Jemena Limited

Gas Day Harmonisation: Transition Plan_Public
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Abbreviations

CGP	Colongra Gas Pipeline
DDP	Darling Downs Pipeline
EGP	Eastern Gas Pipeline
ELCS	Early life cycle support
GDH	Gas Day harmonisation
JGN	Jemena Gas Networks (NSW) Limited
NGP	Northern Gas Pipeline
NGR	National Gas Rules
PVT	Post verification testing
QGP	Queensland Gas Pipelines
RMP	Retail Market Procedures (NSW & ACT)
SCU	Self-contracting user
SIT	System integration testing
UAT	User acceptance testing

1. Introduction

This Transition Plan sets out how Jemena plans to ensure its gas distribution and transmission assets comply with the new Gas Day obligations from 1 October 2019 as required by Rule 678 of the National Gas Rules (**NGR**). It sets out how Jemena plans to respond to AEMO's Transition Plan requirements and answers questions raised by AEMO.

1.1 Planned transition 30 September to 1 October 2019

At a very high level, Jemena plans to transition to the new Gas Day harmonisation (**GDH**) requirements as follows:

1. **Pre 30 September 2019** Jemena will ensure that it has made any necessary changes to its systems and processes to enable the efficient transition to the new Gas Day. It will not change the Gas Day in advance of 30 September 2019 for any of its assets.
2. **On 30 September 2019** (but before 1 October 2019), Jemena will cut over to the shorter Gas Day (half an hour shorter in NSW, 2 hours shorter in QLD, 2.5 hours shorter in NT). Jemena will ask shippers to make their nominations for the shortened Gas Day (eg. 23.5 hours for EGP, STTM and Evoenergy network) and deliver according to that.
3. The key activities that need to be undertaken to implement the change to the harmonised Gas Day are:
    a) Gas distribution networks
        i) Bulk change of daily read meters for 6:00AM on 1 October 2019
        ii) Adjustment of meter data (estimation to GDH compliant timeframes where any data remains collected at 6:30AM)
        iii) Application of adjustment principle: meter movement 47/48 of movement at 6:30AM collected reads
        iv) Potential changes to Retail Market Procedures (**RMP**) to align timing of confirmed nominations for the Canberra network to the new standard market timetable – 3:00PM or 7:00PM AEST.
    b) Transmission pipelines
        i) Gas nominations align across all pipelines.
        ii) Change to SCADA.

1.2 Transition plan structure

Section 2 sets out the compliance requirements.

Section 3 sets out the transition plans for Jemena's gas distribution pipeline assets (Jemena Gas Networks (**JGN**) and Evoenergy).

Section 4 sets out the transition plans for Jemena's gas transmission pipelines (Eastern Gas Pipeline (**EGP**), VicHub, Queensland Gas Pipeline (**QGP**), Darling Downs Pipeline (**DDP**), Northern Gas Pipeline (**NGP**), Colongra Gas Pipeline (**CGP**)).

Note: Jemena provides management and operations services for Evoenergy's Canberra and Shoalhaven gas distribution networks, including implementing GDH. For the purposes of this plan, these Evoenergy networks are included in the term 'Jemena distribution networks'.

1.3 Workstreams

Jemena has established the following five workstreams for both distribution networks and transmission pipelines. These workstreams' activities are discussed in section 3 (distribution networks) and section 4 (pipelines):

- Metering
- SCADA and Real-Time System
- IT
- Revenue
- Customer Management.

2. Required Changes and Associated Rules

This section sets out the compliance requirements for GDH and how this Transition Plan addresses the compliance requirements.

NGR compliance requirements

NGR Rule 678 requires gas market participants (pipeline operators, compression service operators, storage operators, production facility operators and others) to adopt the standard market timetable which specifies:

- The standard Gas Day is a Gas Day starting at 6:00 am (AEST).1
- The standard nomination cut-off time is 3:00 pm (AEST) on the Gas Day immediately preceding the Gas Day to which the nomination relates.
- The auction service nomination cut-off time is 6.45 pm (AEST) on the Gas Day immediately preceding the Gas Day to which the nomination relates.

Accordingly, Jemena is required to implement the standard Gas Day for the nomination, scheduling and provision of services. NGR Part 6 (transitional arrangements for the standard market timetable) requires the standard Gas Day to be implemented by 1 October 2019.

In complying with the new requirements, Jemena must ensure that the measurement and recording of quantities of gas correspond to the standard Gas Day (or periods shorter than a Gas Day if the first such period starts at the start of the standard Gas Day and last such period ends at the end of the standard Gas Day) in the following circumstances:

- in the case of distribution pipelines, when the measurement and recording is carried out on an hourly or daily basis (e.g. an interval meter); and
- in the case of other production, storage and transportation facilities, where the measurement and recording relates to gas injected into, or withdrawn from, the facility or produced by the facility.

AEMO transition requirements

AEMO updated the Retail Market Procedures (RMP) for NSW/ACT, SA and QLD to recognise the shorter Gas Day for 30 September 2019. The changes to the RMP will provide regulatory relief for participants for the shorter Gas Day. The changes also specify how network operators' transition plans are to treat the interval metering data for the shorter Gas Day.[2] Among other things, the RMP requires network operators to set out how meter readings will be obtained prior to the 30 September Gas Day, for the 30 September Gas Day and the 1 October and subsequent Gas Days.

AEMO has set out the principles and activities that participants must demonstrate in their Transition Plans to be submitted to AEMO by 30 June 2019. This document addresses those requirements.

In its Transition Plan requirements, AEMO advised that participants should adequately assess their demand forecasts and their supply nominations to ensure any mismatch is minimised on the transition day. AEMO expects participants will need to have completed detailed analysis in order to manage risk and minimise the impacts on the market. No special market transition arrangements are planned for the day of transition, as it is expected that participants will simply bid in accordance with the shortened time frame of Gas Day 30 September.

[1] Rule 677(3) specifies AEST.

[2] See https://www.aemo.com.au/Stakeholder-Consultation/Consultations/IN009-18---Proposed-transitional-provisions-for-the-RMP-in-light-of-gas-day-hamonisation-changes?Convenor=AEMO%20Gas

Jemena compliance

Compliance with the NGR requirements (Appendix 1) and AEMO Principles (Appendix 2) will be achieved through the following aspects of this document.

Table 1: Compliance Assurance Mapping

		Distribution Networks					Transmission Pipelines				
		3.1,3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.6
National Gas Rules (Appendix 1)	667										
	678.1										
	678.2										
	678.3										
	678.4										
	678.5										
	678.6.a										
	678.6.b										
	678.7.a										
	678.7.b										
	678.7.c										
	678.7.d										
	678.8.a										
	678.8.b										
	678.9.a										
	678.9.b										
AEMO Principles (Appendix 2)	3.a										
	3.b										
	4.a										
	4.b										
	4.c										
	5.a										
	5.b										
	5.c										
	5.d										
	6.a										
	6.b										
	6.c										
	6.d										
	6.e										

3. Distribution Networks

The distribution networks workstream comprises JGN and Evoenergy assets. The distribution networks include a large number and diverse range of individual meters which communicate directly with IT Systems rather than via a SCADA System, and are less utilised for asset control.

There are approximately 40 receipt points into the JGN and Evoenergy networks (which measure all energy received). Of the total customer base of approximately 1.5M customers, approximately 500 demand customer meters will be affected by GDH.

Most demand class customers have network charges based on capacity, with a very small number paying charges based on throughput. GDH changes are anticipated to have nil or minimal impact on these customers' network transportation charges. Other customers are charged on the basis of consumption over a monthly or quarterly period, and no impact is anticipated to these customers' network charges.

This chapter sets out the equipment owned by Jemena and Evoenergy and third parties that must transition to the new Gas Day, and details of Jemena's workstreams that will ensure a smooth transition.

3.1 Metering

Meter reading equipment for the networks is made up of the following three components:

- MVRS Walk-By meter reading equipment for residential and small business customers
- MDL High rise meter reading equipment for residential customers in medium-density/high-rise buildings
- Metretek meter reading equipment for demand customers.

Sections 3.1.1 and 3.1.2 set out the equipment used by Jemena's distribution networks that is owned by Jemena or Evoenergy, and third parties respectively.

Of the three systems, the Metretek system is the most crucial for the GDH project as it provides daily readings for defined Gas Days for the largest customers within the networks. This system has over five hundred (500) meters in the field providing daily consumption data which is published to the market. Testing was carried out to develop a transition plan/implementation for this system. The testing concluded that all sites could be dialled out on the day the Gas Day is redefined. Coordination will be needed between all stakeholders on the day.

At a high level, Jemena will give effect to GDH for other metering equipment (set out in section 3.1.1) as follows:

- Trunk Receiving Stations and Primary Regulating Stations require an update to flow computer software to set Gas Day Start Time from 06:30 to 06:00.

3.1.1 METERS OWNED BY JGN OR EVOENERGY

JGN Trunk Receiving Stations

The following Trunk Receiving Stations require an update to Flow Computer software to set Gas Day Start Time from 06:30 to 06:00:

- Albion Park
- Bingara Gorge
- Campbelltown
- West Hoxton
- Horsley Park

- Eastern Creek
- Munmorah (Colongra)
- Plumpton
- Windsor
- Gosford
- Wyong
- Hexham TRS
- Hexham CTS
- Kooragang
- Mt Keira.

JGN Primary Regulating Stations

The following Primary Regulating Stations require an update to Flow Computer software to set Gas Day Start Time from 06:30 to 06:00:

- Banksmeadow
- Emu Plain
- Haberfield
- Lane Cove
- North Ryde
- Riverwood
- Moorebank
- Mascot
- Tempe
- Flemington
- Auburn
- Willoughby.

Evoenergy

The Hume Flow Computer requires an update to software to set Gas Day start time from 06:30 to 06:00.

The Hoskinstown Custody Transfer Station owned by Evoenergy is operated and maintained by Jemena EGP. Changes to that station are discussed in section 4.

3.1.2 METERS OWNED BY THIRD PARTIES

Meters not owned by JGN

Jemena relies on upstream parties to correctly update the metering data with the Gas Day start date and time. For the distribution networks, these parties are APA (Moomba-Sydney Pipeline facilities) and AGL (NGSF and Camden facilities). Jemena will liaise and undertake technical discussions with APA and AGL regarding their methodologies and approaches.

The relevant APA sites are:

- Bowral

- Moss Vale
- Marulan
- Goulburn
- Cowra
- Orange
- Blayney
- Bathurst
- Oberon
- Lithgow
- Young
- Burnt Creek.

The relevant AGL sites are:

- Hexham receipt point (from NGSF)
- Tomago receipt point (from NGSF)
- Rosalind Park (from Camden).

Meters not owned by Evoenergy

- Watson (APA)

3.1.3 Pro Active Preparation for Transition and on transition day

Jemena's transition plan is:

1. Obtain internal approvals to change time on Server by 23 September.
2. Make sure that all normal day data collection call-in are finished on 30 September.
3. Back-up the production server by 30 September.
4. Change the time of Production Server as per required EST Time, power down and restart all applications.
5. Do dial-out for all sites. Start by 9.30AM on 30 September.
6. Do dial-out again for all sites to confirm time change on all sites with communications. Check Time Synchronisation messages for all sites.
7. Make sure that all dial-out completed twice on 30 September.

Risks for the implementation plan:

1. Sites with comms issues from individual sites on the day. The control is to have staff on standby to go to the field if needed and deal with any issues in accordance with the business priority rules (see section 3.4.2). Attendance at sites to respond to communications issues is a business as usual activity.
2. Telecommunications issues across the network. On occasions, Jemena has experienced a number of sites that can't communicate due to broad network telecommunication issues. If this risk eventuates, Jemena will work through each affected meter using the priority rules.

The other two meter reading systems, MVRS and MDL, require time change to the servers. Changing the time on the field equipment[3] does not have to happen on 30 September as they are billed at the time of the read.

[3] The meters are linked to servers and databases, and the meter data is time stamped. Timing changes need to be made so the meters are polled at the right time by the clock.

3.1.4 Ongoing Operational Readiness

To ensure ongoing operational readiness, the system(s) will be operated as business as usual by ensuring ongoing delivery of meter readings, rectification of field issues, installing communications equipment where required and updating the data collection databases.

3.2 SCADA and Real-Time System (RTS)

The SCADA and RTS workstream is responsible for collecting volume and energy data for Jemena gas networks at each Trunk Receiving Station and Primary Regulating Station. The volume and energy data of each station are calculated by local flow computers based on readings provided by various electrical instruments including flow meters which are then collected by SCADA at regular intervals. The data is then further processed and delivered to the market via Jemena IT systems.

In addition, SCADA and RTS is responsible for calculating Heating Values, Linepack and other gas calculations used for validation purposes. Similar to the data produced by flow computers, these calculations are delivered to the market via Jemena IT Systems.

SCADA and RTS is responsible for updating Gas Day Start Time and Date of all flow computers and various SCADA calculations servicing the gas networks. Where data is collected by a third party described above, SCADA and RTS is to liaise and to hold technical discussions to ensure data collected by the Jemena SCADA system is accurate. Implementation of the necessary changes including testing at factory and on-site will be carried out well in advance of Transition Day to ensure Jemena has sufficient time to rectify any issues. As a result, it is anticipated no further changes will be required on the Transition Day and all efforts can focus on supporting the systems.

3.2.1 Pro Active Preparation for Transition

The principal considerations for flow computer software design are:

- To alleviate the urgency to manually update the Gas Day start time within a small window for all sites on the day of the changeover and to remove any risk of being unable to update the Gas Day start time due to a comms outage to any particular site.
- The date of the changeover as well as the new Gas Day start time to be set in the flow computer software in advance of the changeover date. No further action to the flow computers is required such that it will automatically update the Gas Day on the date of the changeover.
- To mitigate the risk of losing configured Gas Day Start Time as a result of power outage.
- To allow remote configuration of the Gas Day Start date and time from SCADA.

SCADA calculations

The following SCADA calculations will be affected:

- Heating Value Zones
- Linepack
- All SCADA calculations that are used to validate flow computers End-of-Day Gas figures.

All of the above SCADA calculations use the same time variable which will simplify the changeover process. The date and time will be changed to 06:00 AEST on 30 September. Once changed, all SCADA calculations will use the same time.

High Level Project Plan

- To design, implement and test flow computer software taking account of the above considerations
- To configure SCADA and then to conduct point-to-point testing with flow computers
- To travel to sites in-scope and then deploy updated software. Confirm with SCADA that flow computer software continues operating to calculate end-of-day gas consumption.

The SCADA high level project plan is:

SCADA High level Project Plan

Task	April	May	June	1-Jul	8-Jul	15-Jul	22-Jul	29-Jul	5-Aug	12-Aug	19-Aug	26-Aug	2-Sep	9-Sep	16-Sep	23-Sep	30-Sep	1-Oct	2-Oct	7-Oct
SCADA Design																				
Flow Computer Design and Implementation																				
Flow Computer FAT																				
SCADA Implementation																				
Roll out new software to site and test with SCADA																				
Contigency																				
Heightened Support																				

3.2.2 Transition Day

On 30 September the SCADA and RTS Team will prepare for transition to the new Gas Day by:

- Activating Heightened Support Period for a few days
- Monitoring all flow computers to deliver end-of-day gas consumption at 06:00
- Manually correcting and applying any deviation correction for the next Gas Day.

3.2.3 Ongoing Operational Readiness

Jemena will have Service Delivery Staff on standby to go to the field if needed and deal with meter data issues in accordance with the agreed business priority rules (see section 3.4.2).

If there are any broad network telecommunication issues, Jemena will work through each affected meter using the priority rules.

There are no ongoing operation matters.

3.3 IT

The IT Delivery Squad Leader will manage all the Internal IT Resources from the Metering Team, CABS Team, webMethods Team, SAP Team, Control-M Team as well as providing a direct link with the Pipelines Team.

3.3.1 Pro Active Preparation for Transition

In preparation for the new Gas Day, the IT Delivery Squad has:

- Identified required changes to various IT Systems
- Mapped all end to end process for all involved IT stakeholders
- Set up a Test plan for internal IT systems
- Performed an Internal IT systems Test successfully

Further work to be completed includes:

- Perform System Integration Testing (SIT) & User Acceptance Testing (UAT)

- Setting up an implementation plan and a cutover sheet
- Performing a final dress rehearsal
- Updating documentation / support documents to reflect any necessary changes.

3.3.2 Transition Day

On 30 September the IT Delivery Squad will prepare for transition to the new Gas Day by:

- Having an open communication channel via Microsoft Teams
- Coordinating the implementation plan via the cutover sheet
- Performing post verification testing (PVT) where necessary / possible.

3.3.3 Ongoing Operational Readiness

Operational readiness will involve:

- Prior to Go-Live, sessions will be held so that all IT stakeholders are aware of their role for the implementation plan as well as their required support during the Early Lifecycle Support (ELCS) period
- All involved IT stakeholders to be on heightened alert support during the ELCS period
- IT Delivery Squad Leader being available for any escalations during the ELCS period.

No ongoing operational readiness matters have been identified.

3.4 Revenue

Revenue Operations is responsible for validation and delivery of meter data to the gas market (to AEMO, Self-Contracting Users (**SCUs**), and Retailers) and for invoicing for network transportation services. Additionally, Revenue Operations work includes:

- Network Receipt Point and STTM Custody Transfer Station energies
- Heating Values
- Calculating change in line pack
- Unaccounted for gas brought in by contracted suppliers
- Interval Meters (demand class customers).

The focus of the Revenue Workstream is to ensure that data delivered to market and used for invoicing is GDH-compliant.

The transition to the new Gas Day will occur as follows:

- For Gas Day up to and including 29 Sept, all data, energy and revenue calculations are based on current 6:30AM to 6:30AM AEST.
- Gas Day 30 September will be 23.5 hours, commencing at 6:30AM and ending 6:00AM AEST.
- From Gas Day 1 October, forward, all market data, energy and revenue calculations will be based on GDH-compliant Gas Day.

The aim is for data collected, validated, transformed and delivered to commence being GDH-compliant during Gas Day 30 September and going forward.

In the event data continues to be received referenced to 6:30AM timing, it will be adjusted to GDH-compliant reference timing and be delivered as estimated data, ideally on Gas Day 1, shortly thereafter and within the billing / invoicing cycle.

For meter data publishing, billing and invoicing, there will be specific focus on September and October calendar months, being invoicing for month ending 30 September by the following working day 2 (2 October) and during October.

3.4.1 Pro Active Preparation for Transition

The Metretek system has been tested based on a sample of remotely-connected meter configuration types to prove the reference time in system can be changed to the new Gas Day, that the reading data collected reflects the ½ hour forward shift and can be returned to current Gas Day timing.

An adjustment mechanism has been developed to adjust interval readings **in the event** they are collected on 6:30AM timings on or after 1 October. Effectively a reading collected referenced to 6:30AM AEST would be estimated as a reading for 6:00AM AEST by adjusting the reading to be 47/48 of the actual movement (or 23.5 hours from prior 6:30AM collected reading). If 6:30AM AEST collection continued for multiple Gas Days, the 6:00AM estimated reading for end of Gas Day X will be the start of Gas Day reading for Gas Day X+1.

Heating values can be calculated from within-day interval data, or else use the 6:30AM to 6:30AM value.

The scope of IT system changes required in Metretek, SAP and CABS to align with GDH timings is to:

- Align batch jobs timing with 9:00AM meter data delivery for STTM.
- Adjust batch job timing for shifts in data received from AEMO to receive process that data as required,
- Change Confirmed Nomination timing in CABS from 1:00PM to 3:00PM or 7:00PM (as confirmed in RMP changes) for transmission pipelines timing – via operation of Clauses 8.6.4, 8.6.5 and if required, Clause 8.7.2 of NSW/ACT Gas Retail Market Procedures.
- Change Gas Day definitions in all systems to align with GDH Gas Day.

3.4.2 Transition Day

The proposed transition to the new Gas Day is to:

- Check the Metretek system for demand class customer meters' successful conversion to GDH-compliant Gas Day during Gas Day 30 September and for 6:00AM 1 October.
- Check that the metering data shift occurs successfully for all data streams and apply estimation methodology to readings and energy calculations where readings continue to be collected at 6:30AM AEST to convert to 6:00AM AEST estimated reading.
- Identify, monitor and escalate for conversion, meters not GDH-compliant by 6:00AM 1 October to GDH compliance.

Due to the potential concentration of meters being GDH non-compliant and finite resources to manually adjust readings, metering data and energy calculations to GDH-compliant Gas Day, Jemena will apply the following priority order to making adjustments to data, taking into account the potential impact on market settlements and participant commercial outcomes.

Priority	Metering Data Category
1	STTM Receipt Points / Custody Transfer Stations
2	STTM Customer Meters (Self Contracting Users)
2A	STTM Customer Meters (Top 20 Non-SCUs)
3	ACT Canberra Receipt Meters
4	NSW Nowra Receipt Meters

5	NSW Nowra Customer Meters
6	NSW Regional Receipt Meters
7	STTM Customer Meters (after SCUs and Top 20)
8	ACT Canberra Customer Meters
9	NSW Regional Customer Meters

The above priority list has been developed taking into account the higher priorities of receipt meters, SCUs, Top 20 customers and highly variable customers due to their potential impact on market settlements and flow-on to AEMO Net System Load calculations.

Within each category, each meter/MIRN would be managed in size order, largest first.

Period-read demand class meters (without remote communications) will be read and managed as per current BAU processes.

3.4.3 Ongoing Operational Readiness

Operational readiness will be achieved by:

- Taking results from Metretek meter sample testing into transition day preparation
- Operationalising estimation methodologies for meter readings, heating values within the interval meter data team
- Performing UAT and PVT for SAP batch jobs and E2E process, CABS amendments in Nominations website and Metretek system dial-out and redial processes.

No ongoing operational issues have been identified.

3.5 Customer Management

During the lead up to GDH program of work, Jemena will inform retailers and engage with AEMO, SCU's and demand customers.

Jemena will meet with retailers and SCU's to inform them until the program of work is completed on 1 October. Communications will continue post implementation for two weeks or as required. Communications will be by email, phone and where required face to face.

3.6 Actions from AEMO Transition Plan

Jemena's response to AEMO's activities set out in its Transition Plan requirements are:

Activity 4.1 – Market Participant and Part 26 Facility Operator to configure interval meter information for transitional Gas Day on 30 September. This has been addressed in section 3.2.

Activity 4.2 – Market Participant and Part 26 Facility Operator to configure interval meter information for standard Gas Day on 1 October. This has been addressed in section 3.2.

Activity 4.7 – Network Operator to provide daily metering data to AEMO no later than 3 hours after the start of the Gas Day in accordance with NSW/ACT RMP.

This is addressed by changes to the timing of meter data dial-out and all data collection, SAP batch processing jobs, validation tasks and delivery to market processes. In summary, these changes are to the timing of all processes in the meter data collection to market delivery sequence being moved forward ½ hour to target data delivery for STTM network section to AEMO by 9:00AM AEST.

4. Transmission Pipelines

Transmission pipelines (including Jemena's EGP, QGP, DDP, NGP, VicHub and Colongra assets) include a moderate number and more uniform range of high fidelity metering systems, spread across long linear assets, which communicate with IT Systems via a SCADA System, and are utilised for asset control.

This chapter sets out the equipment owned by Jemena and third parties that must transition to the new Gas Day, and details of Jemena's workstreams that will ensure a smooth transition to the new Gas Day.

The work being completed by each of the workstreams for transmission pipelines is set out below.

4.1 Metering

The meter reading equipment for pipelines only comprises flow computers.

The SCADA and RTS workstream is to update Gas Day Start Time and Date of all flow computers and various SCADA calculations servicing the Pipelines. Where data are collected by a third party, the Pipeline workstream is to liaise and to hold technical discussions to ensure data collected by the Jemena SCADA system is accurate. Implementation of the necessary changes, including testing at factory and on-site, will be carried out well in advance of Transition Day to ensure Jemena has sufficient time to rectify any issues. As a result, it is anticipated no further changes will be required on the Transition Day and all efforts can focus on supporting the systems.

Only flow computers and not pipeline meters will be affected by the time changes. Sections 4.1.1 and 4.1.2 set out the equipment used by Jemena's pipelines that is owned by Jemena and third parties respectively.

4.1.1 Meters Owned by Jemena – flow computers

Eastern Gas Pipeline

The following EGP flow computers require software update to set Gas Day start time from 06:30 to 06:00AM:

- Longford Compressor Station
- Bairnsdale Meter Station
- East Gippsland Compressor Station
- Mila Compressor Station
- Cooma MLV & Meter Station
- Michelago Compressor Station
- Hoskinstown MLV & Meter Station (owned by Evoenergy, operated and maintained by Jemena Pipelines)
- Nowra MLV & Meter Station (Pestell's Lane)
- Bomaderry MLV & Meter Station
- Albion Park Offtake Meter Station
- Port Kembla Meter Station
- Wilton Meter Station
- Horsley Park Meter Station
- Smithfield Meter Station.

Queensland Gas Pipeline

The following QGP flow computers require software update to set the Gas Day start time from 08:00 to 06:00AM:

- Fairview Meter Station
- Westgrove Meter Station
- Rolleston Meter Station
- Rolleston Compressor Station
- Moura Inlet Meter Station
- Banana Compressor Station
- Yarwun Meter Station
- Gladstone City Gate Meter Station
- Ticor Meter Station
- Orica Meter Station
- QAL Meter Station
- Boyne Meter Station
- Larcom Creek Meter Station
- Rockhampton City Gate Meter Station
- QMAG Meter Station
- QNP.

Colongra Gas Pipeline

The CGP flow computers will need to be updated to set Gas Day start time from 06:30 to 06:00AM.

Darling Down Pipeline

The following DDP flow computers require software update to set the Gas Day start time from 08:00 to 06:00AM:

- ML1A Meter Station (Runs 6,7, Santos WCS)
- Spring Gully Wallumbilla Meter Station
- EPIC RUN 9 (SGW) Meter Station
- Darling Downs Power Station Meter station
- Talinga Meter Station
- Kenya Meter Station.

Northern Gas Pipeline

The following NGP flow computers require Software update to set Gas Day start time from 08:30 to 06:00AM:

- Phillip Creek Compressor Station
- Mt Isa Compressor Station

4.1.2 Meters Owned by third parties

Jemena will liaise with customers and third parties early to ensure they have plans in place to transition to GDH. If the third party cannot commit, Jemena may be able to assist with the code change or manual adjustment to nominations intra-day can be made in the interim.

Eastern Gas Pipeline

- Orbost Meter Station (APA)

- Tallawarra Meter Station (EnergyAustralia).

Colongra Gas Pipeline

- Munmorah Delivery Meter (Snowy Hydro) – (JGN)

Queensland Gas Pipeline

- Wallumbilla Meter Station upstream producers
- Goombah Meter Station upstream producers
- QNP upstream producers.

Darling Downs Gas Pipeline

- Spring Gully Manifold (APLNG, Taloona Metering) upstream producers
- TPCF upstream producers
- Orana upstream producers
- Ruby Jo upstream producers
- TMS4 upstream producers
- CTW Interconnect upstream producers
- Ruby upstream producers.

Roma North Pipeline[4]

- Roma North Pipeline Receipt Point
- Roma North Pipeline Delivery Point.

4.1.3 Pro Active Preparation for Transition

As mentioned above, implementation of the necessary changes including testing at factory and on-site will be carried out well in advance of Transition Day to ensure Jemena has sufficient time to rectify any issues.

4.1.4 Transition Day

It is anticipated that no further changes will be required on the Transition Day and all efforts can focus on supporting the systems.

Due to the potential concentration of meters being GDH non-compliant and finite resources to manually adjust readings, metering data and energy calculations to GDH-compliant Gas Day, Jemena will apply the following priority order to making adjustments to data, taking into account the potential impact on market settlements and participant commercial outcomes.

Priority	Metering Data Category
1	STTM, DWGM & WGTH Metering Facilities
2	High Priority Metering Facilities
3	Medium Priority Metering Facilities
4	Low Priority Metering Facilities

[4] Note: Roma North Pipeline measurement facilities are currently owned and operated by Senex, but will transition to Jemena ownership in the weeks prior to GDH Transition Day. Jemena has confirmed commitment by Senex to undertake necessary actions in preparation for GDH

4.1.5 Ongoing Operational Readiness

No ongoing operational issues have been identified.

4.2 SCADA and RTS

The SCADA and RTS workstream collects volume and energy data for Jemena's transmission pipelines. The volume and energy data are calculated by local flow computer based on readings provided by various electrical instruments including flow meters which are then collected by SCADA at regular intervals. The data is then further processed and delivered to the market via Jemena IT systems. SCADA and RTS is also responsible for delivering nominations to pipelines.

SCADA and RTS is to update Gas Day Start Time and Date of all flow computers servicing the transmission pipelines. Where data are collected by a third party described above, the SCADA and RTS is to liaise and to hold technical discussions to ensure data collected by the Jemena SCADA system is accurate.

At a high level, implementation of the necessary updates to the SCADA systems including testing at factory and on-site will be carried out well in advance of Transition Day to ensure Jemena has sufficient time to rectify any issues. On 30 September, Pipelines SCADA will write to each PLC or flow computer. This will occur within the first few hours of 30 September Gas Day roll over, and minimise any flow rate changes to nominations as a result.

Any site that cannot be written by SCADA will be manually changed by remoting into the PLC or flow computer and changing it directly. There are very few PLCs and flow computers on DDP which will require this manual effort.

4.2.1 Pro Active Preparation for Transition

The principal considerations for flow computer software design are:

- To alleviate the urgency to manually update the Gas Day start time within a small window for all sites on the day of the changeover. Communications to sites are robust with redundancy built in so it is not envisaged that there will be a risk of communications outages. If however, there is a communications outage, field staff will be equipped to carry out the onsite manual change at short notice.
- The new Gas Day start time is to be set in the flow computer software well in advance of the changeover date. No further action to the flow computer is required, except to remotely write a variable to the flow computers and PLCs such that it will automatically update the Gas Day on the date of the changeover.
- To mitigate the risk of losing pre-configured Gas Day Start Time as a result of power outage.
- To allow remote configuration of the Gas Day Start date and time from SCADA.

High Level Project Plan

The high level project plan is to:

- Design, implement and test flow computer software taking account of the above considerations
- Configure SCADA and then to conduct point-to-point testing with flow computers
- Travel to sites in-scope and then deploy updated software. Confirm with SCADA that flow computers continue operating to calculate end-of-day gas consumption.

The SCADA high level project plan is:

SCADA High level Project Plan																				
Task	April	May	June	1-Jul	8-Jul	15-Jul	22-Jul	29-Jul	5-Aug	12-Aug	19-Aug	26-Aug	2-Sep	9-Sep	16-Sep	23-Sep	30-Sep	1-Oct	2-Oct	7-Oct
SCADA Design																				
Flow Computer Design and Implementation																				
Flow Computer FAT																				
SCADA Implementation																				
Roll out new software to site and test with SCADA																				
Contigency																				
Heightened Support																				

4.2.2 Transition Day

In preparation of the Transition Day on 30 September:

- The SCADA Team will activate Heightened Support Period for a few days.
- The SCADA Team will monitor all flow computers deliver end-of-day gas consumption at 06:00.

Any deviation will be handled manually and correction will be applied for the next Gas Day.

4.2.3 Ongoing Operational Readiness

No ongoing operational readiness matters have been identified.

4.3 IT and Inter Platform Communication

As for Jemena's distribution network, the IT Delivery Squad Leader will manage all the internal IT resources from the Metering Team, WebMethods Team, SAP Team as well as a direct link with the Pipelines Commercial Team.

4.3.1 Pro Active Preparation for Transition

In preparation for the new Gas Day, the IT Delivery Squad has:

- Identified the required changes to various IT systems
- Mapped the end to end process for all IT stakeholders.

Further work to be completed includes:

- Setting up a test plan for internal IT systems
- Performing a dress rehearsal
- Setting up an implementation plan and a cutover sheet
- Updating documentation / support documents to reflect any changes made from the GDH Project.

Plan for software changes to pypIT

The scope of work required in Jemena's Hydrocarbon Accounting and Reporting Systems (**pypIT**) is set out in section 4.5. The plan to update pypIT software is:

- Energy One (Vendor) is to roll out GDH changes in pypIT SIT environment by mid-July, SCADA hourly meter read data will be mocked up for this testing.
- Energy One is to roll out GDH changes in pypIT UAT environment by end-Aug.
- The SCADA team will be ready by end-Aug to provide hourly meter read files in pypIT UAT environment for end-to-end testing. This interface is already working for NGP, it needs to be replicated for other pipelines.

- Energy One is to roll out GDH changes in pypIT production environment by mid-Sep, SCADA team to continue sending hourly meter read files as is
- On 30 September (but before 1 October 6:00AM) the SCADA Team:
  - As a first option, will try to provide last meter read data adjusted to 6:00AM. There will be a 30 minute gap between the 5:36AM file and 6:06AM file. The SCADA team needs to stage for this behaviour. The fall back is that the accumulator sheet needs to be customised as a one-off change for 1 October to read from old to new Gas Day (shorter day).
  - As a second option, will stop sending meter read data about an hour or two before 6:00AM. PypIT to make manual adjustments for End of Day (**EoD**) reconciliations. The fall back option of accumulator sheet will cater to this option.
  - In case of any unexpected issues, will stop sending meter read data a couple of hours before 6:00AM. PypIT to make manual adjustments for EoD reconciliations.
- On 1 October after 6:00AM the SCADA Team:
  - As a first option, will start sending hourly meter read files at 6 minutes past the hour. It needs to be staged to see how PointExporter behaves with the missing files not sent prior to 6:00AM
  - As a second option, will start sending hourly meter read files as soon as they are ready. PypIT can wait for few hours and then import all of the pending files at the same time.

While the SCADA changes are applicable only to EGP and NGP, all of the above testing will be applicable to all Pipelines.

4.3.2 Transition Day

On 30 September preparation for transition to the new Gas Day will occur by:

- Having an open communication channel via Microsoft Teams
- The IT Delivery Squad Leader coordinating the implementation plan via the cutover sheet
- Performing PVT where necessary / possible.

4.3.3 Ongoing Operational Readiness

Operational readiness will involve:

- Providing all IT Stakeholders with heightened alert support during the ELCS period
- The IT Delivery Squad Leader being available for any escalations during the ELCS period.

4.4 Commercial Operations

Jemena's Pipeline Commercial Operations Team needs to make changes to Jemena's Hydrocarbon Accounting and Reporting Systems (pypIT), as well as to associated business processes, in order to facilitate GDH. Required pypIT modifications will address two primary areas - Timeframe Realignment and Workload Redistribution Management – with the associated processes being redefined to suit. These modifications will occur in advance of the Transition Day and are discussed below.

4.4.1 PRO ACTIVE PREPARATION FOR TRANSITION

Timeframe Realignment
This will include system modifications focused on bringing the automated administrative processes handled by Jemena's Hydrocarbon Accounting and Reporting Systems in line with both GDH and the new standard Gas Day

timetable. The focus of these changes will mostly surround timing of triggered tasks, permissions, and the various calculation and crosscheck process which are managed by the system.

Workload Redistribution Management

Jemena's operational processes rely upon the differences in Gas Day timing to deliver its services in a staggered manner. With GDH bringing all timelines into line with each other, Jemena Commercial Operations plans to reduce the workload input required to undertake each of its processes in order to avoid the need to increase staffing for the more process intensive reporting and scheduling periods which will exist as a result of GDH.

4.4.2 Transition Day

In order to facilitate Transition Day, Commercial Operations will undertake the following tasks across the 48hrs surrounding Transition Day:

- The team will develop other necessary changes to processes and procedures in the lead up to Transition Day, including any processes and procedures required to manage Transition Day itself.
- The Commercial Operations team will send communications to shippers to nominate for a shortened Gas Day on 30 September.
- On 1 October the Commercial Operations team will work closely with Control Room, EnergyOne and SCADA to resolve any allocation issues on the day.
- GDH is not expected to impact on invoicing before, during or after the Transition Day.

4.4.3 Ongoing Operational Readiness

The Commercial Operations is aiming to apply a business as usual continuous improvement approach to refining new processes across the following weeks and months.

4.5 Customer Management

The Customer Management for Transmission Pipelines will need to target the following stakeholder groups:

Shippers
Shippers will be informed of Jemena's obligation to comply with the new Gas Day requirements, as well as the need to amend commercial arrangements in order to comply. Whilst most of the changes have already been proposed via the Gas Market Reform Gas Transportation Agreements (**GTAs**) amendments, further communication is required to ensure that all commercial arrangements are amended (such as CGP GTAs). Shippers will be informed of Jemena's high level transition plan as it relates to their assets, including what will occur across each of the timeframes mentioned below, . As there may need to be some operational changes to accommodate Transition Day, these will also be addressed in communications with shippers.

Custody Transfer Counterparties (CTCs) - Jemena owned infrastructure
As shippers and CTCs may not necessarily be aligned, a communication pack for CTCs with Jemena owned measurement facilities will be developed to inform these customers of Jemena's plans and how it will impact them. As there may need to be some operational changes to accommodate Transition Day, these will also be addressed in communications with CTCs.

CTCs - third party owned infrastructure
A number of measurement facilities across Jemena owned Transmission Pipelines are owned by third parties. All third party operators of measurement facilities will be contacted and informed of the new requirement, and where possible, informed of the commercial framework obliging these facilities to comply and asked for their plan to comply with the new Gas Day requirements. Where not possible, Jemena will attempt to work with the third party to come to the required outcome.

4.5.1 Pro Active Preparation for Transition

Jemena has developed a communication plan setting out Jemena's proposed communications approach for commercial stakeholders. The Commercial Managers have identified commercial gas contracts and other artefacts which may require amendment to enact GDH, with Legal Counsel preparing amendment agreements to facilitate any necessary changes.

Commercial Stakeholder Groups will be informed of the changes and any requirements of them by the end of June or early July, and all required negotiation (for third party owned infrastructure) is scheduled to be completed by mid-August.

The Commercial Operations Team will review all operational processes and procedures in order to identify any changes required to maintain operations and business continuity once GDH has occurred. The team will develop any necessary changes to processes and procedures in the lead up to Transition Day, including any processes and procedures required to manage Transition Day itself.

4.5.2 Transition Day

The communication plan will detail a simple communication protocol to inform commercial stakeholder groups of the changes the day before, on, and the day after Transition Day. Any issues identified will be recorded for each site with planned follow up to resolve, and updates as the matter is progressed.

The Commercial Operations Team will enact any process and procedure specific to enabling Transition Day, as well as enacting any changes to processes and procedures for continuous operations in line with GDH after Transition Day.

4.5.3 Ongoing Operational Readiness

Any ongoing operational readiness issues identified will be recorded for each site with planned follow up to resolve, and updates as the matter is progressed.

The Commercial Operations Team will enact any process and procedure specific to enabling Transition Day, as well as enacting any changes to processes and procedures for continuous operations in line with GDH after Transition Day.

4.6 Actions from AEMO Transition Plan

Jemena's response to AEMO's activities set out in its Transition Plan requirements are:

Activity 4.1 – Market Participant and Part 26 Facility Operator to configure interval meter information for transitional Gas Day on 30 September. This has been addressed in section 4.1 and 4.2 of this document.

Activity 4.2 – Market Participant and Part 26 Facility Operator to configure interval meter information for standard Gas Day on 1 October. This has been addressed in section 4.1 and 4.2 of this document.

Activity 6.5 – Allocation Agent for STTM Facility Operator to submit PAD / MSD / NAD files by 10:30 hours. This has been addressed in section 4.3 and 4.5 of this document.

Activity 6.6A –STTM Facility Operator to submit Facility Hub Capacity (FHC) file for shorter transitional Gas Day 30 September:

- SYD and ADL hubs for a 23.5 hour transitional Gas Day by 9:30 AEST on 28, 29 and 30 September
- BRI hub for a 22 hour transitional Gas Day by 11:00 AEST on 28, 29 and 30 September.

This has been addressed in section 4.3 and 4.5 of this document.

Activity 6.6 – STTM Facility Operator to submit Facility Hub Capacity (FHC) file for the standard Gas Day by 9:00 hours from 1 October onwards. This has been addressed in section 4.3 and 4.5 of this document.

Activity 6.7 – Allocation Agent for STTM Facility Operator to configure allocation information for transitional Gas Day on 30 September, for submissions on and after 1 October in accordance with standard Gas Day timings. Allocations for Gas Day 30 September to include allocations for:

- SYD and ADL hubs transitional Gas Day of 23.5 hours from 6:30 AEST to 6:00 AEST
- BRI hub – transitional Gas Day of 22 hours from 8:00 AEST to 6:00 AEST.

This has been addressed in section 4.3 and 4.5 of this document.

Appendix 1: NGR Rules relevant to GDH Compliance

677 Definitions and interpretation

3. References in this Part to a time of day are to Australian Eastern Standard Time (and are not adjusted for daylight saving time in any jurisdiction).

678 Standard market timetable

1) The standard Gas Day is a Gas Day starting at 6:00 am.

2) The standard nomination cut-off time is 3:00 pm on the Gas Day immediately preceding the Gas Day to which the nomination relates.

3) The auction service nomination cut-off time is 6:45 pm on the Gas Day immediately preceding the Gas Day to which the nomination relates.

4) Subject to subrule (7), a facility operator for a natural gas facility must use the standard Gas Day for the nomination, scheduling and provision of services provided by means of the natural gas facility.

5) Subject to subrules (6) and (7), a facility operator for a Part 24 facility must use the standard nomination cut-off time for day-ahead nominations for services provided by means of the facility.

6) Subject to subrule (7), a facility operator for an auction facility must:

   a) use the standard nomination cut-off time for day-ahead nominations for services (other than auction services) provided by means of the auction facility; and

   b) use the auction service nomination cut-off time for day-ahead nominations for auction services provided by means of the auction facility.

7) Nothing in subrule (4), (5) or (6) prevents a facility operator:

   a) providing for the nomination, scheduling or provision of a service provided by means of a natural gas facility over periods shorter than a standard Gas Day, where the first such period starts at the start of the standard Gas Day and the last such period ends at the end of the standard Gas Day;

   b) subject to the rules and the Capacity Transfer and Auction Procedures, extending the standard nomination cut-off time or the auction service nomination cut-off time for a Gas Day where there is an unforeseen event (such as a system failure) or when otherwise required or permitted to do so under the rules or the Capacity Transfer and Auction Procedures;

   c) accepting or giving effect to a renomination; or

   d) rescheduling a service provided by means of a natural gas facility over the course of a Gas Day.

8) A facility operator for a natural gas facility must ensure that the equipment used for the measurement and recording of quantities of natural gas in the circumstances described in subrule (9) does so for:

   a) each period corresponding to the standard Gas Day; or

   b) periods shorter than a standard Gas Day, where the first such period starts at the start of the standard Gas Day and the last such period ends at the end of the standard Gas Day.

9) The circumstances referred to in subrule (8) are:

a) in the case of a natural gas facility other than a distribution pipeline, the measurement and recording of quantities of natural gas injected into or withdrawn from the natural gas facility or produced by the natural gas facility; and

b) in the case of a distribution pipeline, the measurement and recording of quantities of natural gas injected into or withdrawn from the distribution pipeline, where that measurement and recording is done on an hourly or daily basis (and not where the measurement and recording is done over periods longer than a day).

Note:

Paragraph (b) is intended to confine the operation of this rule to interval meters. The rule is not intended to extend to basic meters.

Appendix 2: AEMO Transition Plan principles

AEMO principle	Transitional plan requirement
3.	Transitional Gas Day 30 September 2019 will be shorter than usual: a) SA and NSW/ACT 23.5 hours b) Qld 22 hours All references to Gas Day imply the shorter transitional Gas Day on 30 September 2019
4.	All interval metering data from data provider to regulated markets and users will reflect consumption over the relevant Gas Day ie: a) Current Gas Day up to and including 29 September 2019 b) Shorter Gas Day on 30 September 2019 c) Standard Gas Day from 1 October 2019
5.	All metering changes need to be in place by 1 October 2019. This means facility operator Transition Plans will need to accommodate meters which: a) Have not yet converted to measurement of standard Gas Days b) Have converted to measurement of standard Gas Day, but which need to continue to report data for the relevant Gas Day c) Must accommodate a shorter Gas Day on 30 September 2019 d) Must report data for the standard Gas Day from 1 October 2019.
6.	Transition plans will include regular reporting of the scheduling and completion of meter conversion. a) Schedule conversion for the daily read meters as close as possible to transition date b) Reporting of scheduling and completion of meter conversion should identify the meters by MIRN only c) Transition plans should also include method of completion of meter conversion (e.g. Service Orders to be sent, impacts on meter data files) d) Updates should be made at least weekly e) Transition plans should include details of any contingency plans to substitute metering data being measured in non-harmonised Gas Days with estimates for a standard Gas Day after 1 October 2019.