AusNet

Gas Network

Network Planning Report – Facilities Upgrade
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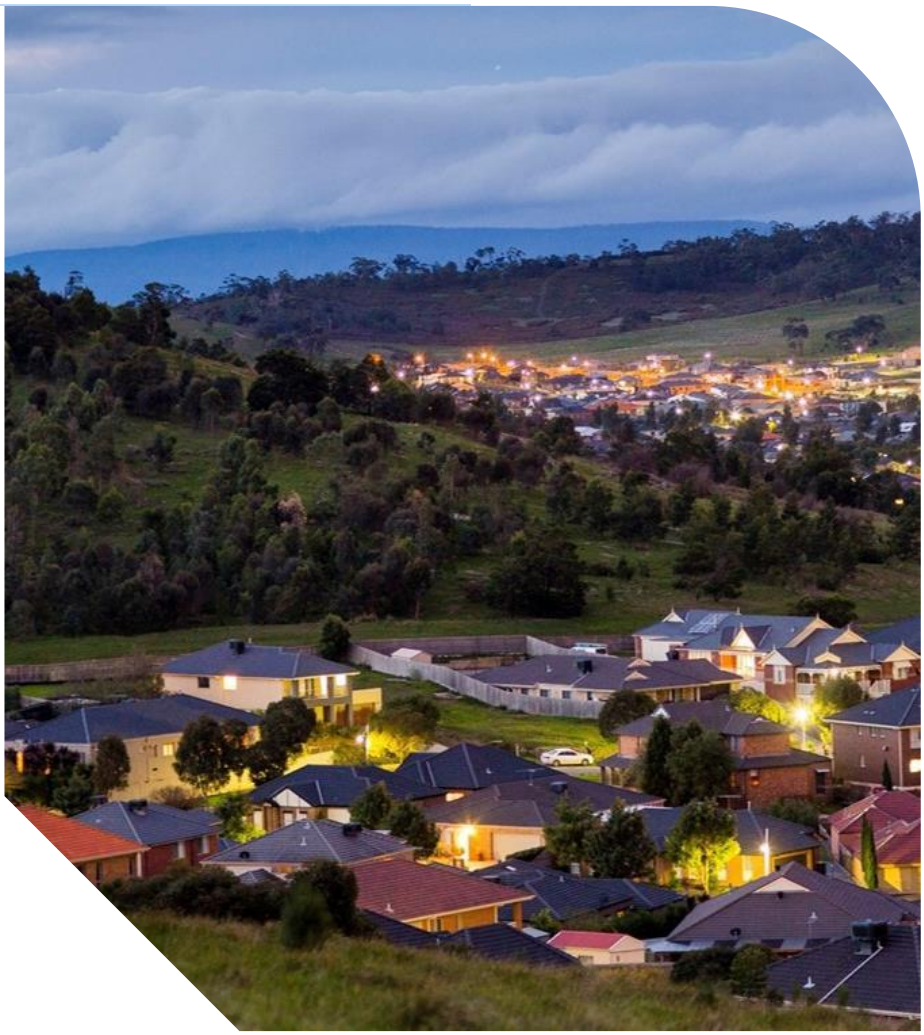

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Executive Summary

A number of existing facilities will require sizing upgrades to increase their supply capability and meet network demand. The tables below are the identified upgrades needed and the timing of those upgrades solely based on the facility demand/capacity relationship.

Table 1: Proposed Facility Upgrades

YEAR	ASSET TYPE	EXISTING MAXIMUM CAPACITY	FORECAST DEMAND	AFFECTED CUSTOMERS	MODIFICATIONS
FY22/23	Buckley Grove Field Regulator (P4-049)	12,000 Sm^3/hr	16,000 Sm^3/hr	8,000	Increase inlet pipework to 100mm
FY23/24	Heath's Road City Gate (P4-064)	12,010 Sm^3/hr	23,000 Sm^3/hr	23,000	Increase outlet pipework to 150mm
FY23/24	Gisborne Field Regulator (P4-5008)	2,900 Sm^3/hr	4,000 Sm^3/hr	2,000	Increase inlet pipework to 100mm Replace Regulators to DN80 Axial Flow
FY23/24	Old Sneydes Road City Gate (P4-237)	12,580 Sm^3/hr	15,000 Sm^3/hr	12,000	Increase outlet pipework to 250mm

1. Regulator Capacity Modelling

The capacity of a regulator is represented by gas flow, measured in standard cubic meters per hour, Sm^3/h. The need for a capacity upgrade of a facility arises when the demand (Sm^3/h) is projected to exceed the throughput capacity of the facility. If the facility cannot meet demand then gas flow becomes choked through and accelerates regulator wear.

The design capacity of a regulator is based on minimum expected inlet pressures and ensures that the regulator can meet projected demand (at the time of design) under 'worst case scenario' inlet pressure conditions. Accordingly, the existing design capacity is the relevant capacity for network planning purposes to ensure minimum downstream pressures are maintained as demand grows.

The network model indicates how much gas is projected to flow through each station against the existing maximum flow capacity of a city gate regulator.

1.1. Old Sneydes Road City Gate

Old Sneydes Road City Gate is supplied from APA's DN350 Brooklyn to Corio Pipeline Licence 81 and injects gas into AusNet Services Point Cook distribution network.

Figure 1: Point Cook gas distribution network overview

Due to continued strong growth in the Point Cook area, the design flow capacity at Old Sneydes City Gate will be exceeded by the projected network demand of the Point Cook network by FY2023/24.

Table 2: Old Sneydes Rd City Gate Flow Capacity

PARAMETER	VALUE
Station Min. Inlet pressure (kPa)	2,300
Regulator Size (mm)	80
Inlet Pipe Size (mm)	100
Outlet Pipe Size (mm)	150
Max Gas Flow of Station (Sm3/h)	12,010
Outlet Velocity (m/s)	36.0

Table 3: Old Sneydes Rd CG demand projection

DEMAND	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Old Sneydes Road CG Demand (Sm3/h)	12,733	13,008	14,288	14,430	14,575	14,720

1.2. Heaths Road City Gate

Heaths Road City Gate is supplied from APA's DN350 Brooklyn to Corio Pipeline Licence 81 and injects gas into AusNet Services Hoppers Crossing distribution network.

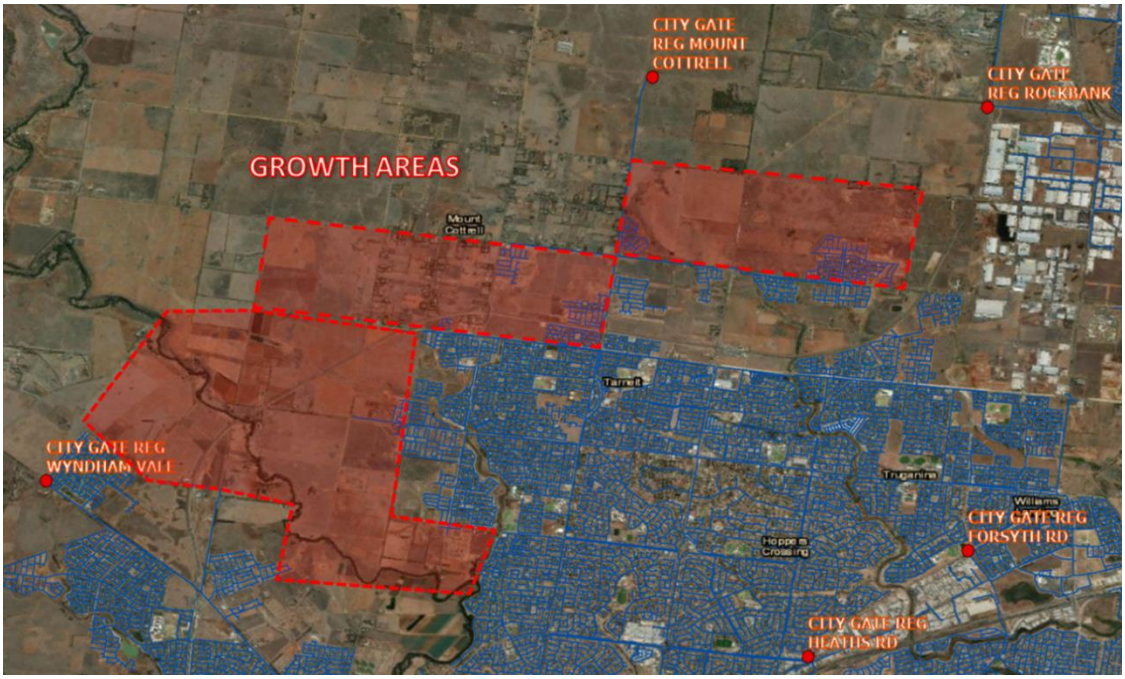

Figure 2: Hoppers Crossing gas distribution network overview

Due to continued strong growth in the Hoppers Crossing area, the design flow capacity at Heaths Rd City Gate will be exceeded by the projected network demand of the Hoppers Crossing network by FY2022/23.

Table 4: Heaths Rd City Gate Maximum Flow Capacity

PARAMETER	VALUE
Station Min. Inlet pressure (kPa)	2,000
Regulator Size (mm)	100
Inlet Pipe Size (mm)	100
Outlet Pipe Size (mm)	150
Max Gas Flow of Station (Sm3/h)	12,010
Outlet Velocity (m/s)	36.0

Table 5: Hoppers Crossing network demand projection

DEMAND	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Heaths Road CG Demand (Sm3/h)	19,362	19,545	19,731	19,918	20,053	21,056

1.3. Buckley Grove Field Reg

Buckley Grove Field Regulator is supplied from AusNet Services' DN250 Licence 57 pipeline and injects gas into AusNet Services Portarlington and Geelong Bellarine distribution networks.

Figure 3: Geelong Bellarine's gas distribution network overview

Due to continued strong growth in the Bellarine area, the design flow capacity at Buckley Grove Field Regulator will be exceeded by the projected network demand of the Geelong Bellarine network by FY2022/23.

Table 6: Buckley Grove Field Regulator Maximum Flow Capacity

PARAMETER	VALUE
Station Min. Inlet pressure (kPa)	1,200
Regulator Size (mm)	80
Inlet Pipe Size (mm)	80
Outlet Pipe Size (mm)	100
Max Gas Flow of Station (Sm3/h)	12,000
Outlet Velocity (m/s)	36.0

Table 7: Geelong Bellarine network demand projection

DEMAND	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Buckley Grove FR Demand (Sm3/h)	14,362	14,545	14,731	14,918	15,253	16,000

1.4. Gisborne Road Field Reg

Gisborne Road Field Regulator is supplied from the Woodend City Gate and injects gas into AusNet Services Gisborne distribution network.

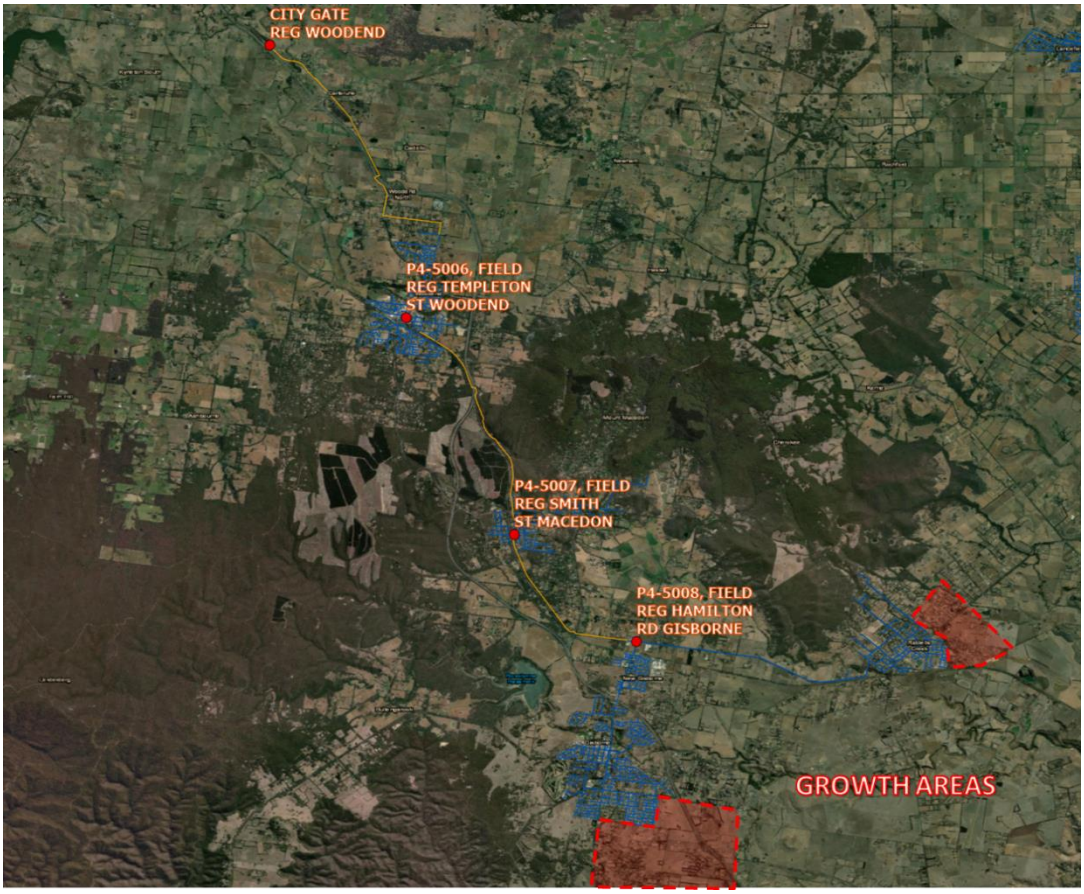

Figure 4: Macedon Ranges gas distribution network overview

Due to continued strong growth in the Macedon Ranges area, the design flow capacity at Gisborne Road Field Regulator will be exceeded by the projected network demand of the Macedon Ranges network by FY2022/23.

Table 8: Gisborne Field Regulator Maximum Flow Capacity

PARAMETER	VALUE
Station Min. Inlet pressure (kPa)	550
Regulator Size (mm)	80
Inlet Pipe Size (mm)	80
Outlet Pipe Size (mm)	100
Max Gas Flow of Station (Sm3/h)	2,900
Outlet Velocity (m/s)	36.0

Table 9: Macedon Ranges network demand projection

DEMAND	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Gisborne Road FR (Sm3/h)						

2. Regulator Capacity Upgrades

The regulator capacity upgrades identify the major restriction in the existing pressure reduction specification and determine the minimum modifications needed to achieve the required future flow rate based upon minimum inlet pressure.

Table 10: Modifications required

SITE	INLET PIPE SIZE (MM)	REGULATOR SIZE (MM)	OUTLET PIPE SIZE (MM)	NEW FLOW CAPACITY (SM3/HR)
Old Sneydes Road CG	Retain	Retain	200	22,000
Heaths Road CG	Retain	Retain	250	34,050
Buckley Grove FR	150	100	200	16,000
Gisborne Road FR	150	100	150	4,250

Table 11: Facility Upgrades Program

FACILITY TYPE	SITE NO.	NAME	2022-23	2023-24	2024-25	TOTAL
			[C.I.C]			

3. Capital expenditure summary

Table 12: Capital Expenditure Summary

	2022-23	2023-24	2024-25	2025-26	2026-27	2024-28 TOTAL
			[C.I.C]			

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