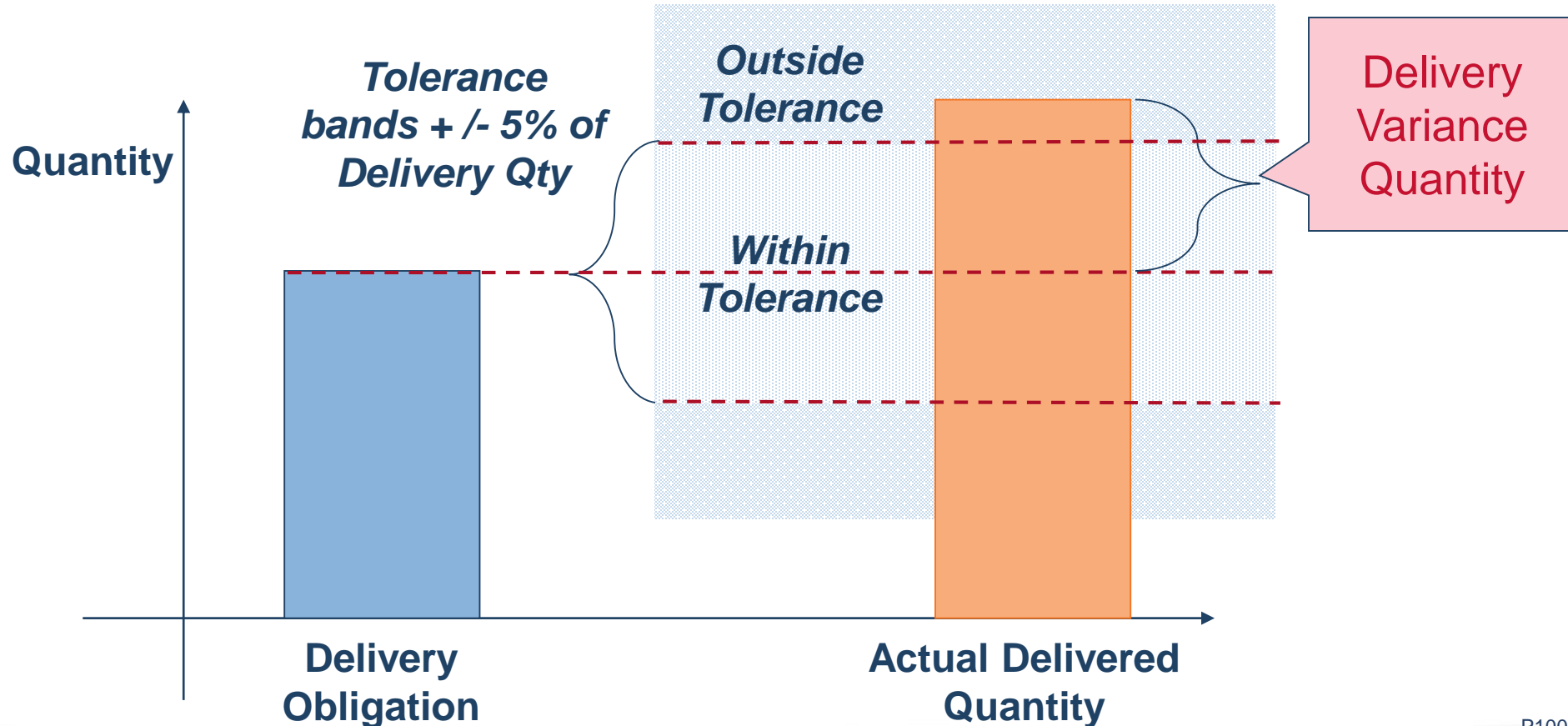
- All physical gas transactions are financially settled
- AEMO collects a charge from buyers and makes a payment to sellers
- Settlement amount is the product of the Transaction Price and Quantity

Transaction Fees

- Transaction fee applied to the Transaction Quantity
- Rates different for monthly (\$0.01/GJ), weekly (\$0.02/GJ) and daily (\$0.03/GJ) products
- Settled with reference to the day of the Transaction

Delivery Variance Settlement

Market settlement of a variation between the Delivery Obligation and the Actual Delivered Quantity



Delivery Variance Settlement: Inputs



- Trading Participants can use Delivered Quantity interface to trigger the market settlement of a delivery variance by providing:
 - The **Actual Delivered Quantity**, and
 - The **reason** for the gas delivery variation

Reason for Variation	Description
Delivery	The delivering participant (Seller) was responsible for the delivery variation
Receipt	The receiving participant (Buyer) was responsible for the delivery variation
No fault	Gas delivery scenario meets the definition of FM in EA

Delivery Variance Settlement: Calculation



- Delivery Variance Settlement: ***Delivery Variance Quantity*** is settled at the ***Delivery Price***
- Delivery Price:
 - Average transaction price for netted products.
 - Transaction price if product isn't netted
- Adjustment for ***variance outside of tolerance***:
 - Party at fault compensates their counterpart for 25% of the value of the variation
 - No adjustment if Force Majeure (pipeline issue only) applies to the delivery failure

Gas Day Reallocation Settlement Amount:

- ***Dollar Reallocations (\$):***
 - Dollar Amount for gas day
- ***Energy Reallocations (GJ):***
 - Energy Reallocation Quantity (GJ) x Applicable Reference Price (\$ / GJ)
 - *Applicable Reference Price:* Average Price for designated Trading Location

Ad hoc Settlement:

- Miscellaneous settlement items
- Could be used for the invoicing of Close-out and Offset Settlement amounts

Close-out and Offset Settlement:

- Process established for the close-out of forward transaction positions in the event of default
- **Offset Settlement:** Gain or loss by the defaulting participant on offsetting buy and sell transactions
- **Close-out settlement:** Compensation paid by the defaulting participant to their counterparts

Daily Settlement Process



- Indicative settlement calculated each business day based on most up to date transaction and gas delivery information
- Supports monitoring of prudential exposure
- Settlement amounts and quantities are reported to participants each day
- No preliminary statements - indicative daily settlement reports can be used ahead of the Final Statement

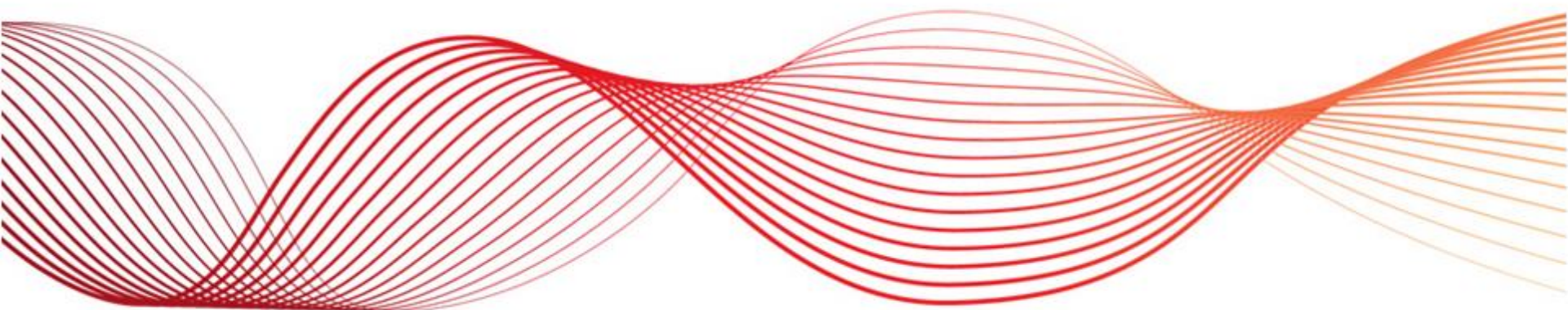
Final Statements

- Gas Day settlement amounts are calculated and then collated on the statement
- Statement presents the net amount payable by or to the participant
- Issued by AEMO monthly

Revised Statements

- Gas Day settlement amounts are recalculated 3 months after the end of the billing period
- Statement presents the settlement adjustment amount and applicable interest

PRUDENTIAL



Prudential Monitoring

- Exposure of Market Participants calculated regularly
- AEMO monitors that Exposure < Trading Limit

Trading Limit

- Equal to the amount of credit support provided
 - Unconditional bank guarantee from an **authorised** financial institution or state-owned treasury as per other AEMO markets

Treatment of cash

- Reduce the exposure of a participant
- Will be treated as an interest bearing security deposit
- Limit greater of \$100,000 and the participant's trading limit

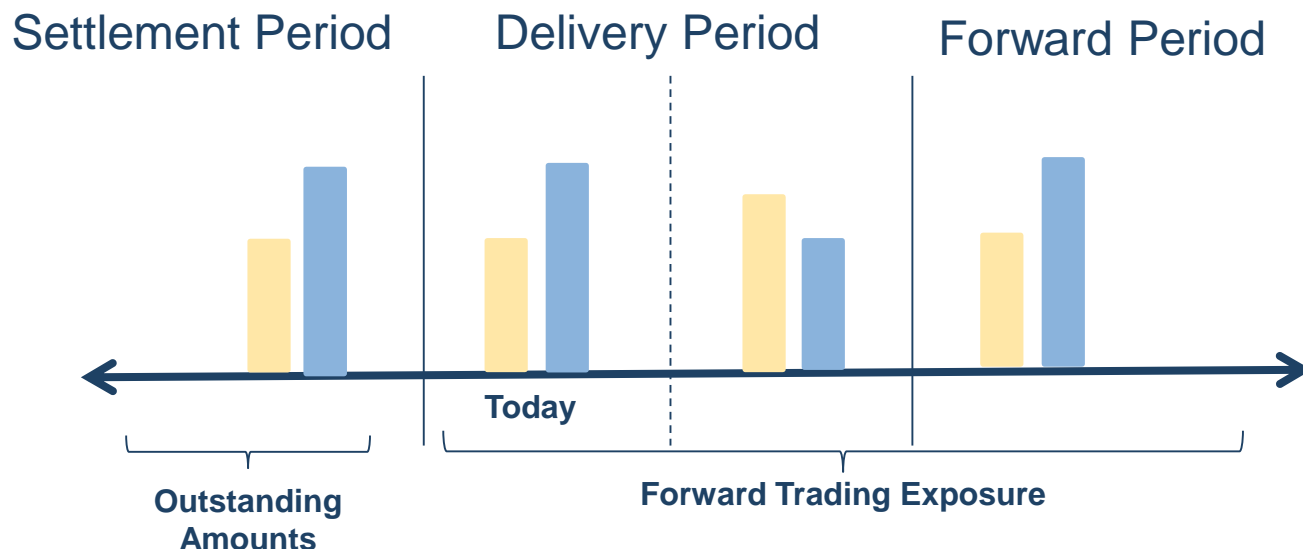
Daily Assessment

- Calculated at least once each business day
- Daily assessment based on latest transaction and delivery data
- If a market participant's exposure exceeds their trading limit:
 1. Not eligible to submit new orders
 2. Trading Halt
 3. Issue Margin Call

Real-time assessment

- Between assessments the trading system will maintain cumulative balance of new exchange transactions and orders
- New order submissions will be validated based on potential, if transacted, for the exposure to exceed the trading limit
- If a participant reaches their trading limit then they must increase collateral posted (*or reduce exposure*) with AEMO before they can resume trading

Prudential Methodology



Prudential exposure period consists of:

- **Settlement period:** Aggregate of transaction and delivery variance settlement amounts in the past
- **Delivery period:** value of transactions that are close to or in the process of being delivered
- **Forward period:** the net buy or sell position that has been closed out for delivery on future gas days

Prudential Exposure

$$\begin{array}{ccccccc} \text{Outstanding} & & & \text{Forward} & & & \text{Forward} \\ \text{Amounts} & & + & \text{Trading} & & + & \text{Reallocation} \\ & & & \text{Exposure} & & & \text{Amount} \end{array}$$

- Exposure determined at least once a day based on active orders, transactions, reallocations and confirmed gas delivery data
- Exposure details reported in the ***Prudential Exposure Report*** and the ***Prudential Dashboard***

Outstanding Amounts

- Aggregate of:
 - Statements issued that are ***not yet due for payment***,
 - ***Estimate of settlement amounts*** for gas days that have been delivered but not yet included in an invoice,
 - Less ***security deposits*** and any ***early payments***
- Settlement estimate incorporates a ***Delivery Settlement Adjustment (20%)*** for any transactions that have not been confirmed

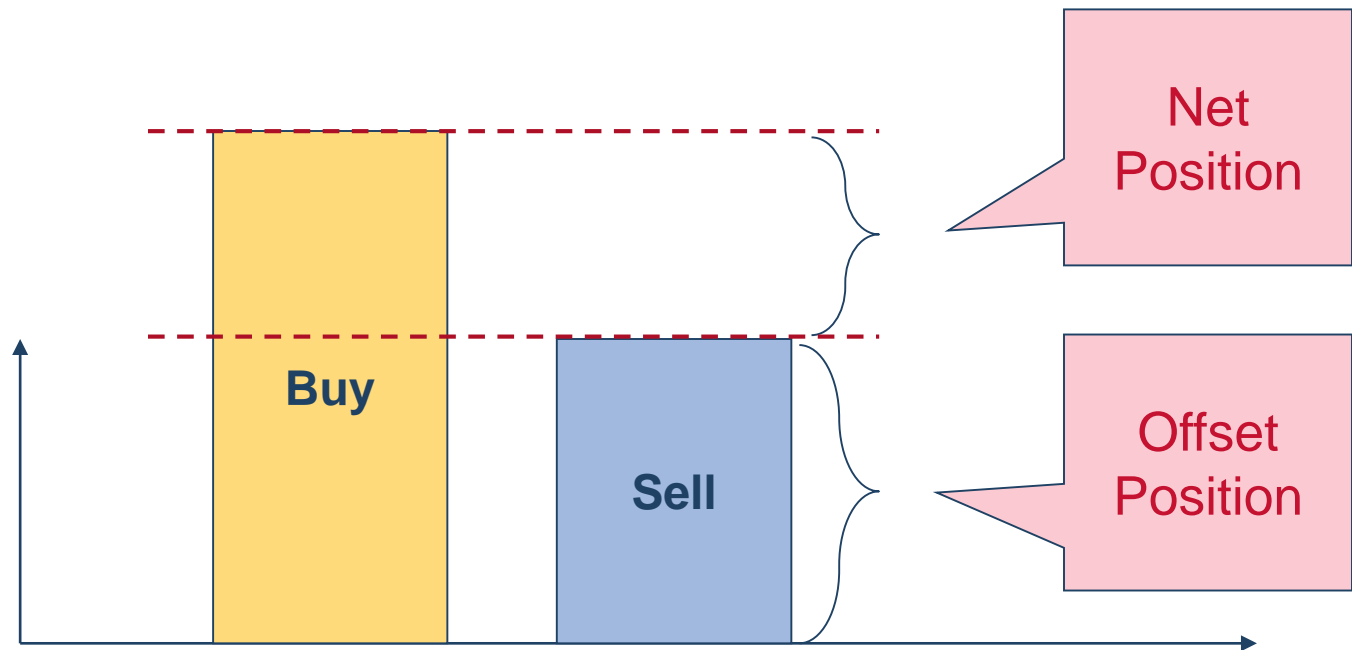
Forward Trading Exposure

Exposure on
net long or
short position

+

Gain or loss
on offsetting
trades

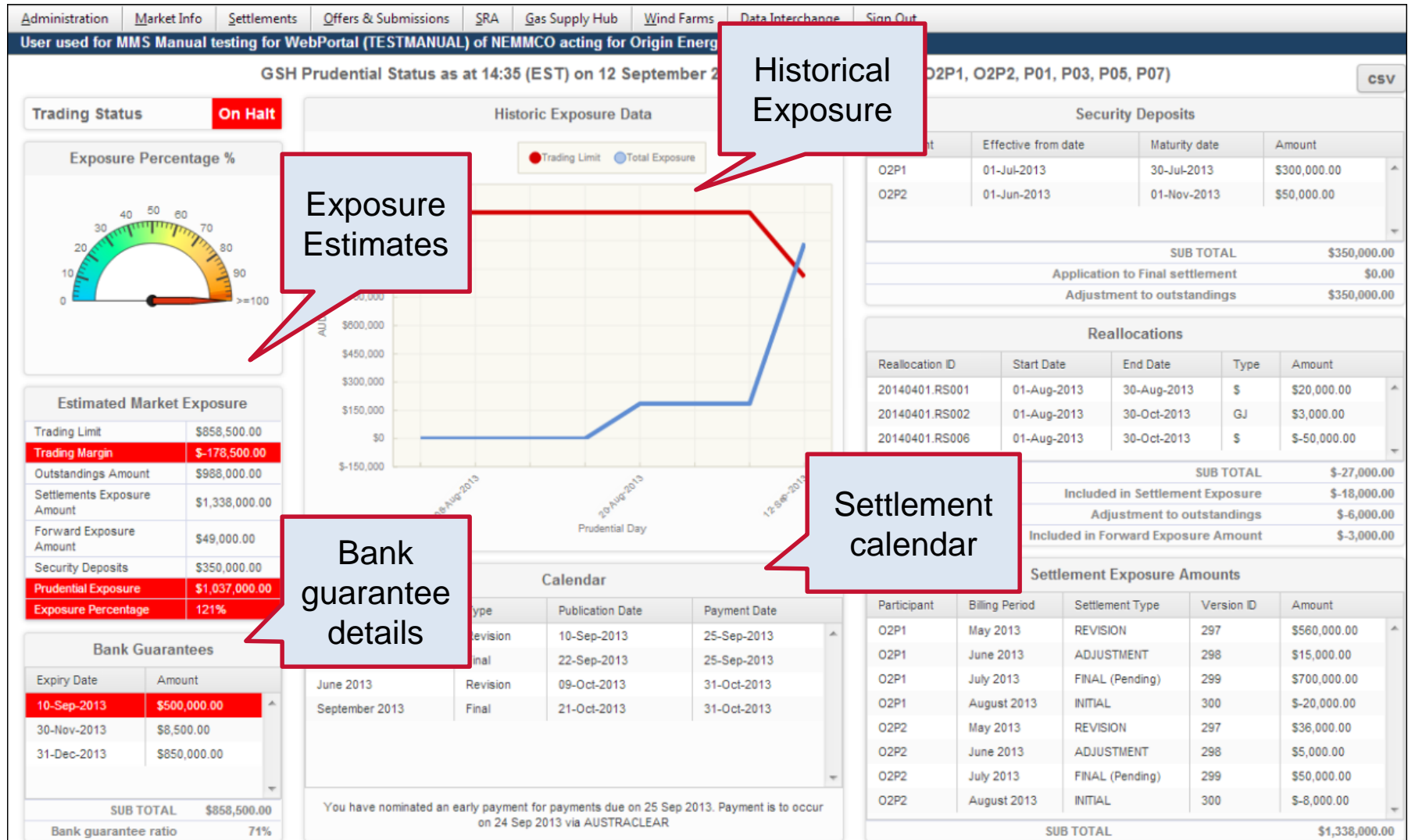
Transaction
Quantity



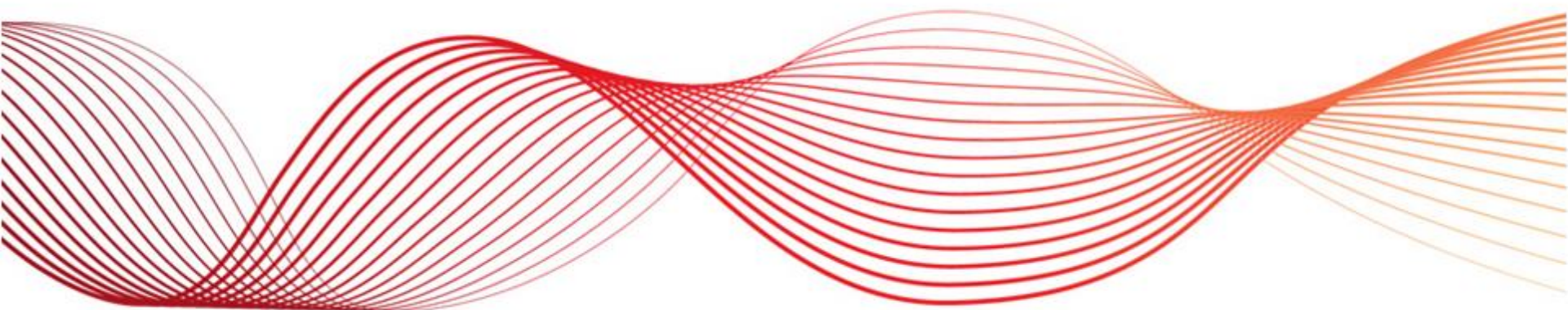
Forward Reallocation Estimate

- Estimate of reallocation settlement for the “forward” period
- **Dollar Reallocation**
 - Dollar amounts specified in the reallocation
- **Energy Reallocation**
 - Product of ***Daily Quantity***, ***Rolling Average Price*** and a ***Multiplier***
 - Multiplier increases exposure of debit participant and decrease that of the credit participant

Prudential Dashboard



MARKET SUPPORT



Market Support



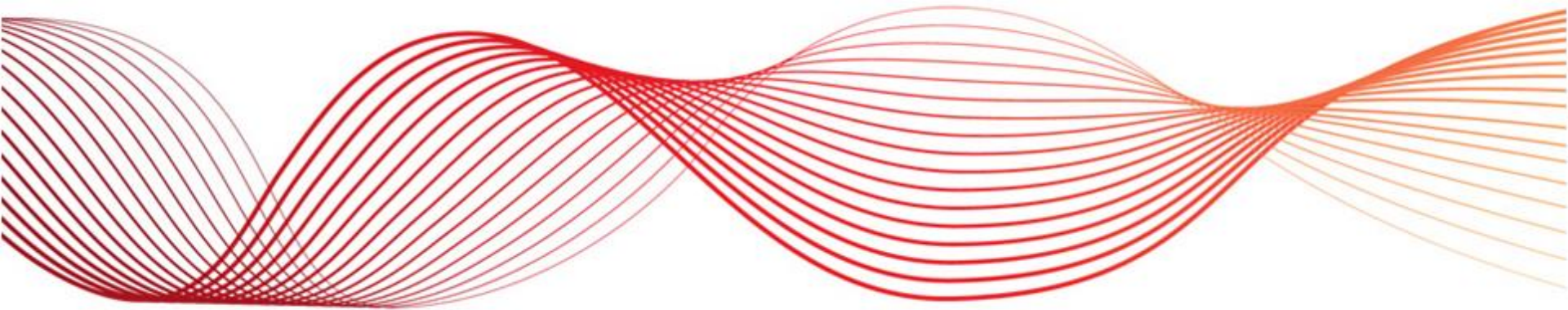
- Settlement services are provided on Business Days (National)
- The AEMO Information and Support Hub provides an information and helpdesk service to participants and the public regarding gas supply hub market operations
 - The Information and Support Hub operates during business hours
 - Support to participants is provided on:
 - Market operations
 - Trading outcomes
 - Prudential issues
 - Settlement outcomes
- Support for critical IT related problems is available 24 hours, 7 days a week through the Support Hub phone number. Contact details are available through the AEMO website

Support on the weekend will be restricted to handling requests on:

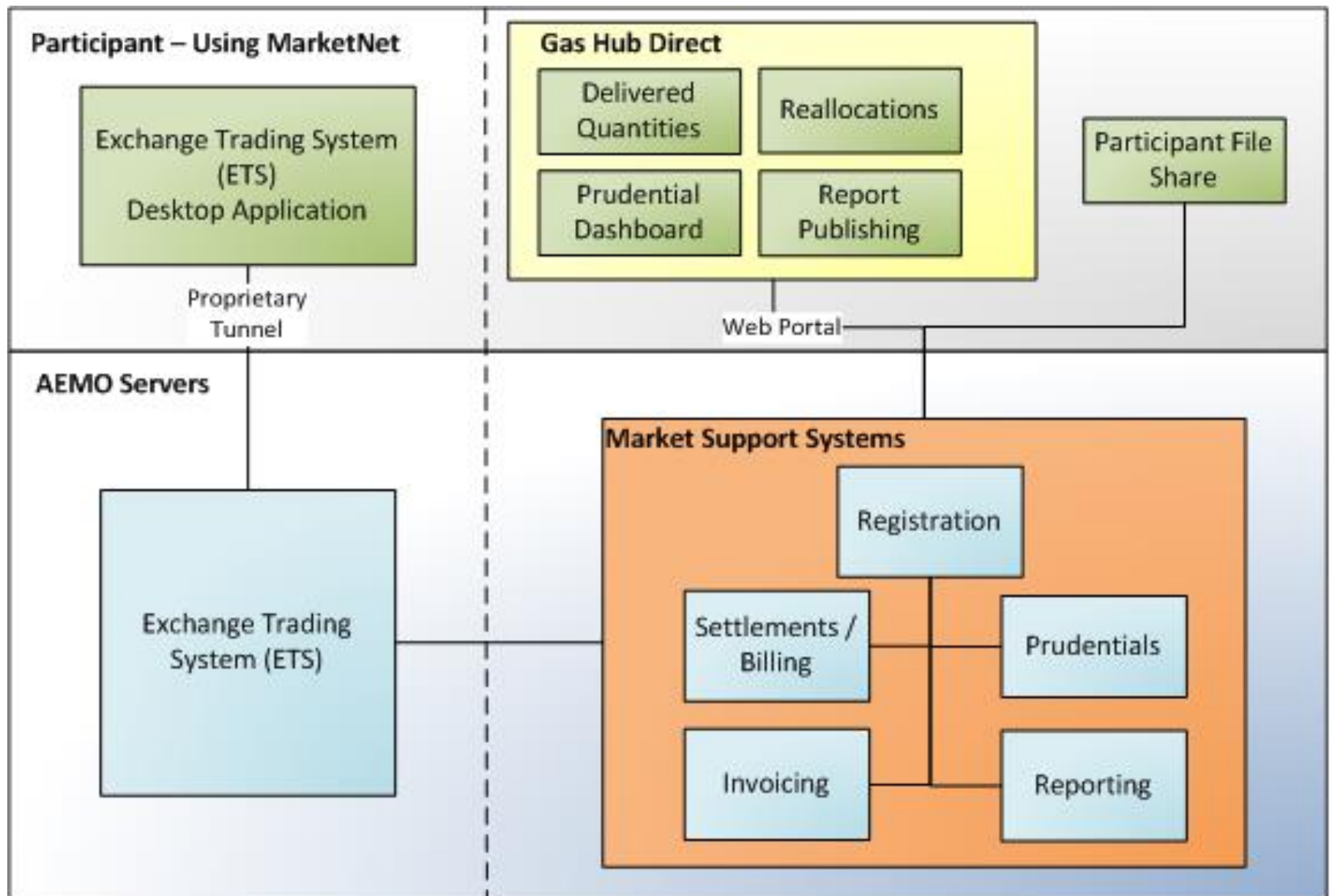
- Participant access to the systems (account resets, network connectivity etc.)
- Simple issues on interfaces and availability of reports/data
- Addressing trading system issues and notifying participants if the service is unavailable

Limited support is provided for detailed questions on market operations. These types of questions will usually be followed up within business hours

MARKET SYSTEMS



Market Systems



Exchange Trading System



- Participants install a **desktop ETS application** to access the Exchange
- The Exchange Trading System (ETS) allows Trading Participants to **directly** and **anonymously** lodge orders into central order book of the exchange
- Orders from Trading Participants are collated in the **central order book**
- Transactions formed by matching orders based on price and time priority
- **On screen confirmation** of orders and transactions
- Trading Participants can manage their orders and view active orders and trading statistics through the ETS

AEMO has developed systems to support the market:

- **Registration:** manages organisational information of members and their participation details
- **Settlement:** calculates settlement amounts based on latest transaction, delivered quantity and reallocation data
- **Prudential:** calculates and monitors prudential exposure and trading limits
- **Reporting:** generates reports for order and trade confirmation, trading statistics, settlement supporting data and participant information

Gas Hub Direct



Market Participants can access the market support systems through ***Gas Hub Direct***

Energy Market Systems Test Participant Sign Out Help

Home Create Reallocation

Create a Reallocation

☐ Check this box to confirm there is a contract that underpins this reallocation then click 'Submit' to create the reallocation.

Submitting Participant: (02P1) Company 02P1

Counterparty Participant: (0008) Company 0008

Reallocation Role: ☒ Credit ☐ Debit

Counterparty Reference:

Reference:

End Date (dd/MM/yyyy):

Start Date (dd/MM/yyyy):

Agreement Type: Fixed Dollar Amount (\$)

Agreement Amount Per Day: Apply to all

Gas Day	Dollars	Gas Day	Dollars	Gas Day	Dollars
01/01/1970	\$0.00				

Report Publication



Market Reports are published through ***Gas Hub Direct*** and the ***Participant File Share***

Confirmation Reports	Trading Statistics	Settlement Support	Contacts and Participant Register
Order confirmation report	Daily transaction summary report	Settlement supporting data report	Trading and delivery contact details report
Trade execution report	Historical gas day transaction report	Prudential exposure report	Contact details report
Delivery obligations report		Delivered quantity report	Registered participants report
Reallocation confirmation report			

Publishing Direct

Publishing Direct allows participants to set up delivery subscriptions

Gas Supply Hub Subscriptions for Australian Energy Market Operator Limited

Category: GSH Statements Type: (All types) Contact: JAMES DIKHA

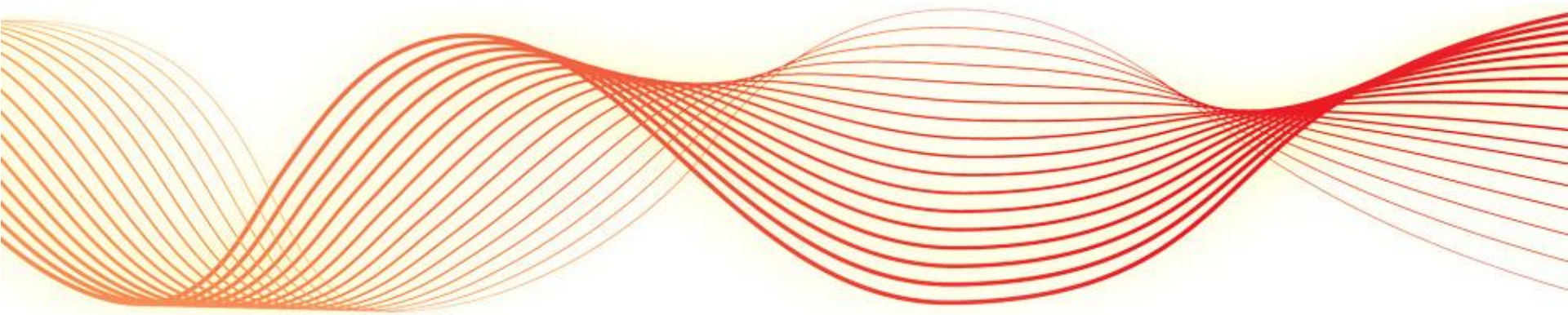
Name	Contact Details	E-mail	Notify by E-mail	Notify by SMS	Contact Identifier
Category: GSH Statements					
Type: GSH Final Statement					
JAMES DIKHA	james.dikha@aemo.com.au (61288845366)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	JAMESDIKHAMSATSUSER

Secured Delivery Attachment ☒

Submit

When a **new** version of the subscribed report is published, depending on the participant's subscription selections, either an email or SMS, **or both** is sent to the participant

Market Registration

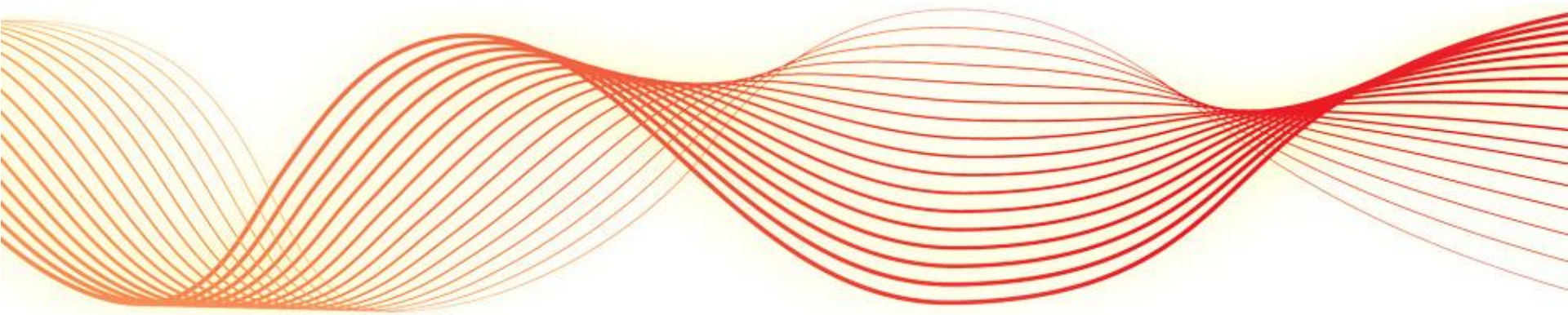


Registration Requirements



Requirement	Trading	Viewing	Reallocation
Register with AEMO using application form	✓	✓	✓
Signed Membership Agreement	✓	✓	✓
Recipient Created Tax Invoice Agreement	✓	N/A	✓
Additional information to establish eligibility	✓	✓	✓
Meet Prudential Requirements	✓	N/A	✓
MarketNet connection	✓	✓	✓
Install Exchange Trading System	✓	✓	N/A

Other Sources of Information



General information

- Industry Guide to the GSH
- End to End Example

Technical and administrative

- Registration Application and guide
- GSH Registration Checklist
- Guide to GSH Reports

Legal

- Exchange Agreement
- GSH Exchange Fees
- Settlements and Prudential Methodology
- Security Deposits Guide
- Reallocation Procedure
- Interface Protocol

Web Sites



AEMO GSH Page

<http://www.aemo.com.au>

Gas > Market Operations >
Gas Supply Hub

Glossary

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Consultations

About the Industry

About AEMO

Data | Market Operations | Network Connections | Planning | Retail & Metering | Settlements | Policies & Procedures | Resources

Market Operations

Declared Wholesale Gas Market

Short Term Trading Market

Gas Supply Hub

Join the Market

FAQ

Development Work

Historical

Home > Gas > Market Operations > Gas Supply Hub

Gas Supply Hub

In an Australian first, a voluntary gas supply hub has been established at Wallumbilla in Queensland to provide the gas industry with greater opportunity to buy and sell gas.

The initiative arose from the standing Council on Energy and Resources (SCER) which requested AEMO develop this hub to enhance transparency and reliability of gas supply by creating a voluntary market that offers a low-cost, flexible method to buy and sell gas at interconnecting transmission pipelines.

The gas supply hub is an exchange for the wholesale trading of natural gas. Participants place anonymous offers (to sell) or bids (to buy) a specified quantity at a specified price, which are automatically matched on the exchange to form transactions.

The new voluntary market responds to emerging challenges in the east coast gas markets. Queensland in particular is experiencing substantial developments in liquefied natural gas (LNG) exports, which has increased the need for more flexible and transparent upstream transactions between parties.

For general information see the attached fact sheet. If you have questions about the hub see [Frequency Asked Questions](#) or contact [AEMO's Information and Support Hub](#).

For companies interested in trading or following the market as a viewing participant, all of the information that you need is contained in the "Join the market" tab to the left.

Questions?

