Agenda

• Guidance material - GMRG
• AER guidance and timeline
• CTP Products
• Market integration
  • CTP
  • DAA
  • Delivery process
• Zones consultation
• Market systems update
Capacity Trading Platform Products
Approach to defining products

• Capacity trading products for forward haul and compression:
  • ‘Receipt Zone’ to ‘Delivery Zone’ on ‘Facility’ (for ‘tenor’)

• Products expected to have a reasonable level of demand will be available for on-screen, exchange-based trading (and off-market)
  • Other products will be available off-market only (with full integration with facility operators to transfer capacity on these products).
  • Limit on-screen products to avoid congestion on-screen.
In general, no product between overlapping RZ and DZ (ie where RZ and DZ at same location)
Specifying products

• Initial product list will be included in next round of consultation (in schedule to the Exchange Agreement)
• Participants will have an opportunity to provide feedback on the products included for on-market and off-market trading.
Market Integration - CTP
STTM Integration

• On some pipelines the STTM hub definition doesn’t perfectly align with zonal definitions.

• Three potential variations include:
  o **Discrete zone:** where the pipeline zone and STTM hub definition align.
  o **Mixed zone:** where there is a mix of STTM and non-STTM delivery points in the same zone, or
  o **Split zones:** where an STTM hub is split across more than one pipeline zone.

• Proposed approach for integration of STTM capacity trades:
  • AEMO will automatically reduce the capacity of the seller’s contract (CRN) capacity (and trading right capacity), and increase the contract capacity of the buyer.
  • Where there is a **mixed zone** it is proposed that there will be the following capacity products on the CTP:
    o Integrated product – will automatically adjust buyer’s and seller’s STTM contract capacity.
    o Non integrated product – no adjustments made to STTM contracts.
EGP Forward haul (CTP – STTM)

• STTM integration needs specific consideration.
• DZ-05 and DZ-06 are mixed STTM zones – containing both STTM (highlighted in orange) and non-STTM points.

- DZ-05
  - Tallawarra
  - Port Kembla
  - Albion Park
  - Horsley Park
  - Smithfield

- DZ-06
  - MSP Wilton
  - Wilton JGN

• Trades for transport to STTM CTMs will be integrated with market systems (STTM TRNs will be adjusted to reflect the outcome of trades).
• In a mixed zone there will be two products:
  - An integrated product including only the STTM points
  - A non-integrated product including non-STTM points

- CRN and TRN adjustments will only be made for the STTM integrated product (STTM integrated products will not have a Day Ahead tenor available).
Product 1 – Integrated

- The two products will trade separately on the CTP and both products would not have to be exchange-listed
- STTM adjustments would only apply for trades in product 1

Product 2 – Non-integrated

- Note that for the DAA, all points will be available as part of DZ-05 as there is no STTM integration
DWGM Integration

- DWGM interface points (e.g. Culcairn, VicHub) will be included in zones for trading on the CTP and DAA

- **Integration** – confirmed capacity transfers at a DWGM interface pace will result in an automatic change to the maximum hourly flow bid constraint in the DWGM
  - Participants must have their DWGM accreditation set up at the relevant point with AEMO prior to trading on the CTP or DAA

- Similar to the options for the STTM, mixed zones or discrete zones could be used

- Unlike the STTM, integrated products in mixed zones can comprise a combination of DWGM and non-DWGM interface points
**DWGM Mixed Zone and Integrated Product Example**

- **RZ-01** MSP Inlet

**DZ-08 Culcairn South (DWGM)**
- Uranquinty
- Uranquinty Power Station
- Holbrook
- Henty
- Culcairn Trade Point

**Key Points**
- **Buyer** wants capacity at Culcairn South
- AEMO will adjust the **buyer's** MHQ at Culcairn south to reflect the trade
- **Buyer** will need to nominate to the pipeline operator and be scheduled in the DWGM to utilise its capacity

**Seller’s** capacity is at Uranquinty PS
- No adjustment for the **seller** is required
Market Integration - Day Ahead Auction
Section 16 of the Auction Procedures deals with “Product Components and the Auction Solver”

Design Recap

• AEMO will operate a day-ahead auction for pipeline capacity shortly after nomination cut-off time on each gas day.

• The auction will be for transportation services on facilities as defined in the Transportation Service Point Register.
  • Backhaul;
  • Forward haul; and
  • Compression.

• Auction Products are defined as a transportation service between a receipt point and a delivery point on an Auction Facility.
  • Participants bid from receipt point to delivery point.

• Auction Products comprise multiple Product Components which limit the capacity that can be acquired for the Auction Product
  • AEMO will pre-process bids for Products into Product Components for use in the solver

• The Auction solver will determine prices and quantities for each auction component which AEMO will re-aggregate into quantities and prices for each auction product.
Auction products recap

The day ahead auction will facilitate forward haul, compression and backhaul products. Each product is on a single facility. Each product is between a receipt point and a delivery point.

**Forward Haul Product**
A product for a transportation service of gas on a pipeline between a forward haul receipt point and forward haul delivery.

**Compression Product**
A product for a service to compress gas between one or more compression points.

**Backhaul Product**
A backhaul product is for a transportation service between a backhaul receipt and backhaul delivery point.
Auction Processing

Auction bid: RP1 -> DP2 (Auction Product 1)

Pre-Processing

Using the Zone Register

Auction Solver

Product Components

Segment 3

RP 1

RZ 1

DZ 1

DP 2

Post-Processing

Using Auction Results + Zone Register

Auction Product 1 (Price + Volume)

System: Bidding interface

Reports
### SWQP Bid Example

- **Participant A bid:**

<table>
<thead>
<tr>
<th>Bid ID</th>
<th>Facility</th>
<th>Contract</th>
<th>Receipt Point</th>
<th>Delivery Point</th>
<th>Step 1 Price</th>
<th>Step 1 Quantity</th>
<th>Step 2 Price</th>
<th>Step 2 Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>00123</td>
<td>SWQP</td>
<td>OTSA001A</td>
<td>Wal HP Trade Point</td>
<td>MSP Exit</td>
<td>$1.0000</td>
<td>10000</td>
<td>Null</td>
<td>Null</td>
</tr>
</tbody>
</table>

- **Product Components (bold)**

  MSP Exit is in DZ-01

  Wal HP trade point is in RZ-03

Moomba → DZ-01 → DZ-02 → DZ-03 → Ballera → RZ-02 → RZ-01 → FS-01 → RZ-03 → FS-02 → RZ-04 → FS-03 → RZ-05 → FS-04 → DZ-04 → FS-05 → DZ-05 → Wallumbilla
Auction Processing Example

**Inputs**
- **Auction bid, Participant X:** Wallumbilla High Pressure Point → MSP Exit (SWQP)
  - 10 TJ @ $1.00/GJ

**Auction Solver**
- **Wal HP Receipt Point**
- **RZ-03**
- **FS-04**
- **FS-05**
- **FS-06**
- **FS-07**
- **MSP Exit Delivery Point**
- **DZ-01**

**Pre-Processing**
- AEMO will automatically break up the bids into relevant auction components

**Auction Solver**
- Auction will determine a quantity and price for every component

**Results**
- **Auction Product 1**
  - Wallumbilla High Pressure Point → MSP Exit (SWQP)
  - Participant X won 10 TJ @ $0.80/GJ

- **AEMO aggregates the prices across all components in the bid**

- The participant is provided with a single price and quantity for the auction bid

**Auction limits provided by service provider**

**Quantity limits constrain capacity that can be allocated**

**Pipeline Segment**
- Unused capacity
- CBU
- CBU

**Delivery zone**
## Results and Reporting

### Participant Auction Results:

<table>
<thead>
<tr>
<th>Bid ID</th>
<th>Facility</th>
<th>Facility Operator</th>
<th>Participant</th>
<th>Receipt Point</th>
<th>Delivery Point</th>
<th>Quantity</th>
<th>Price ($/GJ)</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>00123</td>
<td>SWQP</td>
<td>APA Group</td>
<td>X</td>
<td>Wal HP Trade Point</td>
<td>MSP Exit</td>
<td>10000</td>
<td>$.80</td>
<td>OTSA001A</td>
</tr>
</tbody>
</table>

### Facility Operator Results:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Facility Operator</th>
<th>Participant</th>
<th>Receipt Point</th>
<th>Delivery Point</th>
<th>Quantity</th>
<th>Price ($/GJ)</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWQP</td>
<td>APA Group</td>
<td>X</td>
<td>Wal HP Trade Point</td>
<td>MSP Exit</td>
<td>10000</td>
<td>$.80</td>
<td>OTSA001A</td>
</tr>
</tbody>
</table>

### Public Results:

- Quantity and price against each auction product component
Market Integration - Delivery Process
Submission of orders on the exchange:

- Trading participants will need to provide contract reference information prior to trading.
  - AEMO will validate that the trading participant has selected a valid contract reference and that they have sufficient trading margin.
  - Similarly, participants will use the contract selection module to select which STTM or DWGM right they want to be adjusted when they trade, prior to making any orders.
- Trading participants will need to specify receipt and delivery points in their order.
Integration with DWGM & STTM

• PCT has impacts on both DWGM and STTM
• DWGM impacts to consider
  • Consequential adjustments to DWGM accreditation following capacity changes on interconnected part 24 facilities
  • Operational integration
    • DWGM scheduling (D-2, D-1 and D)
    • Nomination and re-nomination of contracts outside DWGM (firm, auction and as available)
• STTM impacts to consider:
  • Consequential adjustments to trading rights following capacity changes on part 24 facilities that are STTM pipelines (including
  • Operational integration
    • STTM scheduling (D-3, D-2 and D-1 ex ante)
    • Nomination and re-nomination of contracts outside STTM (firm, auction and as available)
    • MOS
    • Contingency gas
DWGM

• All capacity transfers are outside the DWGM, but impact on DWGM MP ability to inject or withdraw

• DWGM system points affected include:
  • Iona CPP (Iona UGS, SEAGas, Otway, Mortlake)
  • Culcairn CPP (Culcairn)
  • Longford CPP (VicHub and TasHub)

• To be accredited, MP must be able to procure gas flows matching DWGM schedules
  • Accreditation constraints may be set to match contracts outside DWGM
    • Max Hourly Qty, Ramp rates, response times etc
  • DWGM schedules take these constraints into account

• Bids are not limited by accreditation quantity
  • Only schedules limited
DWGM operations now

- Interconnected facilities have operational arrangements that integrate with DWGM
  - Arrangements vary between facilities – for example they may:
    - Set specific DWGM schedules as firm nominations (e.g., 4pm D-1) with ‘as available’ limits set for bidding into subsequent schedules
    - Treat 6am ex ante schedule as firm nominations, with intraday schedules as re-nominations
    - Set ramping and response time requirements
  - Shippers advised of these DWGM arrangements on contracting for capacity
    - Incorporate them in accreditation constraints
DWGM operations with PCT

• Standard market timetable mandates cut off times for nominations
  • Part 24 facilities connected to DWGM must comply with these
  • From 1 October 2019
    • Current arrangements until then

• OTSC provides for:
  • Operational coordination with upstream/downstream facilities
  • Potential shipper curtailment for failure to:
    • Supply to receipt point
    • Take at delivery points
    • Exceeding hourly limitation

• Contractual arrangements must align with OTSC
DWGM operations with PCT

- Facilities need to decide how to treat DWGM schedules under contracts
  - Aligning DWGM schedules with facility schedule
  - Nomination and re-nomination process
  - Meeting firm, auction and as available service scheduling priorities
  - Specific ramp rate limits or response times
  - Allocation arrangements
  - Could be included in facility specific terms

- Facility operators liaise with AEMO on market and operational requirements

- Shippers need to incorporate relevant facility information in their accreditation requests
  - Need to review existing accreditations for suitability under new arrangements
  - Submit requests for new accreditations for any new contracts (e.g., OTSA with 0 MHQ)
    - May require registration of additional DWGM MP (only one accreditation at a CPP per MP)
DWGM integration with PCT

• AEMO will adjust existing accreditation to reflect changes for:
  • CTP capacity transfers (increase buyers, decrease sellers)
  • DAA purchases (increase buyers only, as holder has re-nomination rights)
  • For period of change only
• Where no MHQ accreditation constraints are set, no adjustment made
  • MP has elected to modify their bids so they are scheduled consistently with their contracts
    • Compliance and deviation risks if incorrectly scheduled
• Accreditation adjustment include:
  • Max Hourly Quantity adjusted by capacity transfer MDQ/24
  • Where ramp rates set by facility, ramp up and ramp down rates within facility limits
Identifying accreditation to adjust

- Person trading capacity, or bidding for auction capacity must specify which DWGM accreditation will be adjusted by capacity transfer
  - Only for those part 24 facilities connected to DWGM
  - Must also provide contract reference for part 24 facility
- This may not be the same person who is a DWGM MP
  - DWGM MP will be able to appoint the trading party that may specify their accreditation for adjustment
- Market systems will present available accreditation references
  - DWGM MP and System Injection / Withdrawal Point
In STTM, shippers must have trading rights to participate
  • Linked to facility contracts held by primary shipper
    • Facility confirms contract capacity
  • Includes MDQ, priority and ability to offer MOS
  • Unable to submit bids/offers more than MDQ
  • Unable to offer MOS unless MOS enabled

Contingency gas bids/offers at facility level
  • Subject to confirmation if needed

Schedules issued:
  • D-3, D-2 (provisional)
  • D-1 (ex ante)
STTM operations with PCT

- Standard gas timetable and OTSC apply as for DWGM
- Facility specific information could include ability to offer MOS or CG on OTSA
  - Note MOS offers must be made for a month at a time
    - If facility unable to allocate MOS, all MOS offers for relevant Shipper must be removed
- STTM ex ante schedule completed after close of capacity trading
  - STTM schedule can be incorporated in facility nominations
- Unused firm capacity in STTM contracts may be sold in auction
  - Contract holder retains re-nomination rights
  - Facility should advise if MOS and CG are treated as re-nominations
STTM integration with PCT

• AEMO will adjust existing contracts and trading rights to reflect changes for:
  • CTP capacity transfers (increase buyers, decrease sellers)
  • For period of change only
  • Only priority 1 (firm) contracts and primary shipper trading rights
  • Changes in place in time for amending bids and offers prior to ex ante schedule

• DAA auction takes place after ex ante schedule, so no adjustments possible trading rights
  • Can be reflected as Market Schedule Variations
    • Must reflect ability to re-nominate
    • Eg Increase on MSP to SYD, Increase on EGP from SYD
STTM integration limitations

• Person trading capacity must specify which STTM contract will be adjusted by capacity transfer
  • Only for those part 24 facilities that are STTM facilities
  • Only for integrated products (ie can include STTM service points)
  • Only the primary trading right for a contract will be adjusted
  • Must also provide contract reference for part 24 facility
• This may not be the same person who is a STTM Shipper
  • STTM Shipper will be able to appoint a trading participant as agent member that may specify their STTM contract for adjustment
• Market systems will present available contract references
  • STTM Shipper and CRN for all appointing members
Service Points, Zones and Segments

Update
Overview

• GMRG and AEMO jointly prepared an initial Consultation Paper to provide stakeholders with an opportunity to provide their feedback on proposed service points, zones and segments for the initial set of facilities that are expected to be subject to the capacity trading reforms.


• 11 submissions (including 2 private submissions) were received from industry.

• AEMO and GMRG will engage with parties that made submissions to follow-up on comments and seek further technical information.

• Second draft of the service points, zones and segments specification will be released in September.
Updates to specifications

• Some facility operators provided updated service point specifications as part of their submissions:
  • SEAGas
    • corrections and additional pipeline segments on PCA and PCI.
  • EPIC
    • MAPS: zones and segments for northern flow.
  • Jemena
    • EGP: zone and segment specification.
    • QGP: zone and segment specification.
    • DDP: specification of service points.
Park services

- Park services
  - Park services available for trading through CTP where shippers hold firm park services under a primary agreement on a facility.
  - The park service point is the location at which gas enter storage or subsequently withdrawn from.
  - A park service point must be specified for park services traded on the CTP.
  - If the park service point is also a forward haul receipt or delivery point then it must also be assigned to a zone.

- MSP park service products available on CTP at:
  - Wilton Trade Point
  - Culcairn Trade Point

- SWQP park service products available on CTP at:
  - Moomba HP Trade Point
  - Wallumbilla HP Trade Point
RBP Trade Point

- RBP Trade Point
  - RBP Trade Point point currently used for delivery of commodity transactions.
  - It is proposed that RBP Trade Point is added to a receipt zone and delivery zone so that service point can be used for CTP and DAA.
  - RBP Trade Point specified as:
    - Forward haul receipt point (also park service withdrawal)
    - Forward haul delivery point (also backhaul delivery point and park service injection)
Moomba Service Points

- Moomba Compressor Facility
  - Gas receipted at Moomba Trade Point => delivered to Moomba HP Trade Point

- SWQP
  - Moomba HP Trade Point – Forward haul receipt and delivery point, park Service Point
  - MAPS Exit, MSP Exit - Forward haul delivery points
• Connection between NGP and CGP

• Ballera Compressor facility
  • APA Group have advised that Ballera compression service is not required for southern flow on CGP into SWQP.
Wallumbilla Compressor Station 1

- APA Group propose that the Wallumbilla compressor stations will be established as two compressor facilities for the purpose of the CTP and DAA.
- Wallumbilla Compression Facility 1 (WCF1) includes Wallumbilla Compression Stations 1 and 2:
  - Gas may be receipted from SWQP, BWP, DDP, QGP, SGP, RBP or RCWP.
  - Compression services on WCF1 are used to transport gas away from Wallumbilla on SWQP, BWP, QGP, RCWP or RBP.
  - APA Group proposes that the gas specification for this facility be based on the standard gas specification.
Wallumbilla Compressor Station 2

- Wallumbilla Compression Facility 2 (WCF2) includes Wallumbilla Compression Station 3.
- It is proposed that WCF2 will have a restricted gas specification that will be specified in the standard OTSA for that facility.
- Shippers purchasing capacity on WCF2 would need the ability to:
  - Deliver gas to **GLNG Delivery Stream** receipt point, and
  - Take gas away from **CRWP WCS3** delivery point.
Market Systems Update
CTP/DAA Interface Protocol

The Interface Protocol will include the following artefacts:

1. **Guide to Capacity Trading and Day Ahead Auction Transactions**
   New document that provides the specifications for submitting and retrieving data to/from CTP and DAA using web services.
   *Note: A draft of this document was made available to Industry earlier this year*

2. **Guide to Capacity Trading and Day Ahead Auction Reports**
   New document that will provide the specifications for CTP and DAA CSV reports

3. **Guide to Gas Supply Hubs Reports**
   Existing guide will be modified to reflect the changes being made to existing GSH reports, to include data relating to capacity trades executed through the Trayport system. This includes:
   a. Daily Transaction Summary
   b. Historical Gas Day Summary
   c. GSH Registered Participants
   d. Trade Execution Confirmation
   e. Order Confirmation
   f. Settlements Supporting Data
   g. Prudential Exposure
4. **Guide to Gas Bulletin Board Data Submissions**
   Existing guide will be modified to include new web service submission transactions being developed as part of the Pipeline Capacity Trading project that fall under Part 18 of the Rules. This includes:
   a. Auction Service Curtailment Notice submissions
   b. Bilateral Trades submissions

5. **Guide to Gas Bulletin Board Reports**
   Existing guide will be modified to include new reports being developed as part of the Pipeline Capacity Trading project that fall under Part 18 of the Rules. This includes:
   a. Auction Service Curtailment Notice
   b. Secondary Capacity Trades
   c. Allocation Agent Information
   d. Bilateral Trade Submission Confirmation

6. **Guide to Auction Bidding (Markets portal)**
   A guide will be developed for the new Auction Bidding Markets Portal web app. *Note: This guide will be made available to Industry prior to Market Trial.*

7. **Guide to Contract References (Markets portal)**
   A guide will be developed for the new Contract References Markets Portal web app. *Note: This guide will be made available to Industry prior to Market Trial.*
8. Guide to CTP Receipt and Delivery Point Preferences (Markets portal)
A guide will be developed for the new CTP Receipt and Delivery Point Preferences Markets portal web app. Note: This guide will be made available to Industry prior to Market Trial.

Existing guide will be modified accordingly to cover capacity trading functionality.

Existing guide does not require modification.

Existing guide does not require modification.

Existing guide does not require modification.
• The *Auction Bidding* interface is a new web application that will be available to Auction Participants in the Markets Portal.

• Auction Participants will use this application to:
  • View bid profiles for future auctions
  • View historical bid profiles from previous auctions
  • Submit new auction bids
Auction Bidding Web Application

View Bid Profile Screen
Auction Bidding Web Application

Upload Bid Screen
Auction Bidding Web Application

Create Bid Screen (starting point)
Auction
Bidding Web
Application

Create Bid Screen
(filled)
Auction Bidding Web Application

Create Bid Screen (segment pathway expanded)
Auction Bidding Web Application

Create Bid Screen (linked bid)