APA Group

APT ALLGAS ENERGY PTY LTD NETWORKS

CAPACITY MANAGEMENT STRATEGIC PLAN

Version 1.0

28 September 2010

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Amendment Record

Version	Date	Changes Made
0.1	10th August 2010	Initial version for stakeholders review
0.2	10th August 2010	Minor changes after review by stakeholders
0.3	16th September 2010	Adjustments related to latest version of Capital Expenditure Plan
1.0	28th September 2010	Final version

PREFACE

The objective of this APT Allgas Energy Pty Ltd gas distribution networks Strategic Capacity Management Plan is to document:

- The current capacity performance of the gas distribution networks
- The basis for maintaining capacity within the gas distribution networks
- The scope, timing and budget estimates of augmentation projects required to cost effectively sustain network growth and maintain a safe and reliable supply of gas to consumers

The body of the Strategic Capacity Management Plan is structured into 2 parts:

Part 1 – General

- This section provides an overview of the distribution networks and associated assets covered by this plan, and the protocols associated with network capacity management.

Part 2 – Network Performance and Augmentation Plans

- This section covers forecast demand, network performance and augmentation requirements.

Update and review cycle

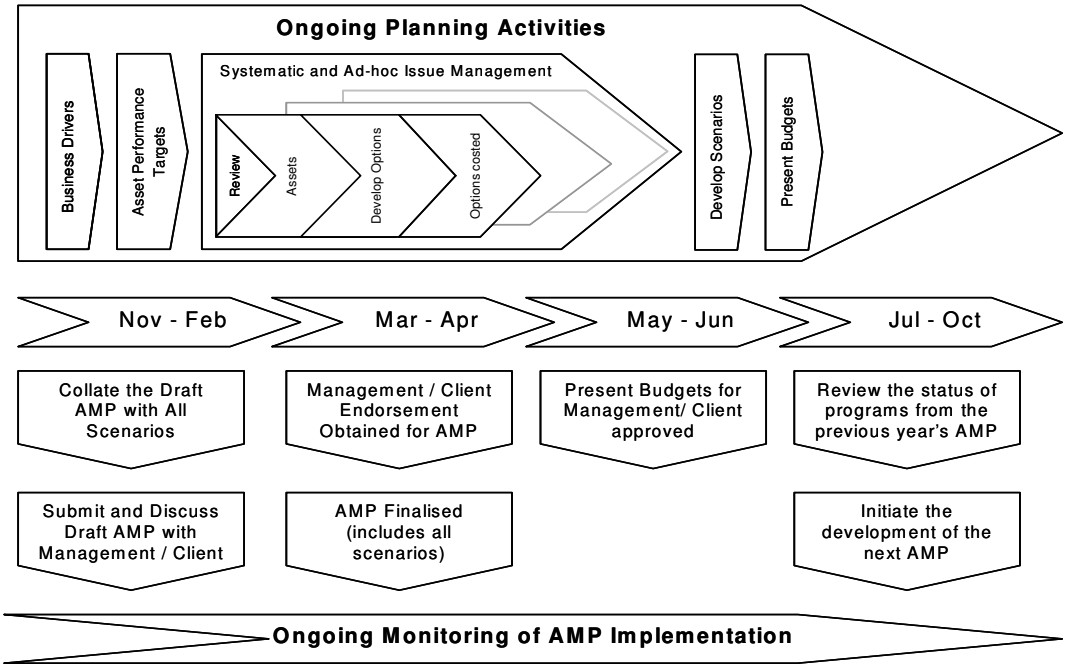
This plan is reviewed and updated as part of the overall year round process of Asset Management planning. The process itself can be broadly considered as consisting of two parallel activities.

Activity One:

- the ongoing monitoring of both current asset performance and the implementation of the previous year's AMP.

Activity Two:

- Project development, taking into account asset performance and risk assessments, followed by assessment of technical solutions, budget preparation and then securing approval to proceed.



Asset Management Plan development and Planning Activities cycle. Time-line based on standard July – June Financial Year, it can be adjusted to contract requirements.

Revision and Update of the Plan

The Manager, Asset Strategy and Planning is responsible for revising and updating this plan.

CONTENTS

SECTION 1 GENERAL

1.1 Network Overview

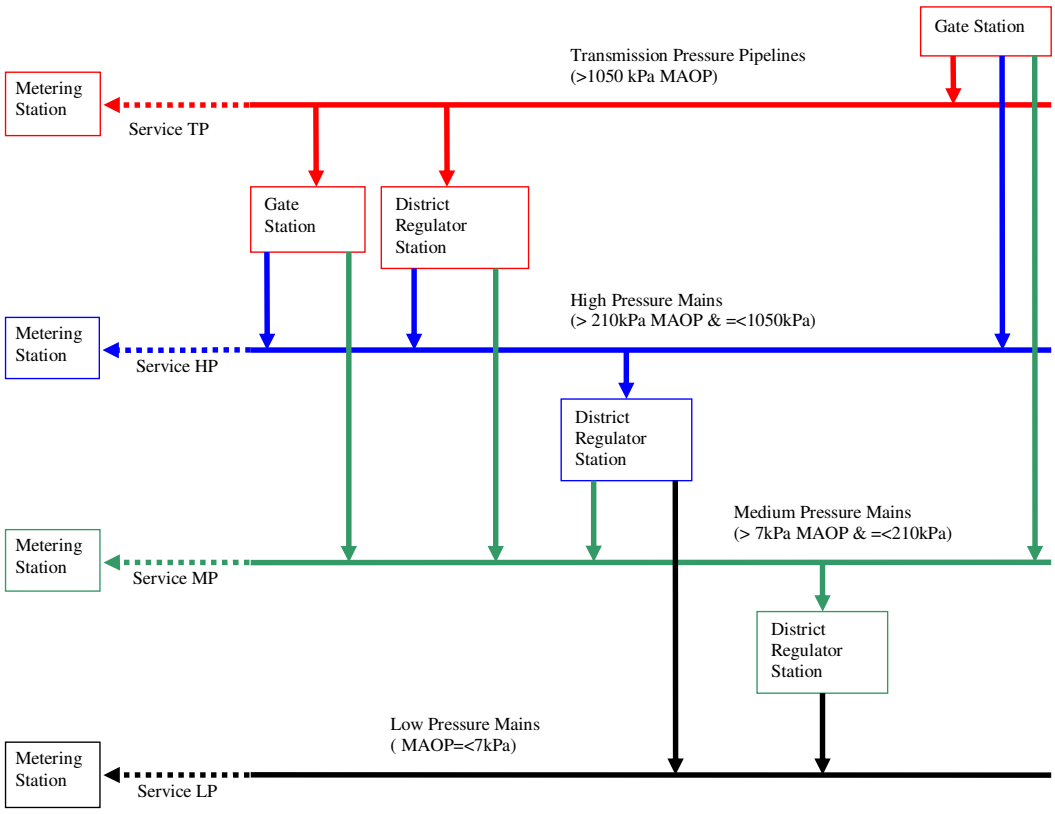
This section documents APT Allgas Energy Pty Ltd principal supply networks and the associated assets within those networks. An overview at both the gas network (composite) and individual asset (component) level is provided.

1.2 Sources of Supply

Gas is delivered into the APT Allgas Energy Pty Limited Networks via "APA Gate Stations". These stations consist of facilities that filter the gas, odourise the gas, control the delivery pressures and measure and report on the quantity of gas delivered into each of the APT Allgas networks from the APA Group Roma to Brisbane Pipeline.

The following diagram provides an overview of gas networks and key network components. Connections between pipelines at different pressures are achieved through gate and district regulator stations.

DISTRIBUTION NETWORKS CONFIGURATION



1.3 Pressure Regimes

The network operates under four pressure regimes as defined in the following table.

Pressure Regime	Definition
Transmission Pressure (TP)	Networks with a MAOP between 1,050 kPa and 10,000 kPa
High Pressure (HP)	Networks with a MAOP between 210kPa and 1050 kPa
Medium Pressure (MP)	Networks with a MAOP between 7 kPa and 210 kPa
Low Pressure (LP)	Networks with a MAOP up to 7 kPa

The distribution networks are operated at pressures within nominated maximum and minimum allowable operating pressures (MAOP and MinAOP). Emergency over pressure control is provided on all networks to ensure the nominated MAOP is not exceeded.

Each network has its own defined operating range depending on the network configuration and capacity requirements. Operating pressures may vary seasonally, depending on the annual load profile.

Distribution networks nominal operating pressure ranges are summarised in the following table. Actual operating pressures may vary around these nominal values but in all cases pressures are maintained below the specific MAOP of the network.

Network	MAOP (kPa)	MinAOP(kPa)	MaxOP (kPa)	MinOP (kPa)
Oakey High Pressure Steel	1,050	600	1,000	800
Oakey High Pressure PE	700	350	680	350
Oakey High Pressure PE	500	140	200	170
Toowoomba Transmission Pressure	5,000	600	1,000	800
Toowoomba High Pressure Steel	1,050	600	1,000	700
Toowoomba High Pressure PE	500	140	200	140
Riverview Transmission Pressure	5,000	500	900	700
Ellen Grove 1 Transmission Pressure	4,600	2,000	2,200	2,000
Ellen Grove 1 High Pressure Steel	1,050	600	1,000	700
Ellen Grove 1 High Pressure PE	500	140	200	160
Ellen Grove 1 Medium Pressure PE	200	60	150	60
Ellen Grove 1 Medium Pressure	35	10	15	10
Ellen Grove 2 Transmission Pressure	10,000	3,000	4,500	3,500
Ellen Grove 2 Transmission Pressure	5,000	1,500	4,500	2,000
Ellen Grove 2 High Pressure Steel	1,050	600	1,000	650
Ellen Grove 2 High Pressure PE	500	140	400	160
Willawong Transmission Pressure	5,000	2,500	4,500	3,500
Runcorn High Pressure Steel	1,050	600	1,000	700
Runcorn High Pressure Steel	700	450	700	500
Runcorn High Pressure PE	500	140	200	170
Runcorn Medium Pressure PE	200	60	150	60
Runcorn Medium Pressure	35	10	20	10
Runcorn Low Pressure	7	1.13	1.6	1.13
Mt Gravatt Transmission Pressure	5,000	1,500	2,200	2,000
Mt Gravatt High Pressure Steel	1,050	600	1,000	700

Network	MAOP (kPa)	MinAOP(kPa)	MaxOP (kPa)	MinOP (kPa)
Mt Gravatt High Pressure PE	500	140	200	180
Mt Gravatt Medium Pressure PE	200	60	150	70
Mt Gravatt Medium Pressure	35	10	20	10
Tingalpa High Pressure Steel	1,050	600	1,000	700
Tingalpa High Pressure Steel	300	200	300	200
Tingalpa High Pressure PE	500	140	200	140
Tingalpa Medium Pressure	200	60	150	60
Tingalpa Medium Pressure	35	10	20	10
Tingalpa Low Pressure	7	1.13	1.6	1.13
Doboy High Pressure Steel	1,050	600	1,000	650
Doboy High Pressure PE	500	140	300	160
Moura				

Minimum pressures have been nominated based on the following criteria:

- Minimum of 1.125 kPa maintained at the outlet of domestic meters on the low pressure network
- Minimum required inlet pressure to I&C meters is maintained
- Minimum upstream pressure to ensure effective pressure control by district regulators feeding lower tier networks is maintained; and
- Adequate "spare" capacity is maintained to ensure variation in demand, caused by weather and consumer diversity, does not result in loss of supply.

1.4 Network Assets

1.4.1 Gate Stations

Gas is delivered into Envestra's networks via gate stations owned by Envestra or the upstream pipeline owner. These stations consist of facilities that filter the gas, odorise the gas, control the delivery pressures and measure and report on the quantity of gas delivered into Envestra's networks. The table below summarises the locations of gate stations.

Gate Station	Location	Owner
Oakey	Warrego Highway, Oakey	APT Allgas
Toowoomba	Hermitage Road, Cranley	APT Pipelines
Ellen Grove	Woogaroo Street, Ellen Grove	APT Allgas
Dinmore	Riverview Road, Riverview	Envestra
Willawong	Sherbrooke Road, Willawong	APT Allgas
Runcorn	Gowan Road, Sunnybank	APT Allgas
Mt Gravatt	Greenwood Street, Wishart	APT Allgas
Tingalpa	Stanton Road, Tingalpa	APT Allgas
Doboy	Lytton Road, Murarrie	APT Allgas
Moura	Three Chain Road, Moura	APT Allgas

1.4.2 Transmission Pipelines, Distribution Mains and Services

The table below summarises the gas assets making up these networks by District and pressure regime as at 1st July 2010. (Numbers are in metres of pipe).

Network	TP	HP	MP	LP	Totals
	>1050 kPa	210-1050kPa	7-210 kPa	< 7 kPa	
Brisbane	254,334	730,557	436,868	294,856	**1,716,614**
Gold Coast	157,522	470,584		214	**628,321**
Tweed Heads		32,562		270	**32,832**
Toowoomba	48,294	477,806	2,075	110	**528,286**
Oakey	6,998	29,136			**36,133**
Moura	1,209				**1,209**
TOTAL	**468,357**	**1,740,645**	**438,943**	**295,450**	**2,943,395**

Transmission pipelines are the principal supply to the low, medium and high distribution sub networks. They can be the primary supply to major industrial consumers.

The current networks are composed of various materials including steel, polyethylene, nylon, cast iron and galvanised steel.

1.4.3 District Regulator Stations

District regulator stations regulate the delivery of gas into the high, medium and low-pressure distribution networks. Single stream active-monitor configurations are used on small installations, and double stream active-monitor on larger installations.

These facilities consist of filters, isolation and bypass valves and pressure control regulators. They are located either in below ground pits or above ground kiosks. Larger installations may be fitted with meters, actuated valves and actuated pressure control functions as well as SCADA monitoring.

1.4.4 Metering Stations

Consumer metering stations ranges from a simple meter-regulator installation for domestic and small commercial and industrial installations to more complex assemblies with filters, bypass valves, correcting instruments and telemetry. As part of the Queensland market rules all metering installations at sites consuming more then 10TJ/annum are required to have data logging and telemetry facilities installed.

1.4.5 SCADA

The SCADA system is used to monitor gas flows, pressures, temperatures as well as various other alarms. Network pressures are monitored at various locations within the networks with data communicated back to a central base station by radio or through the telephone network.

A SCADA system is used and for monitoring and reporting consumption for demand customer sites as required by the Queensland market rules.

1.5 System Capacity Management

This section details the philosophy, process and criteria that underpin supply and demand management within Envestra's QLD networks.

1.5.1 Capacity Management Philosophy

Network capacity is managed by:

- Monitoring existing network performance and
- Assessing foreseeable demands and threats to supply, and mitigating them according to the risk they present, balancing the costs of doing so against the benefits of expending limited resources elsewhere in the network.

Network capacity management seeks to avoid loss of supply as result of insufficient system capacity on the basis that this avoids the risk of:

- Interruptions to key gas usage sites eg hospitals
- Creating a potentially hazardous condition to the consumer should there be a momentary loss of supply and
- Developing a perception that delivery of gas is unreliable, adversely affecting future utilisation of the network

The supply of gas is increasingly regarded by the community as an essential service, with an accompanying expectation that it will be uninterruptible under all but the most extreme, force majeure, events.

The philosophy to security of supply is to avoid a major interruption as result of single points of failure or damage to critical supply mains or district regulator stations.

Major interruptions are defined as:

- Significant in terms of physical effort to resolve
- Significant in terms of their risk to the public and
- Significant in their likelihood of receiving extensive media coverage

Network capacity augmentation is planned where:

- The minimum pressure in a network is currently, or is forecast to fall, below the recommended minimum end of main pressure during design load conditions. Design load conditions take into account seasonality, consumer type and load profile, and other factors that contribute to peaks in demand.
- A significant security of supply risk has been identified.

1.5.2 CAPACITY MANAGEMENT PROCESS

The network capacity management process integrates knowledge of existing and future customer requirements, operational requirements and risk management options to be able to optimise performance of gas distribution systems.

The Strategic Capital Planning Macro Process, Network Capacity Management, Load Forecasting and Risk Management are detailed in flow diagrams in Appendix 3. An overview of key processes have been summarised in the following sub sections:

1.5.2.1 Analyse Current Network Performance Process

The purpose of this process is to identify operational risks and performance improvement opportunities related to gas delivery to current customers.

The requirement of this process applies to collection of critical information related to current network assets performance, to be able to analyse network capability. Information collected includes:

- Mains and services: location, operating pressure, MAOP, material, size, wall thickness, location of block valves, connectivity, condition, mechanical and cathodic protection.
- Customer metering stations: type of customer, location, condition, meter type, maximum capacity, metering pressure and inlet pressure.
- Gate stations and district regulator stations: location, condition, maximum capacity, inlet pressure and outlet pressures.
- Network performance: load and pressure profiles for gate stations, critical district regulator stations, critical customer metering stations and other critical network points important for accurate network modelling.

1.5.2.2 Forecast future network performance

The purpose of this process is to identify high level operational risks and performance improvement opportunities related to gas delivery to existing and potential future end users.

Key input to this process is the forecast future growth of customer numbers and related load growth. This is based on a combination of historical trends, Housing Industry Association (HIA) data, growth trends from Queensland Government information, and consultants, where appropriate.

Forecasted customer numbers are converted to network peak day hourly demand profile using diversity factors specific for this region and actual peak day hourly load profiles.

Various network configuration options are analysed using computer based network models to optimise augmentation solutions.

1.5.2.3 Develop Risk Management Plan

The consequence and likelihood of additional network load and or a single point failure event of either a supply main or supply regulator is considered with specific risk issues feeding into the overall network augmentation design and review process.

The following risk matrix is used to prioritise augmentation projects.

	Typical Severity Class		Minor	Moderate	Severe	Major	Catastrophic
CONSEQUENCE	Health &Safety		Single - no permanent injury Lost time injury	Multiple - no permanent injury	Hospitalisation Single permanent injury	Single fatality Multiple permanent injury	Multiple fatalities
	Financial Impact		Less than $1M Change to Project Budget	$1M - $5M Change to Business Unit Budget	$5 - $20M Financial explanation to Market Regulators	$20 - $50M Change to strategy due to Cash Flow constraints	$50M + Cash Flow crisis Credit Rating downgraded
	Customer & Business Interruption		Short term localised service interruptions to less than 100 customers / day Parameters not met to1 contract customer	Short term localised service interruptions to less than 1000 tariff customers / day or 1 contract customer	Loss of service to less than 10000 tariff customers / day, or few contract customers	Short term loss of service to more than 10000 customers / day Area growth affected	Long term loss of service to mass market (>100000 customers /weeks). Viability of Company in doubt
	Environment		Localised incident immediately contained	Localised damage immediately contained. Reportable - no financial penalty	Serious short term impact to ecosystem Reportable - financial penalty	Serious long term impact to ecosystem Reportable - prosecution	Wide area - long term affected Reportable - potential lost of licence
	Compliance & Legal		Technical non-compliance with statutory, licence, regulations. Voluntary explanation to Regulator	Non- compliance with statutory, licence, regulations. Compulsory explanation to Regulator	Non-compliance with statutory, licence, regulations New conditions to Licence manageable	Non-compliance with statutory, licence, regulations New conditions to Licence affecting ability to operate	Non-compliance with statutory, licence, regulations. Loss of Licence. Significant financial penalty Prosecution
	Reputation		Isolated localised public complaints	Adverse comments in local media Public statement required	Adverse comments in State media Widespread concern from investors, customers and regulators	Adverse coverage in National media. Customers and investors question company reliability	Prolong adverse coverage in national/ international media. Significant impact on shareholder value
LIKELIHOOD	Almost Certain	Expected in most circumstances, At least once per year or more	Moderate 11	High 16	Extreme 20	Extreme 23	Extreme 25
	Likely	Will occur in most circumstances At least once every 3 years	Moderate 07	High 12	High 17	Extreme 21	Extreme 24
	Possible	Might occur at some time At least once every 10 years	Low 04	Moderate 08	High 13	Extreme 18	Extreme 22
	Unlikely	Could occur at some time At least once every 25 years	Low 02	Low 05	Moderate 09	High 14	Extreme 19
	Rare	May occur only in exceptional circumstances Less than once every 25 years	Low 01	Low 03	Moderate 06	Moderate 10	High 15

Any risk issues deemed to have an extreme or high risk rating are actioned on a priority basis to either remove the cause of the risk and/or apply additional controls to reduce the risk rating to an acceptable level. Items having a risk rating of Moderate are documented and actioned in accordance with available resources and other priority actions, whilst items rated as Low risk receive the lowest priority or may be accepted and monitored without further treatment.

Priority		Priority Description
Priority 1		Any project, where Risk Level of at least one risk area falls into Extreme must be included in Priority 1. These projects should be regarded as non-discretionary, as their justification is to mitigate the risk level that is not acceptable to APA.
Priority 2		Any project, where Risk Level of at least one risk area falls into High must be included in Priority 2. The non inclusion of these projects may expose APA, or third party asset owner to potential short and long-term business damage.
Priority 3		Any project, where Risk Level of at least one risk area falls into Moderate must be included in Priority 3. The non inclusion of these projects may affect reliability of assets; as well it may affect operating efficiency and compliance.
Priority 4		Any project, where Risk Level of at least one risk area falls into Low must be included in Priority 4. The non inclusion of these projects may affect opportunity for overall company risk reduction and operating efficiencies.

1.5.2.4 Develop Capital Plan

The requirements of this process apply to the development of overall capital expenditure plan with implementation schedule for major network augmentation, renewal, customer initiated projects, and long term budget cost estimation for all proposed capital expenditure projects.

Outcomes of this process are:

- Firm capital expenditure proposals for the next financial year.
- Strategic 5 year capital programme of work.

1.5.2.5 Developing Augmentation Project Business Cases

In order for an augmentation project to be carried out a business case signed off within the appropriate Delegation of Authority is required.

Business cases detail:

- The proposed scope of work
- Key risks and issues driving capital expenditure
- The options considered
- A risk analysis
- Cost Breakdown

It is a requirement that capital expenditure complies with the National Gas Rules 79 (1) and (2). In summary:

- The capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;
- The capital expenditure must be justifiable on the basis that:
    - The overall economic value of the expenditure is positive; or
    - The present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or
    - The capital expenditure is necessary to:
        - maintain and improve the safety of services; or
        - maintain the integrity of services; or
        - comply with a regulatory obligation or requirement; or
        - to maintain capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.

1.5.2.6 Mains Replacement Planning

Underperforming networks, especially LP networks, can often be most cost effectively augmented via mains replacement and associated pressure upgrade.

A number of areas within the Brisbane network are undergoing urban renewal. The effect on gas demand is often found to be an increase in peak demand, as older gas appliances are replaced with high instantaneous demand units. Unfortunately, this additional demand is often found to exceed the delivery capability of LP networks.

The identification of mains for replacement involves assessing key operating data, eg leaks, supply pressures, gas outages, operating and replacement costs. Priority areas are identified based on risk, performance and economic criteria.

The output of this process is combined with capacity and security of supply issues to optimise the use of higher pressure mains within the network to facilitate efficient and effective replacement.

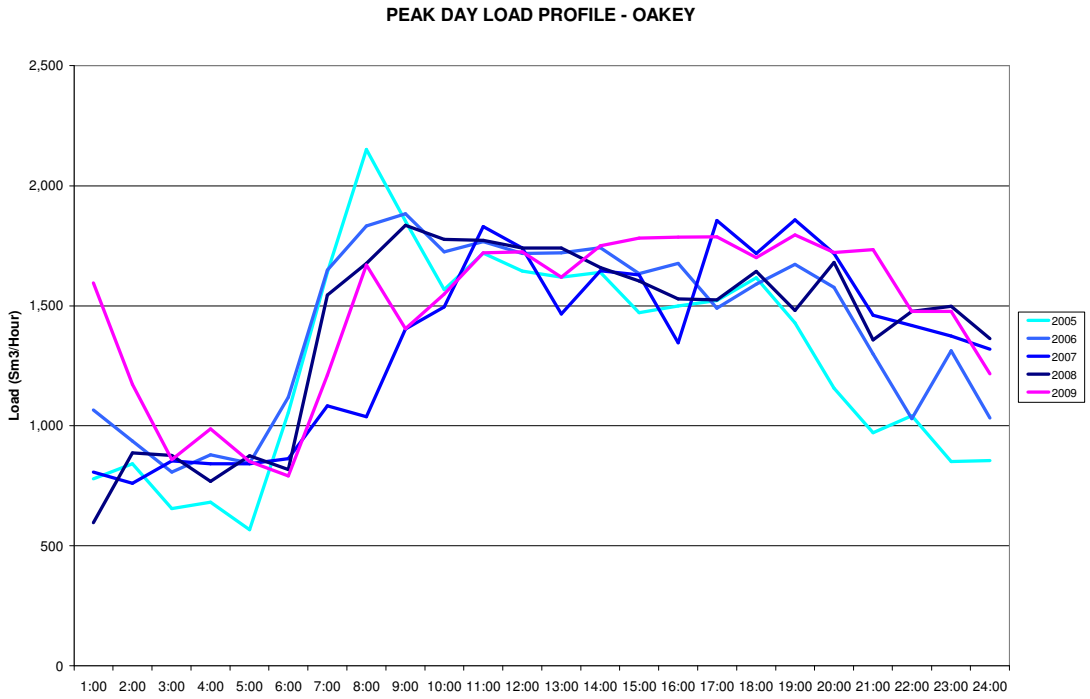
SECTION 2 – NETWORK DEMAND AND PERFORMANCE

2.1 Peak Day Load Profiles

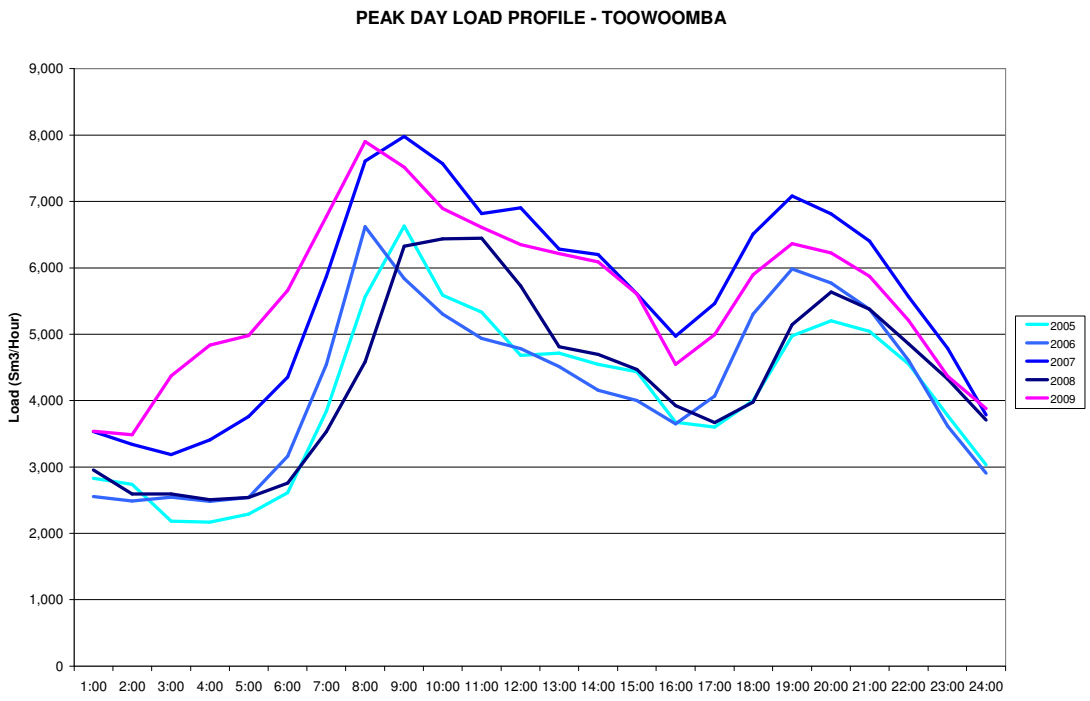
The data about current load profiles (Allgas SCADA) and forecast for new customer connections are used as basic information for development of hourly load forecast for individual distribution networks. The Allgas Gas Monitoring System, introduced in 1999, is used to provide data about load profiles for all gate stations and South Coast Subgate Station.

The historical load profiles have similar pattern with a higher morning peak and lower evening peak. The lowest hourly load is for the period between midnight and 5:00am and is approximately 50% of morning peak load. Winter is the most critical part of the year with maximum hourly consumption approximately 50% higher than in summer.

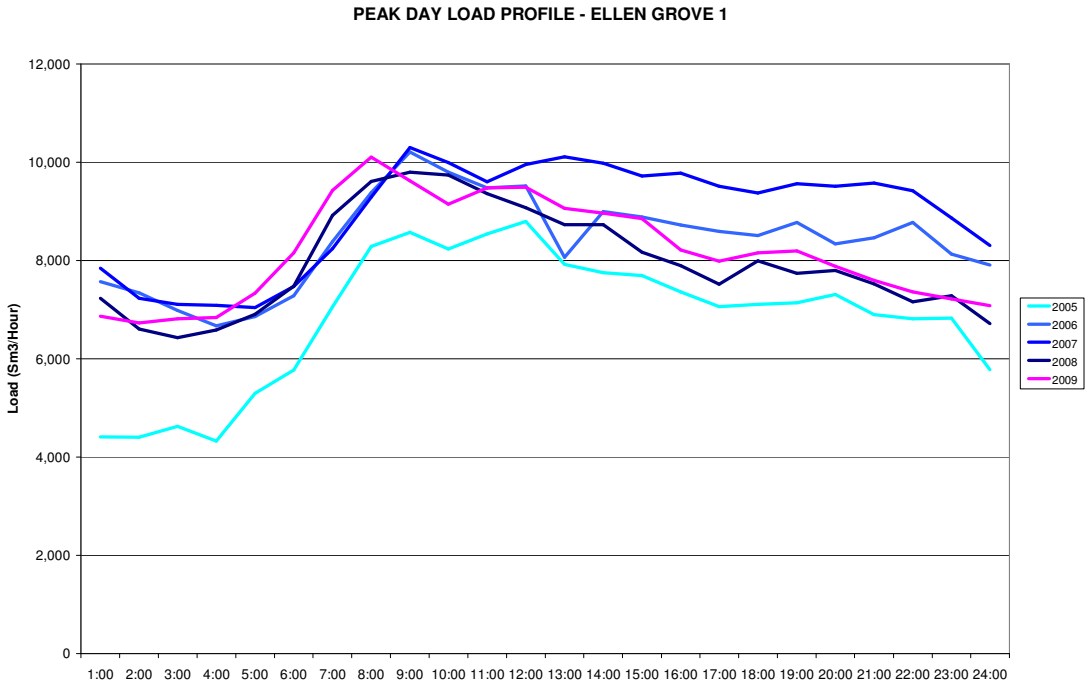
Historical data about peak day load profiles for individual gate stations are shown on graphs as follows:



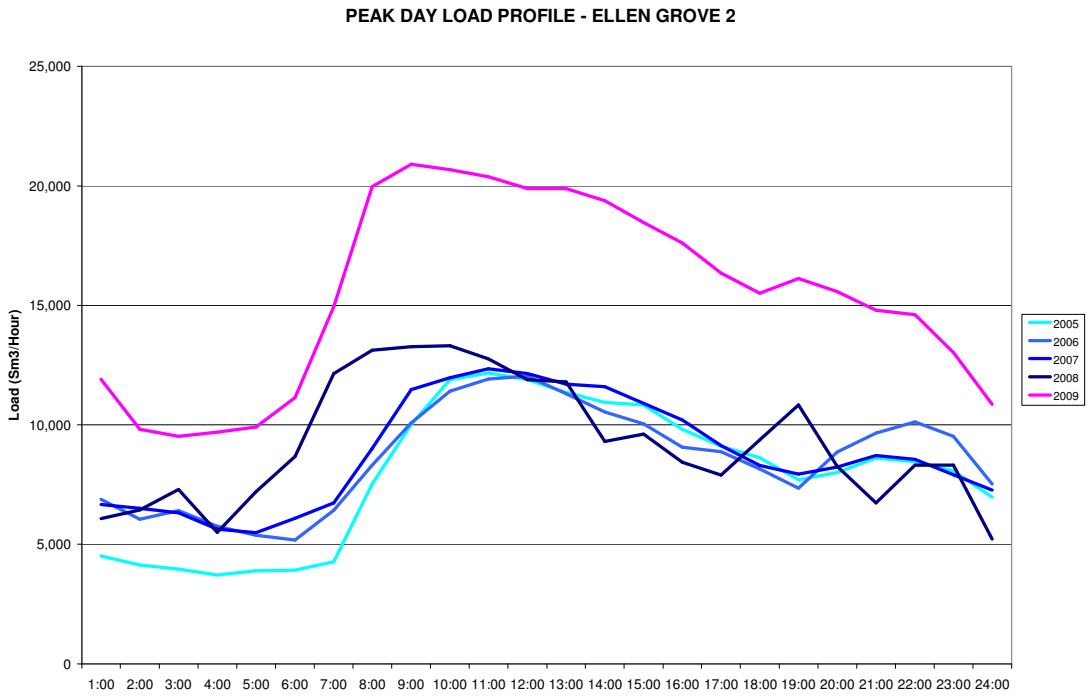
Large industrial customers like Australian Meat Holding, Oakey Abattoir and Oakey Aviation Centre has a major influence on load profile for Oakey Distribution Network.



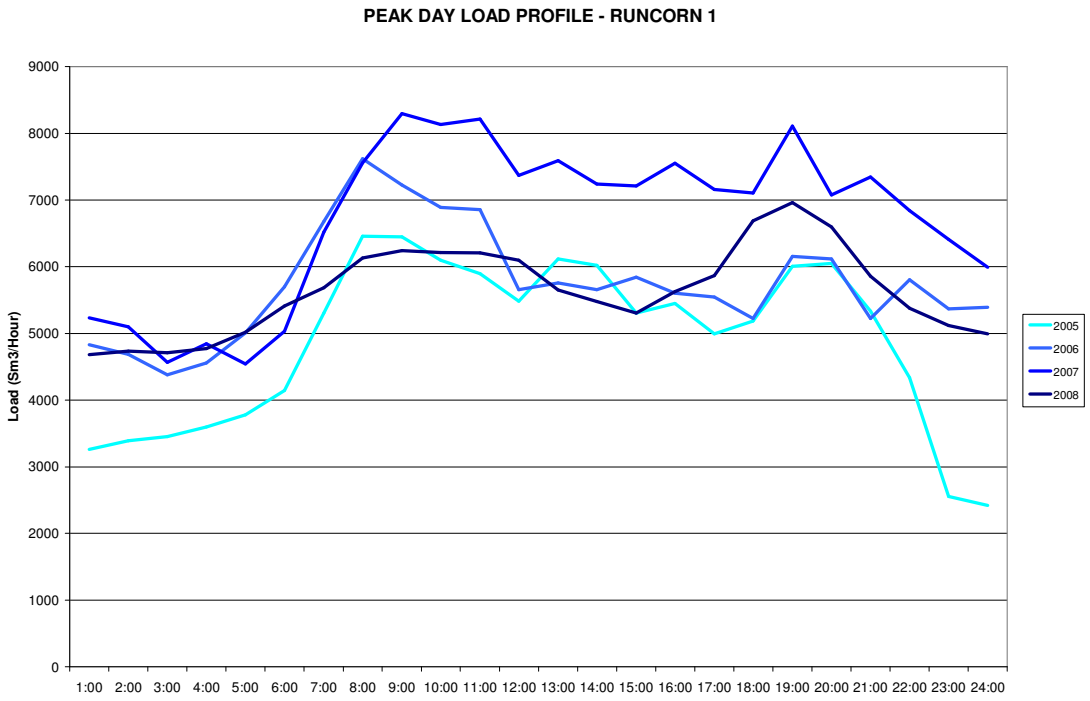
Toowoomba Distribution Network has a large number of domestic customers with major influence on load profile. There are two peak load times at 8:30am and 7:00pm and they are related to peak hourly load for domestic customers.



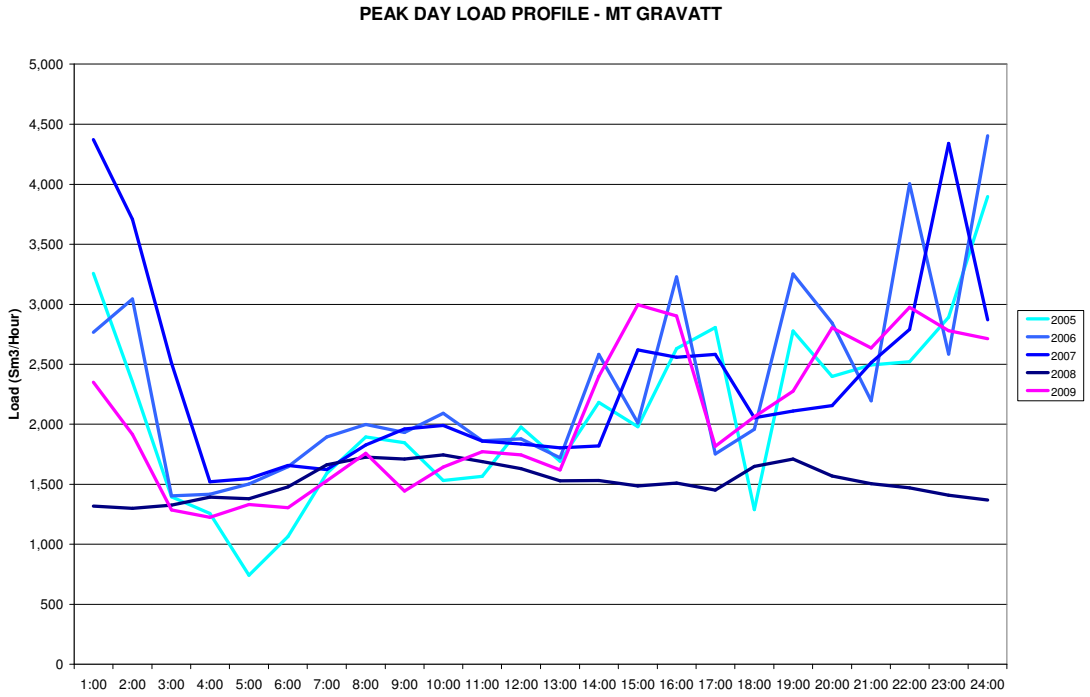
Ellen Grove 1 Distribution Network has a large number of domestic customers located in Sherwood, Chelmer, Graceville, Corinda, Carole Park, Forest Lake and Springfield but the major influence on load profile is from industrial customers in Carole Park, Wacol, Darra and Rocklea. The peak load is at 9:00am.



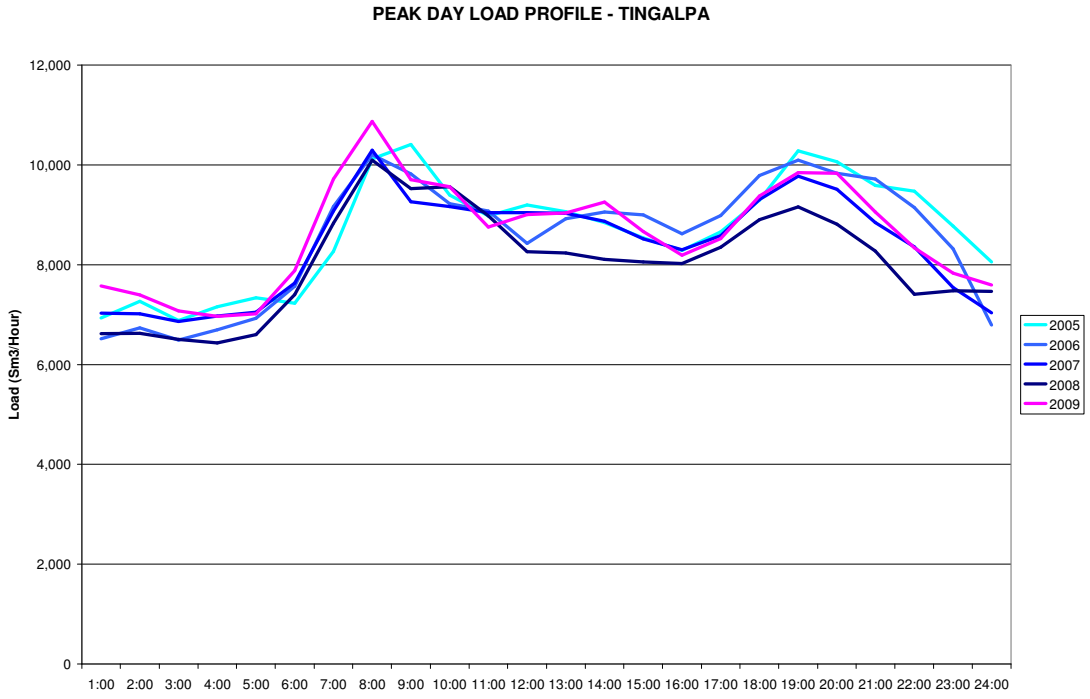
This network has a small number of domestic customers that increase significantly each year with the majority of hourly load related to commercial and industrial customers. Peak load is between 9:00am and 11:00am. Increase in hourly load is mostly related to the connection of new industrial customers. There are new residential developments in Pimpama, Coomera, Oxenford, Hope Island and northern NSW and industrial estates in Yatala, Ormeau and Crestmead.



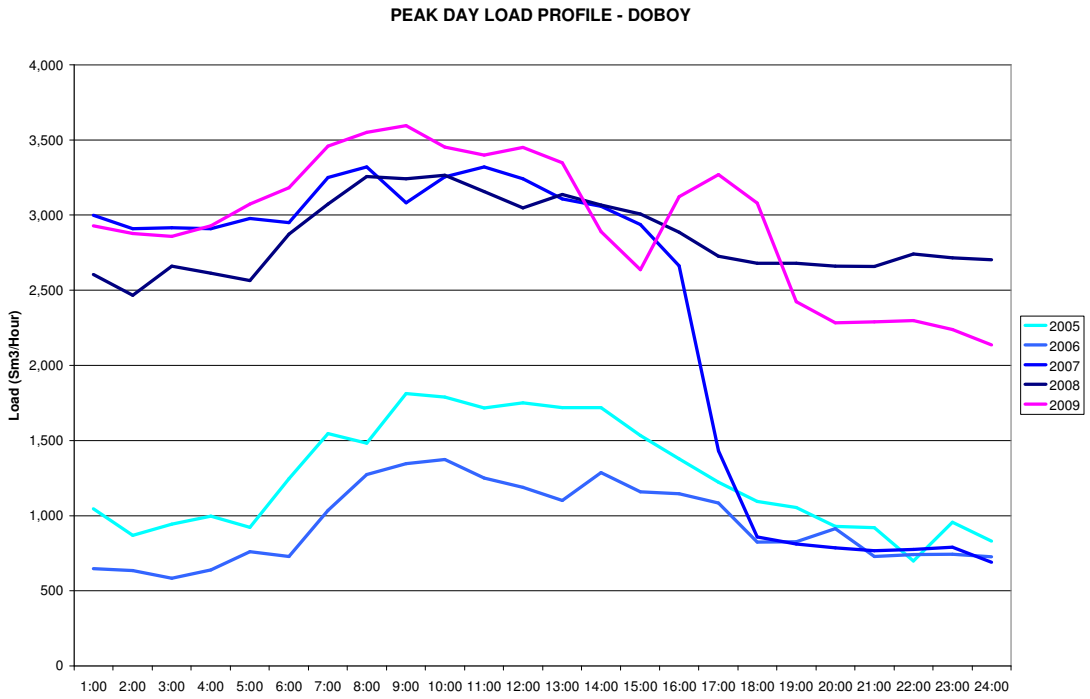
This network supplies large numbers of residential customers in Woodridge, Kingston and Old District, and at the same time a large number of industrial and commercial customers in Acacia Ridge, Archerfield, Coopers Plains, Sunnybank and Salisbury. The major peak load is at 8:00am with minor peak load at 8:00pm.



The Austral Brick Company and Brisbane City Council Bus Depot at Garden City are the only major customers supplied with natural gas through this network. Peak hourly loads are related to the Brisbane City Council Bus Depot operation.



This network has large numbers of residential, commercial and industrial customers. There are two peak loads at 8:00am and 7:00pm.



Doboy network supplies mostly industrial customers with morning peak load at 9:00am.

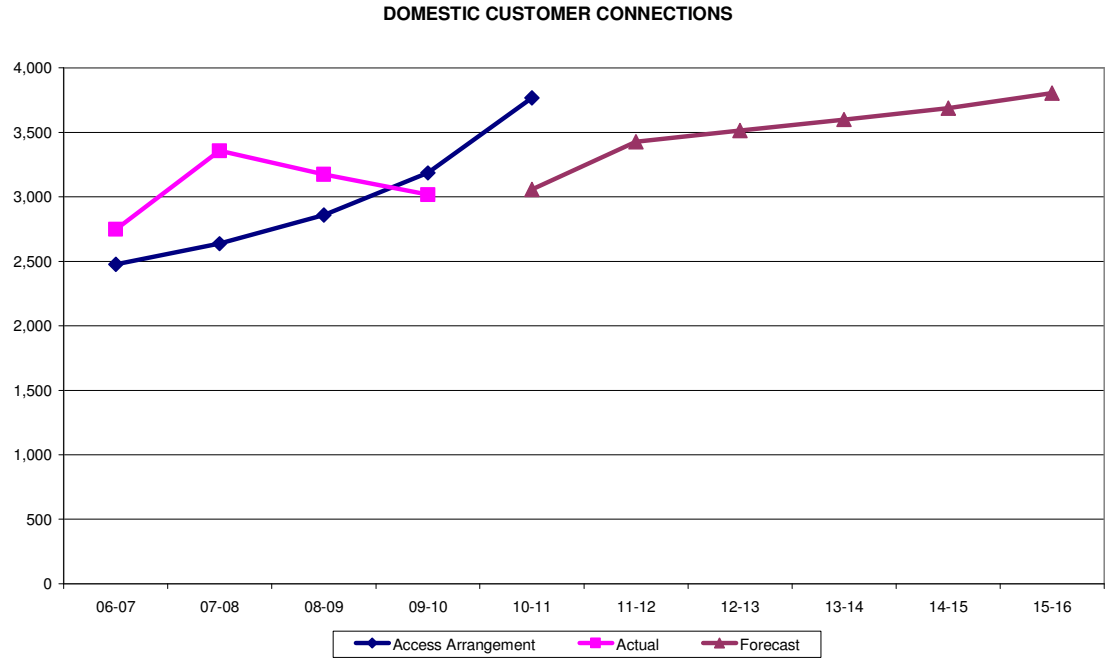
2.2 Load Growth Forecast

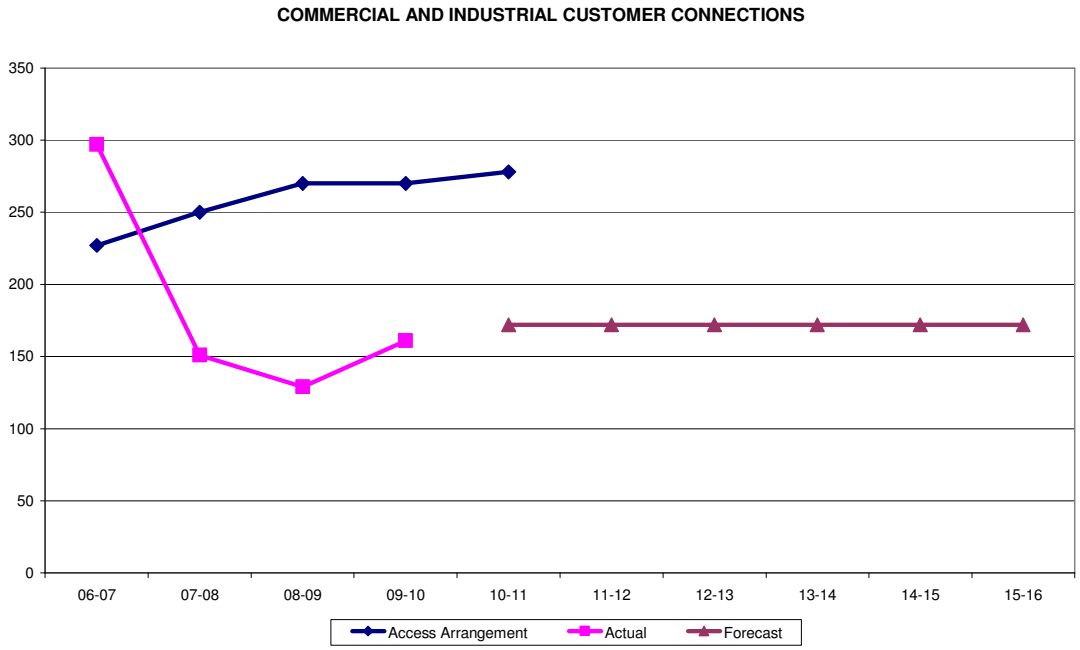
Load growth forecasting is a critical input to network capacity modelling. It is the basis for determining where and how networks are augmented to meet future demand. Forecasts of demand for each region are developed using inputs from independent forecasters.

For operational, network design and planning purposes the demand forecasts are augmented with location specific information sourced via network marketing so that intra-network constraints can be identified and future capital expenditure requirements optimised.

2.2.1 Actual and Forecast Customer Connections

New Customer Connections	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19
Commercial and Industrial (AA 2006)	227	250	270	270	278								
Domestic (AA2006)	2,477	2,637	2,860	3,185	3,770								
Total (AA 2006)	2,704	2,887	3,130	3,455	4,048								
Commercial and Industrial (actual)	297	151	129	161									
Domestic (actual)	2,749	3,357	3,174	3,017									
Total (actual)	3,046	3,508	3,303	3,178									
Commercial and Industrial (forecast)					172	172	172	172	172	172	172	172	172
Domestic (forecast)					3,057	3,429	3,514	3,601	3,690	3,806	3,926	4,047	4,170
Total (forecast)					3,229	3,601	3,686	3,773	3,862	3,978	4,098	4,219	4,342





2.2.2 BASELINE TARIFF V DESIGN LOAD

2.2.3 BASELINE TARIFF D DESIGN LOAD

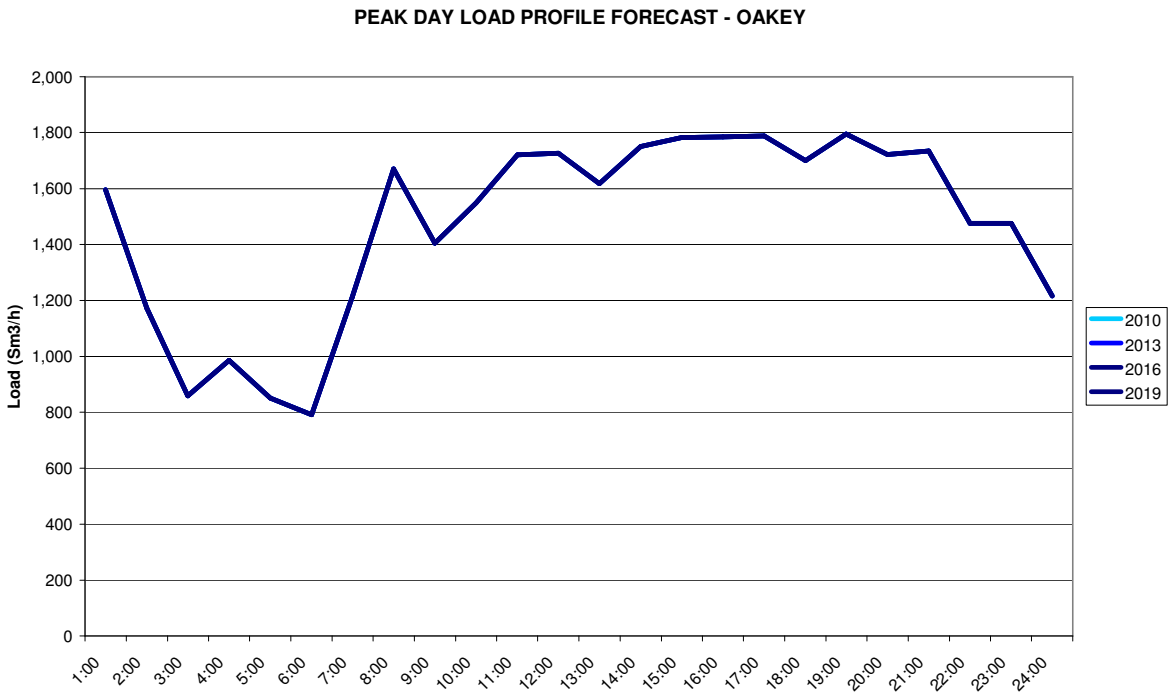
Baseline Tariff D loads are derived from a combination of billing data and connection and consumption forecasts.

2.3 Peak Day Load Profiles Forecast

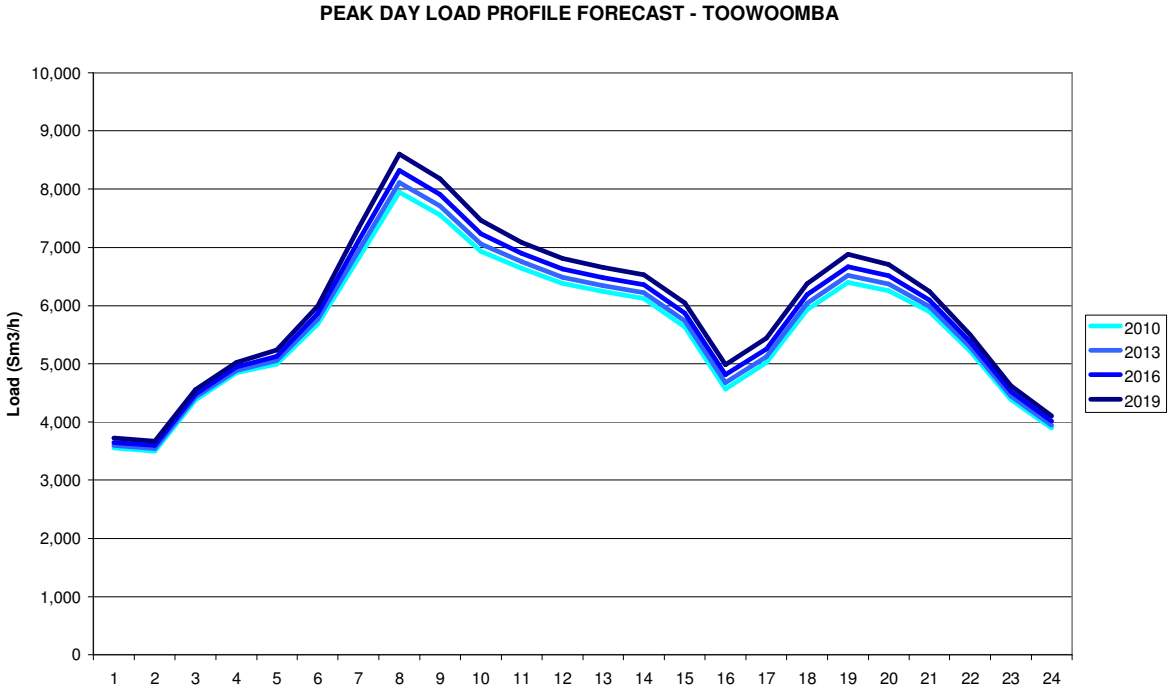
The future load profiles are calculated by adding expected additional hourly loads (multiplied by average diversity factors) for domestic, commercial and industrial customers to the existing load profiles. The currently known, potential large industrial customer loads are added individually.

A fully diversified average load of between 0.1 and 0.15 m3/hr, depending on the network location, is typical of new domestic consumers in Queensland. Baseline load for commercial and industrial customers is derived from a combination of billing data and connection and consumption forecasts.

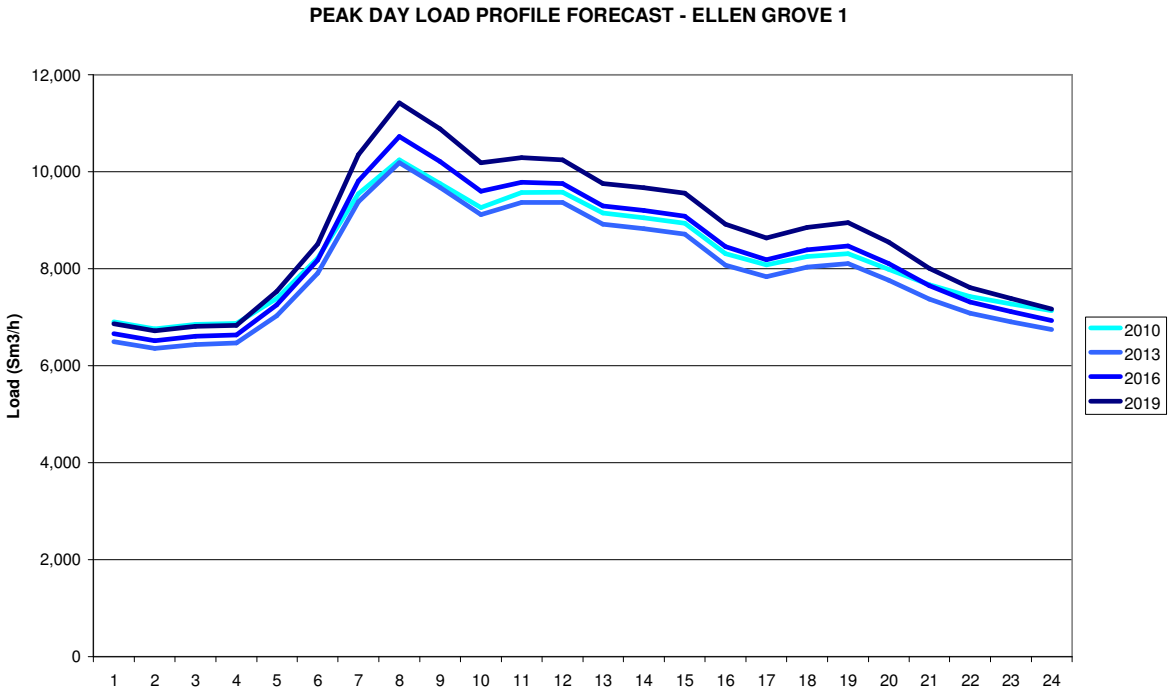
The hourly load forecast is critical for development of strategies for network renewal, augmentation and extension projects. The forecast peak day load profiles for major individual networks are shown in charts as follows.



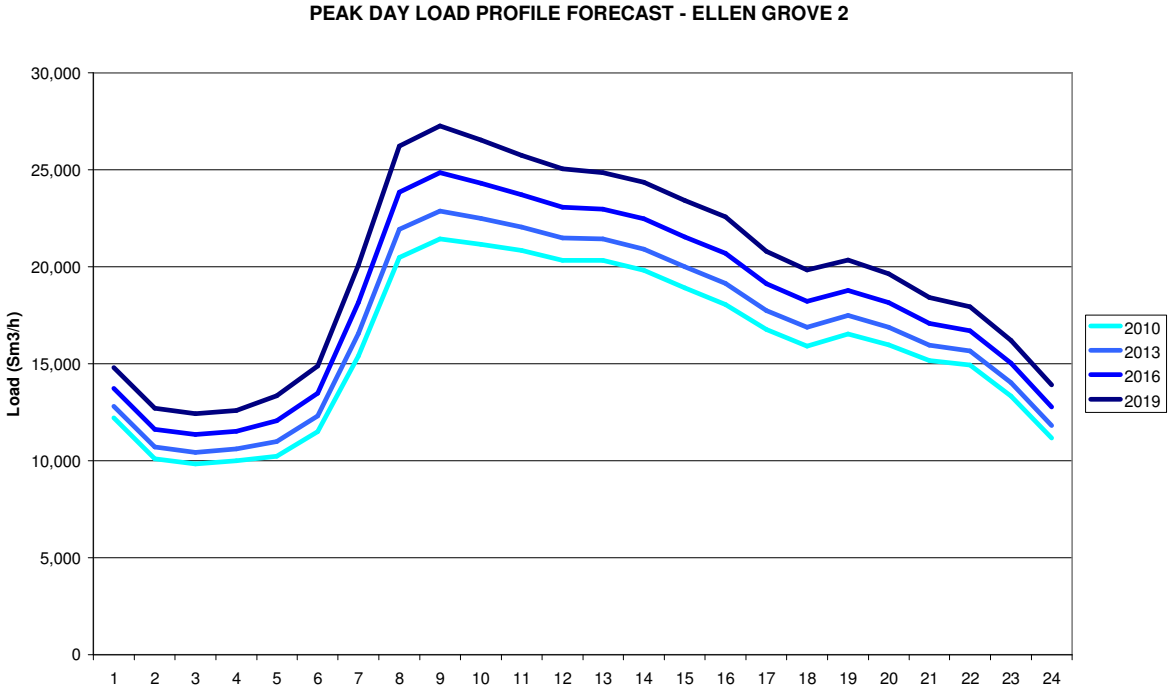
The forecast for Oakey is based on no changes to current peak day load profile. There is potential for some new domestic developments with minimal impact on peak day load profiles.



There is forecast for minor hourly load increase for Toowoomba based on potential small numbers of new residential, commercial and industrial customer connections.

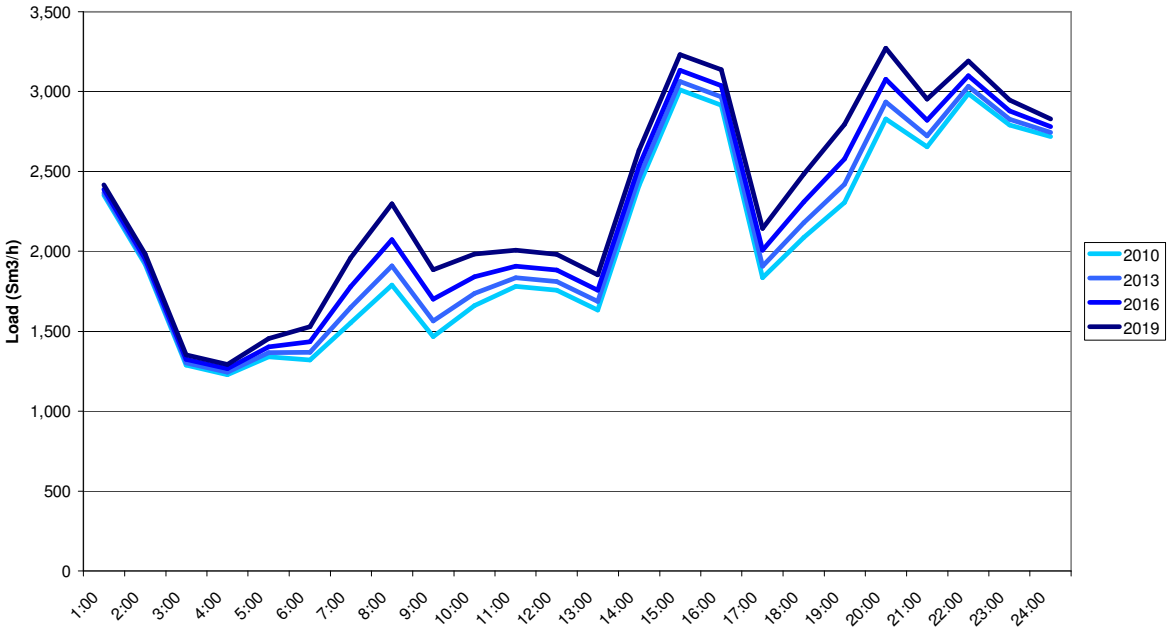


There is forecast for hourly load increase for Ellen Grove 1 network based on large domestic developments in Springfield and new industrial loads in Wacol, Carole Park and Darra.



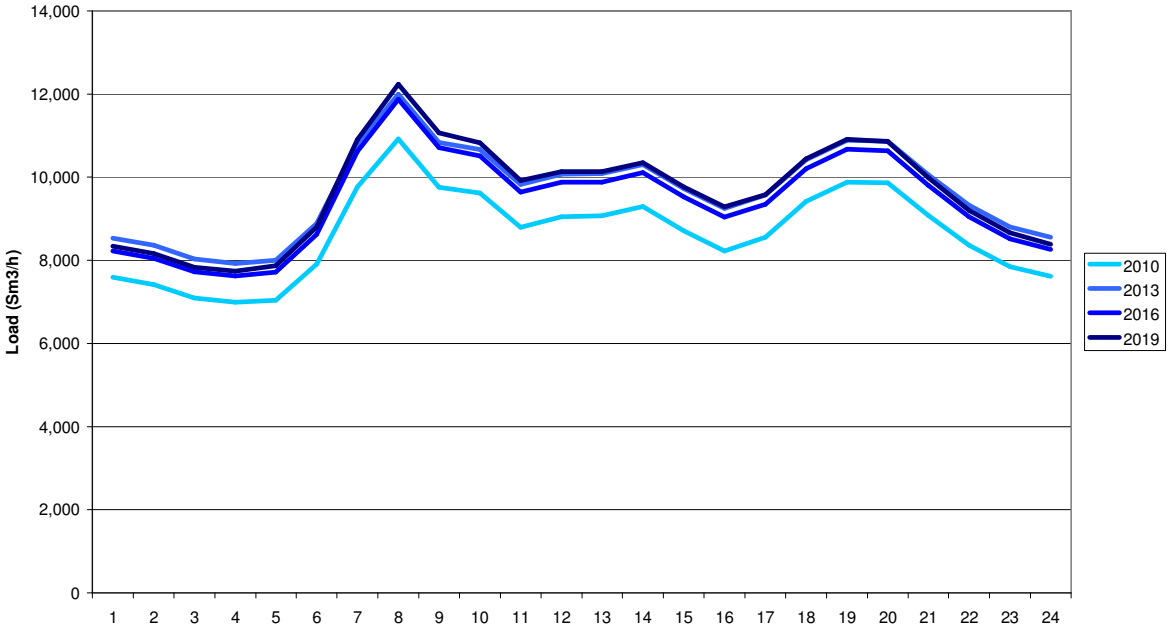
There is forecast for major hourly load increase for this network related to new domestic developments in Pimpama, Coomera, Hope Island and other parts of Gold Coast growth corridor. Potential commercial customers are located mostly in Surfers Paradise, Broadbeach and Southport. Large industrial developments are in Yatala and Crestmead.

PEAK DAY LOAD PROFILE FORECAST - MT GRAVATT

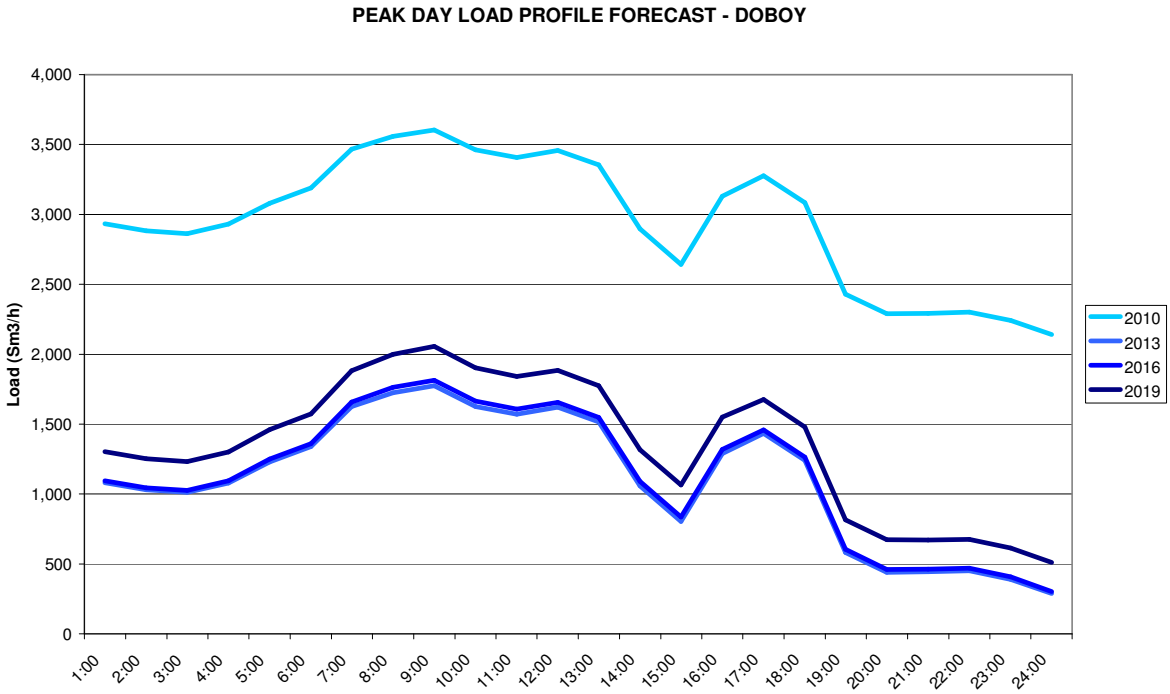


Currently there potential for increase of maximum hourly load on this distribution network based on new domestic developments in Rochedale and future mains renewal of old low and medium pressure networks in Mt Gravatt and Mansfield.

PEAK DAY LOAD PROFILE FORECAST - TINGALPA



There are multiple domestic developments in Gumdale and Wakerley and potential large commercial loads in South Brisbane, Woolloongabba and Chandler and potential industrial customers in Tingalpa and Murarrie.



Expected reduction of maximum hourly demand on Doboy network is related to planned disconnection of Caltex that will be supplied directly from transmission pipeline.

2.4 Network Performance and Augmentation

2.4.1 Overview

The following sections provide an overview of networks performance, and the drivers for augmentation over the next 6 years. A schedule of forecast augmentation projects is detailed in Appendix 5. Augmentation project details and justifications have been included in Appendix 6.

There will always be a degree of uncertainty regarding load forecasts and consumer usage patterns that could affect the actual scale, timing and location of network augmentation. To this end augmentation plans are reviewed on an annual basis.

2.4.2 Transmission Pipelines

All existing gate stations and pipelines meet current customer load demands. Critical network points, other than gate and sub-gate stations, that require annual pressure monitoring are shown in Attachment 2. Additional comments are as follows:

- Tingalpa Gate Station is in process of upgrade to be able to meet future customer demands and to supply all customers connected currently to Doboy Gate Station.

- Existing DN100 class 300 pipeline supplying Cleveland currently operates at only 1,000kPa and has very limited spare capacity. Based on potential new domestic developments in

vicinity of this pipeline and additional commercial loads it is estimated that pipeline will not be capable to meet all customer demands in next 3 to 5 years and will require increase of operating pressure including new connection to Tingalpa Gate Station.

- Existing DN150/200 class 600/300 transmission pipeline connecting Ellen Grove 2 Gate Station and South Coast Region has limited spare capacity and is estimated based on current customer connection forecast that at winter 2016 will not be able to meet all customer demands if Stage 2 of pipeline reinforcement project is not implemented.

- Inlet to Ellen Grove Gate Station will require upgrade to meet combined forecast demand for Ellen Grove 1 and 2 distribution networks.

2.4.3 HIGH PRESSURE STEEL NETWORKS

Most of existing gate stations and district regulator stations supplying high pressure steel networks have sufficient capacities to meet current customer demands. Same is applicable and to existing high pressure steel networks that mostly operate at MAOP=1,050kPa. Critical network points that require annual pressure monitoring are specified in Appendix 2. Additional comments are as follows:

- After completion of Tingalpa Gate Station upgrade and disconnection of Caltex, Doboy Gate Station will be removed and their high pressure network will be supplied from Tingalpa Gate Station.

- Existing high pressure steel networks supplying Surfers Paradise and Broadbeach working with very limited spare capacity and is estimated, based on customer connection forecast that will be not able to meet customer demands for winter 2013 without reinforcement.

- Existing DN80 and DN50 high pressure steel network supplying St Vincent's Hospital and large number of residential and small commercial customers in Rangeville and East Toowoomba do not have sufficient capacity to meet all current customer demands. Significant parts of those areas are currently supplied trough high pressure polyethylene network from district regulators located in South Toowoomba, Toowoomba City and Darling Heights.

- Existing DN50 high pressure steel main supplying Canossa Hospital, Oxley, has no spare capacity to meet any additional demand from existing and potential new industrial customers in Seventeen Mile Rocks and commercial customers in Sinnamon Park and Jindalee.

- Old DN100 high pressure main supplying Morningside, Balmoral, Bulimba, Hawthorne and Norman Park has no spare capacity to meet additional customer demands. This steel main was used to transport town gas in 1960's, has socket pipe joints, number of large syphons and operates at only MAOP=300kPa.

- Old high pressure steel network supplying large number of domestic, commercial and industrial customers in Acacia Ridge, Coopers Plains, Salisbury, Tarragindi, Moorooka and Greenslopes has no spare capacity. This steel network used to transport town gas in 1960's, has welded pipe joints of unknown quality and pipe coating in poor condition. Significant numbers of existing block valves are not operatable. Network operates at MAOP=700kPa.

- DN200 high pressure steel main supplying large number of residential, commercial and industrial customers in Camp Hill, Coorparoo, Woolloongabba, East Brisbane, Kangaroo Point, South Brisbane,

- Highgate Hill and West End has very limited spare capacity available probably not sufficient to meet all potential growth in their vicinity including PA, Mater and Children's Hospitals, Woolloongabba Redevelopment Project, Coorparoo and Stones Corner Redevelopment Project etc.

2.4.4 HIGH PRESSURE POLYETHYLENE NETWORKS

Most of existing district regulator stations supplying high pressure polyethylene networks have sufficient capacities to meet current customer demands. Same is applicable and to existing high pressure polyethylene networks that mostly operate at pressures between 100kPa and 450kPa with MAOP=500kPa. In Oakey there is single 110mm/160mm PE100 SDR11 main operating at 680kPa and MAOP=700kPa. Critical network points that require annual pressure monitoring are specified in Appendix 2. Additional comments are as follows:

- Above 110mm/160mm PE100 SDR11 main in Oakey supplying single demand customer and has no spare capacity. Any increase in customer demand will require main reinforcement.

- Existing high pressure polyethylene networks in Surfers Paradise and Broadbeach have difficulty to meet current and especially proposed new commercial customer demands.

- High pressure polyethylene network in Rangeville and East Toowoomba has difficulties to meet current customer demands directly related to limited capacity of high pressure steel network supplying those areas.

2.4.5 MEDIUM PRESSURE POLYETHYLENE NETWORKS

All of existing district regulator stations supplying medium pressure polyethylene networks has sufficient capacities to meet current customer demands. Same is applicable and to existing medium pressure polyethylene networks that mostly operate at pressures between 100kPa and 200kPa with MAOP=200kPa.

2.4.6 OLD LOW-MEDIUM PRESSURE NETWORKS

Urban redevelopment throughout the suburbs of Brisbane is creating capacity problems in the old low and medium pressure networks. Additional peak hour demand from either higher density housing or use of high instantaneous demand appliances has seen an increase in the number of identified supply problems. Large number of complaints has been received from consumers regarding poor supply pressures. These have generally been traced to either water ingress, the use of high demand appliances or "organic growth" in areas where housing density has been increased because of urban consolidation developments.

Old low pressure networks are typically supplied with gas at 1.6 kPa and medium pressure networks at 15kPa to 20kPa. At these supply pressures there are significant areas of the network where there would be inadequate capacity to supply high demand appliances.

Based on network modelling it is estimated that approximately 15% or 65 km of medium pressure and 150km or 50% of low pressure mains in Brisbane networks have insufficient mains capacity to service modern high demand appliances.

2.4.7 PLANNED NETWORK GROWTH AND AUGMENTATION PROJECTS

As a part of Strategic Capital Expenditure Process (Appendix 6) number of network capacity issues were identified and addressed in Risk Management Plan (Appendix 7). Separate business cases were developed for critical projects to provide supporting information and justifications. The reference list of business cases and other supporting documents are provided in Appendix 1. The summary of the proposed projects are as follows.

2.4.7.1 Upgrade Tingalpa Gate Station

This project is approved in 2009/10 Financial Year and currently is under implementation.

Based on assessment of past performance of Tingalpa Gate Station and forecast additional future requirements identified critical needs were:

- To maintain integrity of services by providing adequate gas filtration and operability of all critical station valves
- To meet environmental requirements by reducing station noise to acceptable level at all times
- To comply with regulatory requirement by providing reliable gas odorisation at all times
- To meet safety of services requirements by improving station electrical installations and earthing
- To maintain capacity to meet existing customers demand
- To provide capability to meet projected demand of existing and potential new customers
- To maintain integrity of services by providing back up or establishing permanent supply to customers connected to Doboy Gate Station high-pressure steel network

Upgrade of existing gate station includes:

- Increase of stations design capacity to MHQ=20,000Sm3/h
- Construction of additional station outlet with MAOP=5,000kPa for MHQ=5,000Sm3/h at 2,000kPa
- New filtration, pressure reduction, metering, odorisation, instrumentation, electrical installations and earthing to meet current industry standards

2.4.7.2 Augmentation of existing high-pressure steel network supplying gas to Surfers Paradise and Broadbeach

This project is planned for completion before winter 2013 based on current customer connection forecast.

Existing high-pressure steel network currently has very limited spare capacity that is reduced every year with new customer connections. It is estimated that in winter 2013 there is very high probability that available spare capacity for high-pressure steel network supplying Surfers Paradise and Broadbeach will be not sufficient to meet existing customer demands.

Based on available information and current peak load forecast for this network identified critical needs are to:

- Meet forecasted demand of all connected customers in winter 2013, if we have one in 20 years coldest peak day
- Meet high additional forecasted demand of all new customers that will require connection to natural gas supply in this area after winter 2013

- Improve safety of supply to more than 1,200 customers

The proposed option includes:

- Connection to end of existing DN100 class 300 steel pipeline in Southport,
- Establishment of new district regulator station suitable to transport up to 4,000Sm3/h at inlet pressures from 1,500kPa to 5,000kPa and outlet pressure from 900kPa to 1,050kPa,
- Extension of new DN100 class 150 pipeline approximately 3.65km long in Ferry Road to Slatyer Avenue and
- Connect to existing DN100 class 150 steel pipeline in Slatyer Avenue

Indicative budget cost for this option is $2,500,000.

It is estimated that proposed option will increase capacity of existing high-pressure network by approximately 4,000Sm3/h what will be sufficient to meet future customers demand at approximately 2030. Additional benefit is and establishment of high-pressure ring main that will improve reliability of supply to Southport, Surfers Paradise, Broadbeach, Ashmore, Benowa and Bundall.

2.4.7.3 South Coast Supply Reinforcement Stage 2

This project is planned for completion before winter 2016 based on current customer connection forecast.

A single 85 km long DN150 steel pipeline was constructed in 1989 to act as a feeder main to introduce natural gas from Roma Brisbane Pipeline to the South Coast Region. Over the years some 30 district regulator stations were built along the route of that feeder pipeline and the local distribution networks were gradually established. 10 years ago Allgas has identified that the existing feeder pipeline will not have a capacity to support ongoing growth of gas business in the South Coast Region. Based on outcome of feasibility reports it was recommended to construct a 36km long 200DN class 600 steel pipeline from the existing Ellen Grove Gate Station to the Yatala Industrial Estate in 3 stages. Allgas decided to implement this recommendation in 3 Stages, and effectively the Stage 1, 12.4km of 200mm high pressure main was completed in 2006.

The proposed Stage 2 comprises the construction of 10.2 km of DN200 pipeline from the end of Stage 1 to Logan Reserve and connection to existing South Coast feeder pipeline. Implementation is planned in period between 2013 and 2016, at the budgeted capital expenditure of $7.14 million (real dollars, 2010/2011). The construction of Stage 2 should be completed before winter 2016 to ensure gas supply reliability for the region.

Minimum acceptable supply pressures at Molendinar and Reedy Creek off-takes are 2,200 kPa. Based on pressure profile forecast, existing feeder pipeline will be not able to meet this requirement in winter 2016.

Additional benefit is that the proposed Stage 2 pipeline will enhance a security of supply for the risk of existing feeder main failure due to both, third party damage and structural failure.

2.4.7.4 Pressure Upgrade for Cleveland Pipeline

Tingalpa Gate Station high-pressure steel network has 15km long DN100 steel pipeline supplying Cleveland with MAOP=5,000kPa that is not directly connected to gate station and currently operates at 1,000kPa. There are potential domestic, commercial and industrial developments that may require significant additional demand in next few years. This additional demand will require increase of supply pressures to approximately 2,000kPa.

Upgrade of Tingalpa Gate Station, currently under construction, will provide additional class 300 outlet that will be able to supply gas at sufficient pressure levels.

This project recommends construction of new approximately 200m long DN100 class 300 pipeline to link Cleveland Pipeline to the proposed new outlet from Tingalpa Gate Station. The estimated project cost is $173,000 and is planned to be completed in 2012/13 Financial Year but is directly related to potential customer demands.

2.4.7.5 Broadbeach High Pressure Polyethylene Network Augmentation

Existing high pressure polyethylene network in Broadbeach has difficulty to meet current and especially proposed new customer demands. Approximately 250m long 63mm and 90mm PE link mains are required to improve capacity of network and meet all customer demands. The estimated project cost is $63,000 and is planned to be completed in 2010/11 Financial Year.

2.4.7.6 Surfers Paradise High Pressure Polyethylene Network Augmentation

Existing high pressure polyethylene network in Surfers Paradise has difficulty to meet current and especially proposed new customer demands. Approximately 250m long 63mm and 90mm PE link mains are required to improve capacity of network and meet all customer demands. The estimated project cost is $61,000 and is planned to be completed in 2010/11 Financial Year.

2.4.7.7 Minor Network Augmentation Projects

Network modelling has focussed on maintaining capacity in the principal supply mains. It is expected that there will be a number of local sub network capacity issues to be addressed on an annual basis pending the replacement and upgrade of the old low and medium pressure networks.

The majority of the issues are associated with new developments, the use of high instantaneous demand appliances within low pressure networks and reduced capacity as result of water ingress.

Capacity shortfalls are typically identified through the annual pressure survey programme and customer supply complaints. Invariably an additional interconnection, supply regulator or a pressure upgrade is required to boost local system pressures to levels consistent with maintaining a safe and reliable supply of gas to consumer premises.

An annual budget provision of $50,000 per annum was recommended to be maintained for reactive augmentation fixes.

2.4.7.8 Mains Renewal Programme

Existing old low and medium pressure networks in Brisbane have no sufficient capacity to meet all existing customer demands and are not able to meet additional demands from potential new customers. Cast iron and unprotected steel mains are at the end of their technical and economical life, have extremely high operation, maintenance and UAG costs, very low customer supply reliability and with high level of leaks compromising public safety.

Urban redevelopment throughout the suburbs of Brisbane is creating capacity problems in the old low and medium pressure networks. Additional peak hour demand from either higher density housing or use of high instantaneous demand appliances has seen an increase in the number of identified supply problems. Large number of complaints has been received from consumers

regarding poor supply pressures. These have generally been traced to either water ingress, the use of high demand appliances or "organic growth" in areas where housing density has been increased because of urban consolidation developments.

Old low pressure networks are typically supplied with gas at 1.6 kPa and medium pressure networks at 15kPa to 20kPa. At these supply pressures there are significant areas of the network where there would be inadequate capacity to supply high demand appliances.

Based on network modelling it is estimated that approximately 15% or 65 km of medium pressure and 150km or 50% of low pressure mains in Brisbane networks have insufficient mains capacity to service modern high demand appliances.

It is proposed to replace all remaining cast iron and unprotected steel mains within the APT Allgas Energy Pty Ltd networks based on safety risk, deteriorating condition, integrity and inadequate capacity.

In total it is proposed to replace approximately 435km of low and medium pressure mains over the next 25 years. As a part of this project network operating pressure will be increased to 200kPa that will result in increase of network capacity to the level that will be sufficient to meet current and potential future customer demands. At same time and reliability of supply will improve significantly.

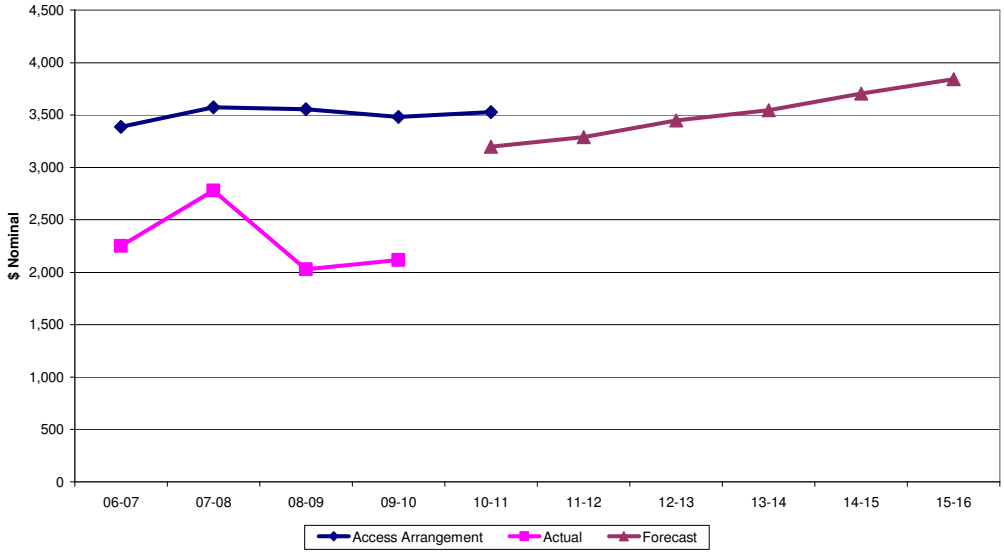
2.4.8 GROWTH AND AUGMENTATION PROJECTS COSTS

Budget cost estimates for replacement are based on current schedules of rates with contractors (selected through a public tender process) and historical costs for recently completed network growth and augmentation projects. Historical data related to costs for growth and augmentation projects are shown on diagrams below together with forecast unit cost increase based on expected escalation rates. Extract from Capital Expenditure Plan with detail about unit costs structure, quantities, total costs and schedule of implementation are shown in Attachment 8.

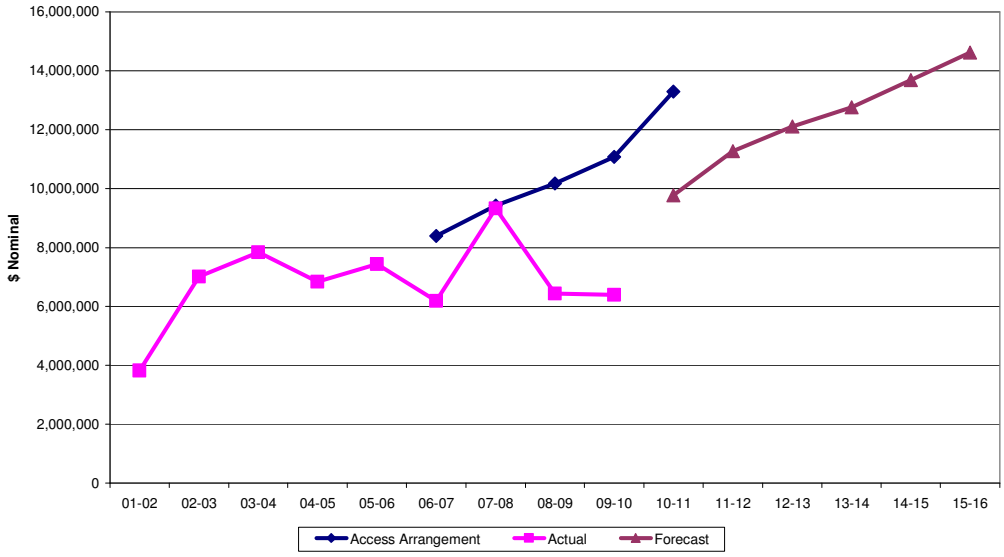
Description	11/12	12/13	13/14	14/15	15/16
TOTAL INFLATION AND ESCALATION RATES (%)	3.11	3.73	4.14	4.04	3.63
Inflation Rates (%)	2.50	2.50	2.50	2.50	2.50
Escalation Rates (%)	0.60	1.20	1.60	1.50	1.10

The forecast real cost escalation unit rates are based on Australian Energy Regulator's report on labour cost escalation "Forecast growth in labour costs" produced by Access Economics published on 16th September 2009. Above escalation rates are forecasted by Access Economics for Queensland utilities (page XIV). Above cumulative inflation and escalation rates are used to forecast all components of the proposed capital expenditure including material, direct labour, contractors and overheads.

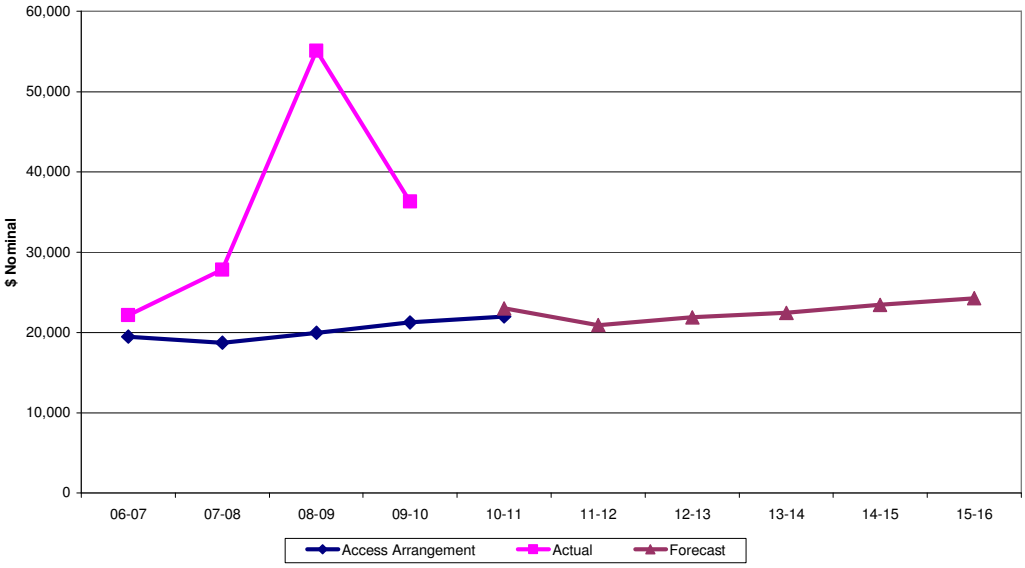
AVERAGE DOMESTIC CUSTOMER CONNECTION COST



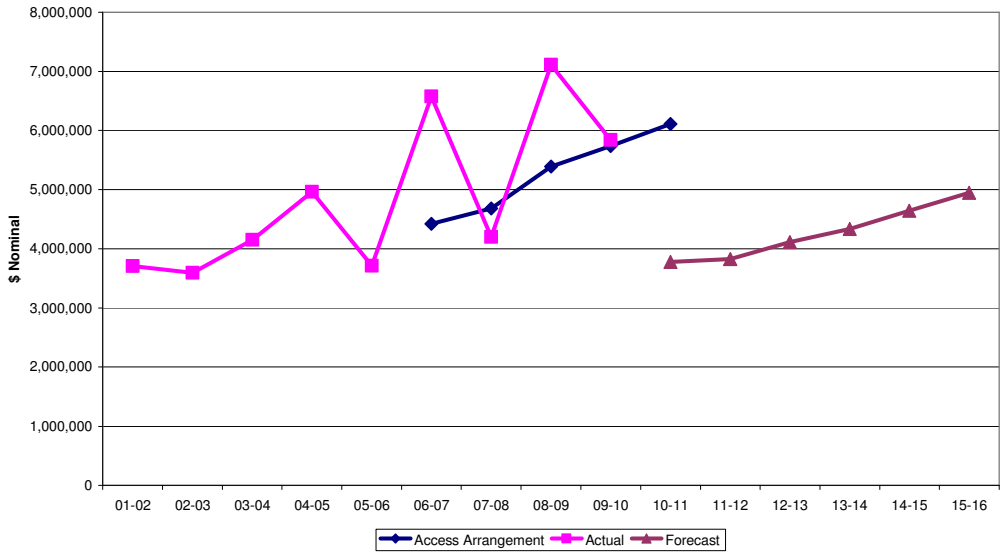
CAPITAL EPENDITURE - DOMESTIC CUSTOMER CONNECTIONS

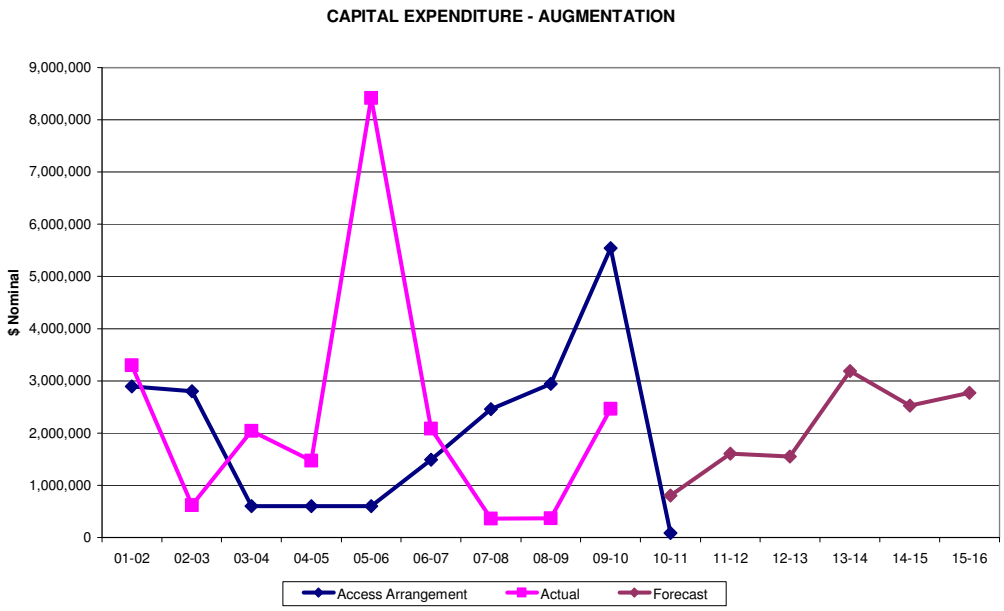


AVERAGE COMMERCIAL AND INDUSTRIAL CUSTOMER CONNECTION COST



CAPITAL EXPENDITURE - COMMERCIAL AND INDUSTRIAL CUSTOMER CONNECTIONS





2.4.9 GROWTH AND AUGMENTATION PROJECTS JUSTIFICATION

Basic requirement for conforming capital expenditure specified in National Gas Rules, Section 79(1), is that the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.

APT Allgas Energy Pty Ltd has outsourced its capital works program (material and labour) through a public tender process, thereby obtaining a market price with respect to the provision of these services.

There is a plan to continue to test the market in regular intervals to ensure that the proposed capital expenditure projects will be executed at the lowest sustainable cost. Competitive tendering for supply of materials and for provision of capital works services are planned to be organised in regular 1 to 3 years intervals. Every major project is subject to separate tendering process.

Additional requirements for justification of conforming capital expenditure are specified in National Gas Rules, Section 79(2).

The capital expenditure for new customer connections is justified on grounds that present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure.

This capital expenditure for network augmentation projects is justified on a ground that is necessary to maintain the capacity to meet current customer demands. Significant additional benefits include and increase of network capacity to be able to meet potential future customer demands.

Appendix 1 – Supporting Documents Reference List

No.	Document	Reference
1	Strategic Capital Expenditure Planning Macro Process	
2	Business Case - Tingalpa Gate Station Upgrade	
3	Business Case - Doboy Gate Station Removal/Relocation	
4	Business Case – South Coast Supply Reinforcement Stage 2	
5	Business Case – Reinforcement of High Pressure Steel Network Supplying Surfers Paradise and Broadbeach	
6	Mains Replacement Strategic Plan	
7	Capital Expenditure Plan	
8	Network Asset Risk Management Plan	

Appendix 2 – Network Critical Points

Transmission Pipelines

Locations of critical points, other than gate and sub-gate stations, where pressure monitoring is required are as follows:

- Inlet to the aboveground district regulator (old Runcorn Gate Station) Gowan Road near Beenleigh Road, Sunnybank Hills (supply from Ellen Grove 2 Gate Station)
- Inlet to district regulator at Stanmore Road near Paterson Road, Yatala
- Block valve at corner of Oxenford – Southport Road and Siganto Drive, Helensvale
- End of high-pressure steel main, inlet to district regulator, at Golden Four Drive, Bilinga
- Inlet to the metering station for BCC Bus Depot, Garden City, MacGregor Street, Upper MtGravatt (1000kPa to 2500kPa)
- Inlet to district regulator, Kelliher Rd, opposite Machinery St, Darra (1000kPa to 3000kPa)

High Pressure Steel Networks

Locations of critical network points where pressure monitoring is required are as follows:

- Inlet to metering station for Nestle, Ron Boyle Cresent, Carole Park
- Inlet to metering station for Sir David Longlands Correctional Centre, Wacol Station Rd, Wacol
- Inlet to district regulator, Formation Street, Wacol, near Boundary Road
- Inlet to metering station, 24 Industrial Avenue, Wacol
- Inlet to metering station for Canossa Hospital, 169 Seventeen Mile Rocks Road, Oxley
- Inlet to metering station for PGH Brickworks, Kimberley Street, Oxley
- Inlet to metering station for AMCOR, Ashover Road, Rocklea
- Inlet to district regulator at the end of high-pressure steel main, Fairfield Road, Yeerongpilly
- Inlet to metering station for Orrcon Operations, Evans Road corner Beaudesert Road, Salisbury (400kPa to 800kPa)
- Inlet to Ekibin Subgate Station, Nicholson Street, Greenslopes (400kPa to 800kPa)
- Inlet to regulator station, Bowhill Rd, 200m east of Sherbrooke Rd, Acacia Ridge (400kPa to 800kPa)
- Runcorn 1 side of closed block valve at corner of Balham Road and Ashover Road, Rocklea (400kPa to 800kPa)
- High-pressure steel inlet to the district regulator, Kingston Road corner Mayes Avenue, Kingston
- Inlet to the district regulator, Service Road, Springwood
- Inlet to the district regulator, Beenleigh Road and Evenwood Street, Coopers Plains
- Inlet to the metering station for Metecno, 121 Ingram Road, Acacia Ridge
- Inlet to Austral Bricks, Gardner Rd, Rochedale
- Inlet to district regulator corner of Creek Road and Pine Mountain Rd, MtGravatt East
- Inlet to aboveground district regulator, Broadwater Road, Mansfield
- Inlet to metering station for Glassworks , Montague Road, West End
- Inlet to metering station for Inghams Enterprises, Enterprise Street, Cleveland
- Inlet to metering station for PA Hospital, Ipswich Road, Woolloongabba
- Inlet to district regulator at Murarrie Road corner Goodman Place, Murarrie
- Inlet to district regulator at the end of steel main in Lytton Road near Barrack Road, Morningside
- Inlet to metering station for Caltex, South Street, Lytton

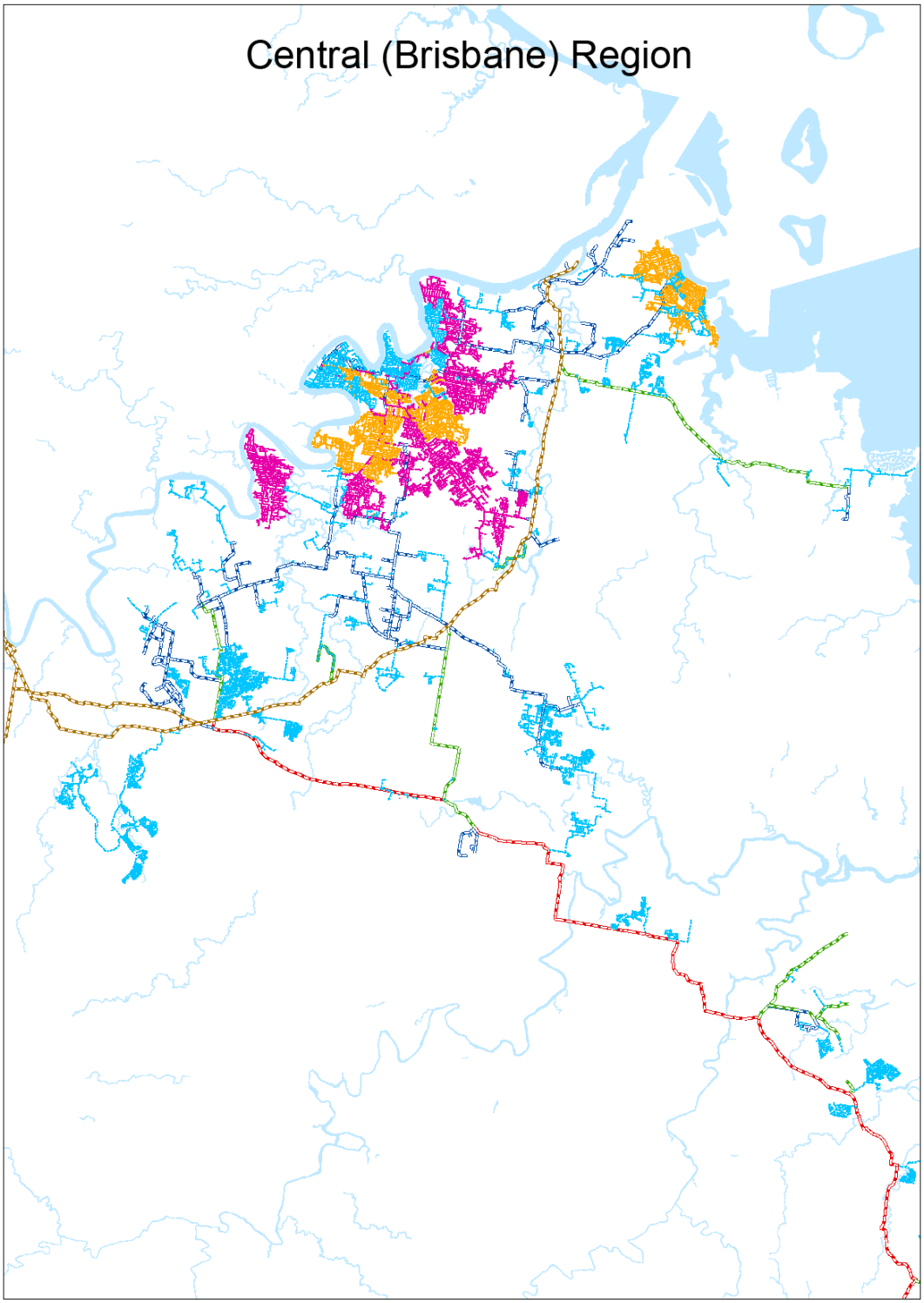
- Inlet to the metering station for Borden Chemical, Paringa Road, Murarrie
- High-pressure steel inlet to metering station for Gold Coast Hospital, 108 Nerang Street, Southport
- End of high-pressure steel main, inlet to district regulator, at Main Beach Pde., Main Beach
- High-pressure steel inlet to district regulator (in front of Jupiters Casino), TE Peters Drive, Broadbeach
- Block valve or inlet to metering station in Slatyer Avenue corner Racecourse Drive, Bundall
- Block valve in Long Street near Short Street, South Toowoomba
- Inlet to district regulator at corner of Baker and Platz Streets, Darling Heights
- Inlet to district regulator or metering station for St Vincent's Hospital, Herries Street, East Toowoomba,
- Inlet to metering station 50 Industrial Avenue, Wilsonton
- Inlet to Oakey Army Base, Oakey

High Pressure Polyethylene Networks

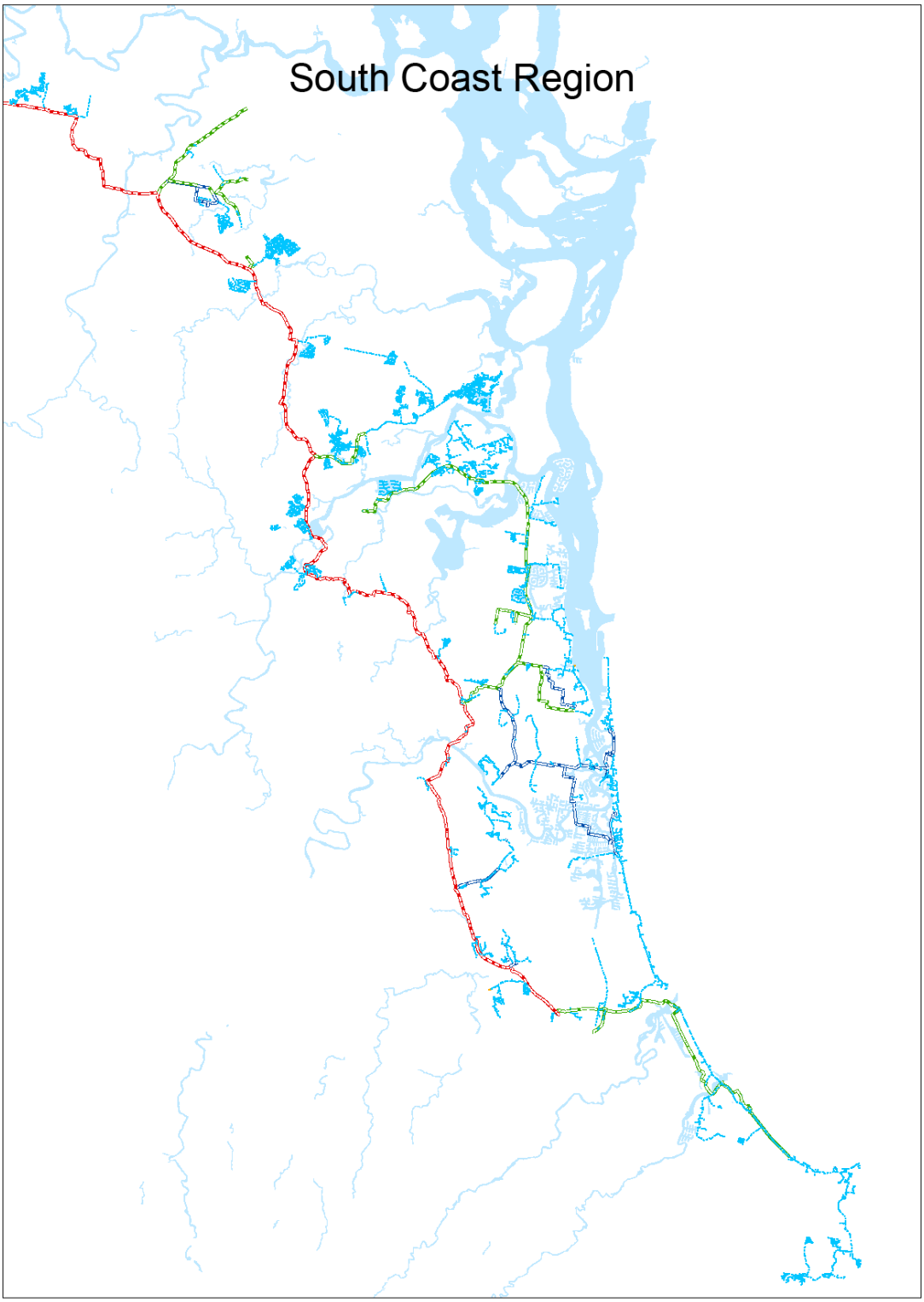
Locations of critical network points where pressure monitoring is required are as follows:

- Inlet to metering station for Australia Meat Holdings Pty Ltd, Cecil Plains Road, Aubigny (400kPa to 800kPa)
- Inlet to metering station for Ace Waste, 491 Ritchie Road, Willawong (300kPa to 450kPa)
- Inlet to district regulator at Sherwood Road corner Egmont Street, Sherwood
- Inlet to metering station for Enco Precast, 73 Couniham Road, Seventeen Mile Rocks
- Inlet to metering station for any customer in Brookwater
- Inlet to metering station for Happy Meals, 85 Joseph Banks Avenue, Forest Lake
- Inlet to metering station for Brims DG & Sons, Station Road, Yeerongpilly
- Inlet to metering station for Aarons Linen Service, Nealdon Drive, Meadowbrook
- Inlet to metering station for Sunnybank Private Hospital, 245 McCullough Street, Sunnybank
- Inlet to district regulator at Marie Street corner Riding Road, Balmoral
- High pressure PE inlet to the district regulator at West Avenue corner Andrew Street, Wynnum
- Inlet to district regulator at Mountjoy Terrace near Ernest Street, Manly
- Inlet to metering station for the Pacific Linen Services, 92 Taylor Street, Bulimba
- Inlet to metering station at 1 Holman Street, Kangaroo Point
- Inlet to metering station for Grand View Hotel, Shore Street, Cleveland
- Inlet to metering station for Wrights Industries, 16 Machinery Drive, Tweed Heads
- Inlet to metering station for Club Banora, Leisure Drive, Banora Point
- Inlet to metering station for Twin Towns Resort or Services Club, Wharf Street, Tweed Heads
- Inlet to metering station for any customer in Coomera Waters, Colman Road, Coomera
- Inlet to metering station for Seaworld Nara Resort, Seaworld Drive, Main Beach
- Inlet to metering station for Southport Steam Laundry, 54 Nind Street, Southport
- Inlet to metering station at 2898 Gold Coast Highway, Surfers Paradise
- Inlet to metering station for GCCC Ocean Beach Tourist, Hythe Street, Miami
- Inlet to metering station for Toowoomba Golf Club, Rowbotham Street, Toowoomba
- Inlet to metering station for Rangeview Nusing Home, 32 Tourist Road, Toowoomba
- Inlet to Epworth Nursing Home, Stenner Street, Toowoomba

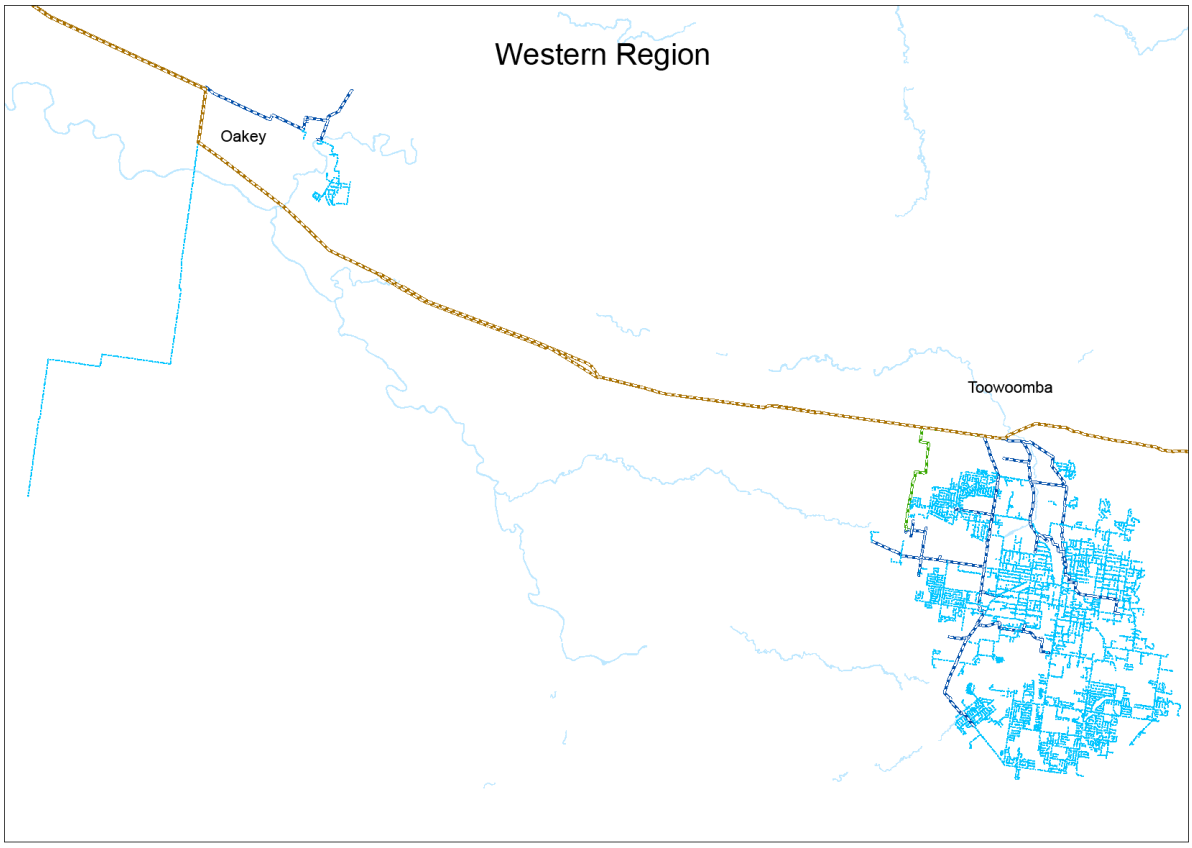
Appendix 3 – Brisbane Region



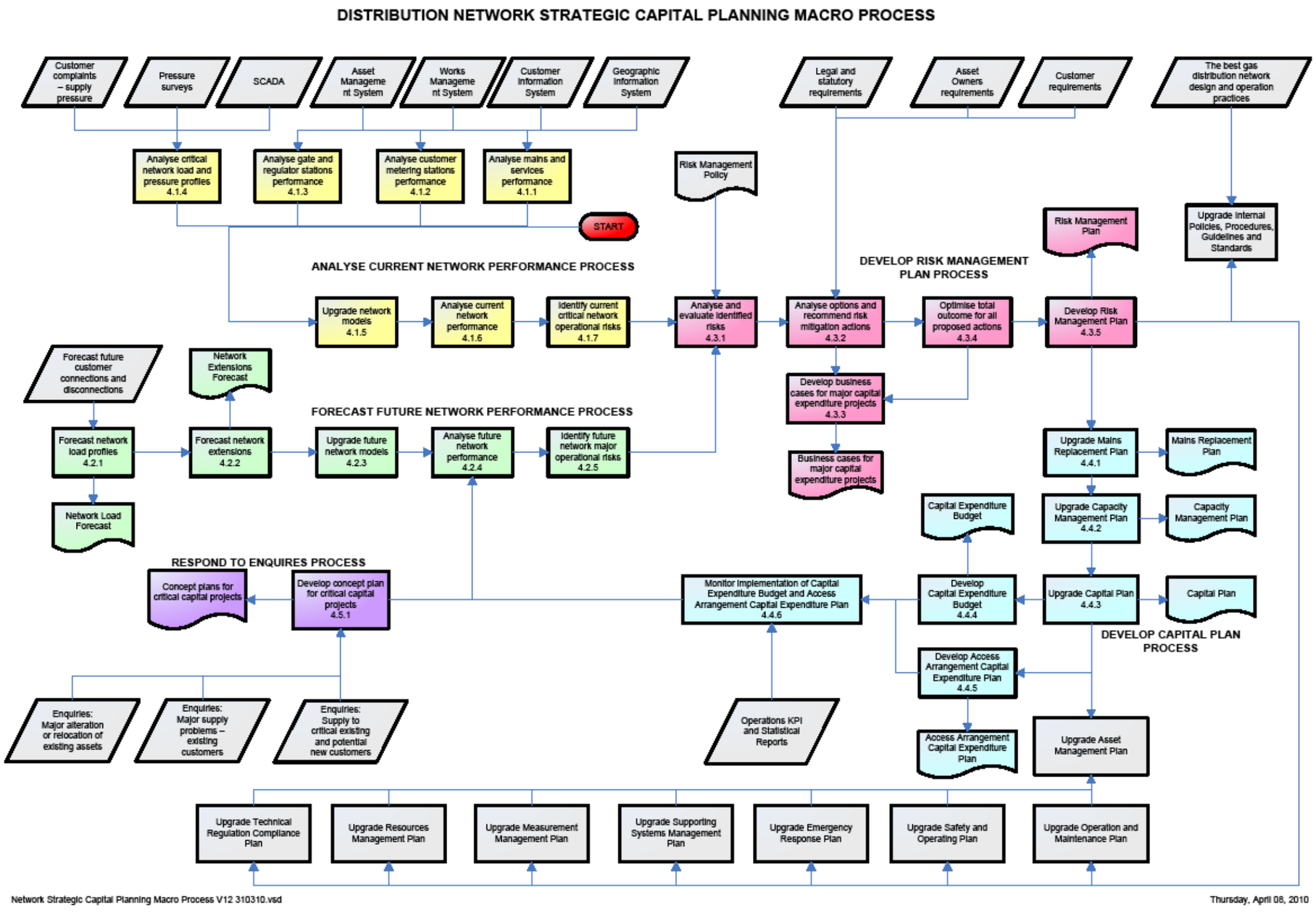
Appendix 4 - South Coast Region



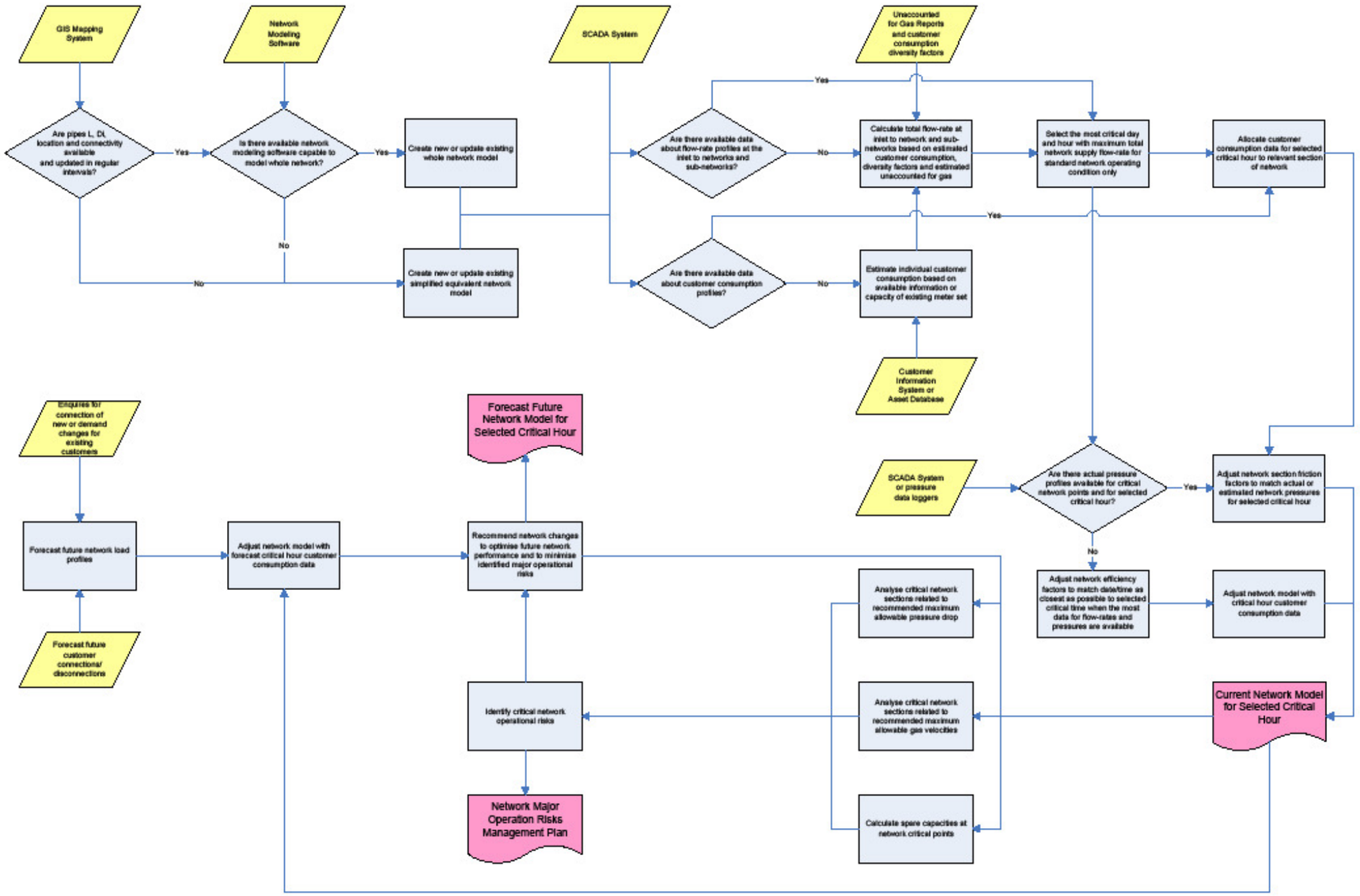
Appendix 5 – Western Region



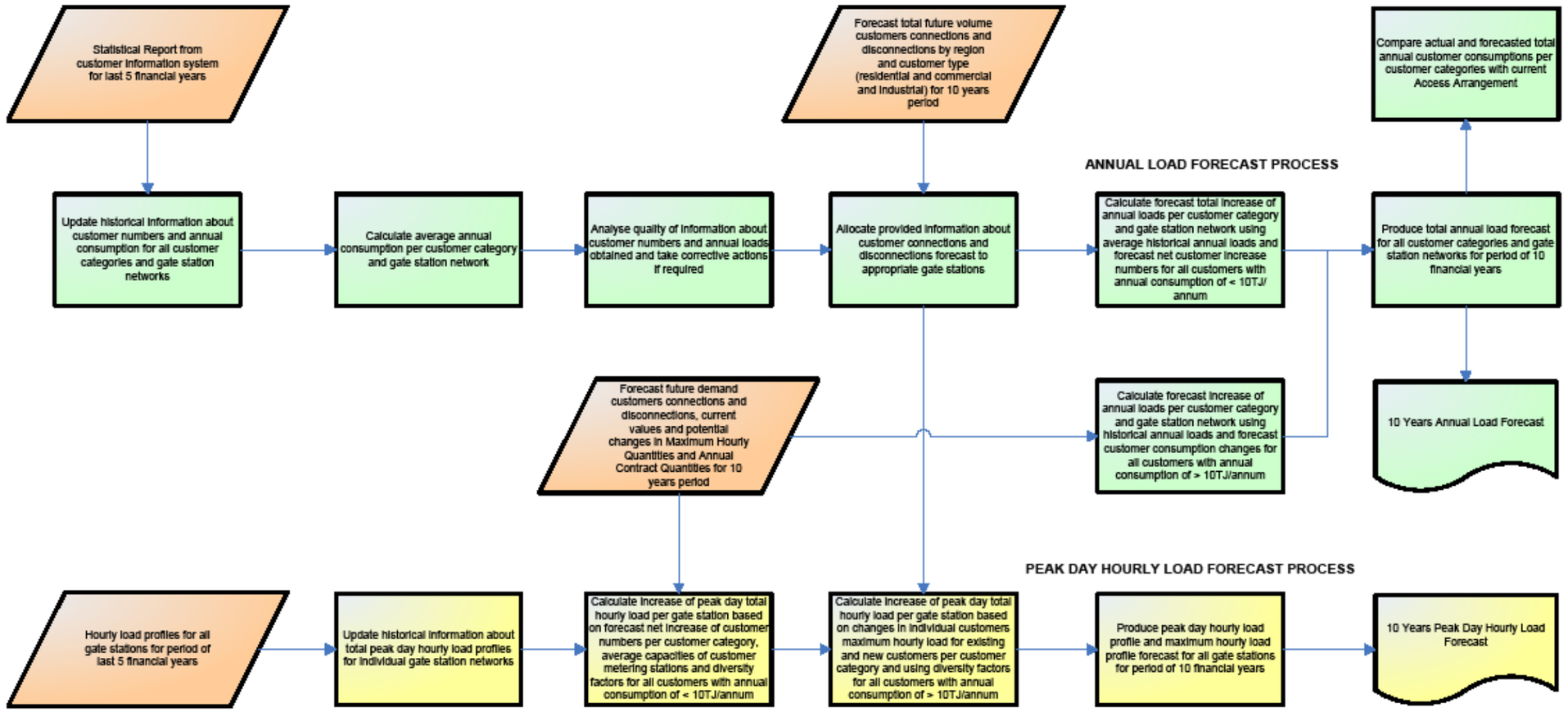
Appendix 6 – Strategic Capital Planning Process



GAS DISTRIBUTION NETWORK CAPACITY MANAGEMENT



STRATEGIC NETWORK LOAD FORECAST PROCESS



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Friday, April 09, 2010

Appendix 7 – Network Asset Risk Management Plan

ASSET RISK MANAGEMENT PLAN - APT ALLGAS ENERGY PTY LTD DISTRIBUTION NETWORKS

	Risk Identification and Assessment								Risk Treatment Plan					
No.	Asset	Location	Risk Description	Highest Risk Consequence Rating	Highest Risk Likelihood Rating	Highest Risk Inherent Level	Highest Inherent Risk Score	Budget Priority	Risk Treatment	Highest Risk Level A/T	Highest Risk Score A/T	Total risk treatment cost ($Real 2010/11)	Number of years for risk treatment	Status
1	Cast iron and unprotected steel low and medium pressure networks	Brisbane South , Wynnum and Sherwood	There are approximately 400km of old cast iron and unprotected steel mains that are at the end of their technical and economical life with ongoing leaks, water ingress, and with no sufficient gas supply capacity and reliability to meet current customer demands. Asset condition is continuously worsening. Leaks creating safety risk for public, financial loss is related to high unaccounted for gas and maintenance costs. There are and supply interruptions, poor supply pressures, environmental impact, not sufficient capacity to meet future customer demands and other risks including impact on APT Allgas reputation.	Major	Unlikely	High	14	2	Complete block renewal of all 400km of existing cast iron and unprotected steel mains, including approximately 40km of existing PE mains in poor condition, services in poor condition and upgrade customer metering stations over 25 years period. Increase network operating pressure from 20kPa for MP and 1.6kPa for LP to 200kPa. Schedule work to optimise network financial performance in accordance with asset owners financial capability.	Moderate	6	92,400,000	25	In progress with plan to be completed by winter 2035
2	DN150 Class600 Pipeline	From Brisbane to Gold Coast	Existing DN150 class 600 pipeline supplying South Coast Region has no capacity to support ongoing growth in customer demand. Based on forecast pressure profiles for critical supply points, this pipeline will be not able to meet required minimum supply pressures for Molendinar and Reedy Creek off-takes in winter 2016, Additional issue is and security of supply related to potential major failure of this pipeline. First stage of reinforcement of this pipeline was completed in 2006 with construction of 12.4km long DN200 Class 600 pipeline from Ellen Grove Gate Station to Browns Plains.	Major	Unlikely	High	14	2	As a second stage of reinforcement of supply to South Coast Region construct new 10.2km long, DN200 class600 pipeline from Browns Plains to Logan Reserve before winter 2016. Third stage will include further 12.9km long DN200 Class 600 pipeline extension from Logan Reserve to Yatala. Timing of third stage will be reviewed later because it is directly related to gas market growth in the South Coast Region.	Moderate	6	16,170,000		Stage 2 with 10.2km of DN200 class 600 pipeline construction planned to start in 2013/14 and to be completed before winter 2016 with total estimated cost of $7.14M Real 2010/11.
3	Mains and services	All	Reported leaks from mains and services creating safety risk for public, financial loss related to unaccounted for gas, regulatory obligation to repair reported leaks, environmental impact.	Severe	Possible	High	13	2	Complete peace renewal of faulty mains and services to minimise risk exposure to public in situations where repair is not possible or not cost effective.	Low	5	300,000	Continuous	Average estimated cost per year
4	Metering Stations	All	There is regulatory requirement for meter changing and testing as per Petroleum and Gas (Production and Safety) Act. If we do not comply with this requirements there is potential for loss of Licence, significant financial penalties and prosecution.	Severe	Possible	High	13	2	Implement Periodic Meter Changing Program as per Gas Measurement Plan	Low	2	1,000,000	Continuous	Average estimated cost per year
5	Gate Station	Tingalpa	Regulators on second run producing high level of noise when operating. Non standard odouriser has no spare parts readily available with potential for not meeting regulatory requirements related to gas odourisation. Existing electrical and instrumentation installations do not comply with current standard. Not able to meet current and potential future customer demands in South Brisbane and Woolloongabba including new Children's Hospital, TAFE, Woolloongabba Central District Upgrade, Goodman Fielder, Chandler Aquatic Centre etc.	Severe	Possible	High	13	2	Upgrade existing Tingalpa Gate Station to minimise identified risks, improve integrity of supply for current customers and be able to meet estimated future customers maximum hourly demand of 20,000Sm3/h including establishment of additional class 300 outlet for future connection to DN100 Class 300 Cleveland Pipeline.	Low	5	800,000	2	In progress
6	Gate Station	Toowoomba	Existing odoriser is in poor condition and there is high risk that natural gas supplied to more than 14,000 customers in Toowoomba will not be sufficiently odorised and will not comply with regulatory requirements. There are and additional safety risks to public related to gas leaks that can not be detected by smell.	Severe	Possible	High	13	2	Replace existing odoriser.	Low	4	100,000	1	Planned for implementation in 2010/11
7	District Regulator Stations	All	Some underground district regulator stations are identified as confined spaces that are regularly field with water and represent safety risk for staff doing planned maintenance. District regulator failure can result in loss of supply to significant number of existing customers.	Moderate	Likely	High	12	2	Replace existing district regulator stations. Maintenance issues will be eliminated and likelihood of loss of supply will be minimised.	Low	5	320,000	1	Planned for implementation in 2010/11
8	High-pressure steel network	Southport, Surfers Paradise, Broadbeach	Existing high-pressure steel network supplying Surfers Paradise and Broadbeach has no capacity to support ongoing growth in customer demand for this area. Based on forecast pressure profiles existing network will not be able to meet required minimum supply pressures for Surfers Paradise and Broadbeach in winter 2013.	Moderate	Likely	High	12	2	Establish link between Southport and Surfers Paradise high-pressure distribution networks by constructing DN100 Class150 pipeline approximately 2.65km long and establish new district regulator station. Increase high-pressure networks available capacity and reliability of supply to be able to meet current and future customer demands.	Low	5	2,383,450	2	Planned for completion before winter 2013
9	Industrial and commercial metering stations	All	Older industrial and commercial meter installations require upgrades or replacements to comply with current standards or for continued safe operation. There is potential loss of supply to large customers, non-compliance with statutory, licence, regulations, with compulsory explanation to Regulator and potential adverse coverage in local media.	Moderate	Possible	Moderate	8	3	Upgrade existing I&C meter stations by installing 10 bypass regulators and replacing 10 diaphragm meters.	Low	2	151,000	1	Planned for implementation in 2010/11
10	Gate Station	Oakey	Metering is without flow computers with wiring not meeting technical requirements. Odoriser has no audit trail. Old regulators, that are not manufactured any more, require replacement.	Moderate	Possible	Moderate	8	3	Upgrade Oakey Gate Station including installation of new odoriser, new electrical and instrumentation installations and replacement of regulators.	Low	5	450,000	1	Planned for implementation in 2010/11
11	Gate Station	Ellen Grove	Station electrical and instrumentation installations do not meet technical requirements and represent safety risk for employees that operate and maintain this station.	Moderate	Possible	Moderate	8	3	Upgrade existing Ellen Grove Gate Station to meet electrical and instrumentation installation requirements	Low	2	150,000	1	Planned for implementation in 2010/11
12	Gate Station	Doboy	The odorisation unit is not reliable and requires high gas differential pressure with significant impact on available network capacity. Instrumentation needs to be upgraded to comply with current standard requirements. Inlet connection is in a pit constantly under water. There is potential for personal injury for employees and contractors using long narrow access road (especially after heavy rain).	Moderate	Possible	Moderate	8	3	After Caltex is disconnected and Tingalpa Gate Station upgraded, permanently open valve that is separating Doboy and Tingalpa networks. Cut off outlet connection to high-press steel network and remove aboveground installations from existing Doboy Gate Station site.	Low	2	150,000	1	Planned for implementation in 2010/11
13	High-pressure PE network	Surfers Paradise	Low level safety of supply to more than 200 existing commercial customers and limited spare capacity of existing high-pressure polyethylene network not sufficient to meet growth of customer demands.	Moderate	Possible	Moderate	8	3	Reinforcement of existing Surfers Paradise high-pressure PE network with new 90mm PE80 SDR11 main extensions 120m long. Increase high-pressure networks available capacity and reliability of supply to be able to meet current and future customer demands.	Low	5	61,000	1	Planned for implementation in 2010/11
14	High-pressure PE network	Broadbeach	Low level safety of supply to more than 100 commercial customers and limited spare capacity of existing high-pressure polyethylene network not sufficient to meet growth of customer demands.	Moderate	Possible	Moderate	8	3	Construct 63/90mm PE80 SDR11 network link 250m long that will increase supply reliability and available capacity of existing high pressure PE network necessary to improve response capability for emergencies and to meet current and future customers demands.	Low	5	63,100	1	Planned for implementation in 2010/11
15	District Regulator Stations	All	Some underground district regulator stations have no bypass regulator and are not able to supply gas to network when main run fails or require maintenance. Potential loss of supply to large number of customers.	Moderate	Possible	Moderate	8	3	Upgrade existing district regulator stations.	Low	5	71,000	1	Planned for implementation in 2010/11
16	Low, Medium and High-pressure PE Networks	All	Supply problems to significant number of tariff customers	Moderate	Possible	Moderate	8	3	Reinforce supply to existing distribution network	Low	2	50,000	Continuous	Average estimated cost per year
17	SCADA System	All	Not able to monitor continuously network flow rates and pressure levels at critical points that can result in loss of supply to large number of customers.	Moderate	Possible	Moderate	8	3	Establish telemetry on 12 fringe point monitors and 2 district regulator stations that will provide better control of distribution networks performance with alarms that will initiate necessary action to reduce likelihood for loss of supply to large number of customers.	Low	4	132,000	10	Planned to start with implementation in 2010/11
18	DN100 Class300 steel pipeline	Tingalpa to Cleveland	Pipeline currently operates only at 1,000kPa and has no sufficient spare capacity to meet potential future customer demands in Chandler, Redland Bay and other areas in vicinity of this pipeline.	Moderate	Possible	Moderate	8	3	Upgrade Cleveland Pipeline to be able to operate at class 300 pressures by extending 200m long section of new DN100 class 300 pipeline in Stanton Road, Tingalpa, to the Tingalpa Gate Station and increase operating pressure to approximately 2,000kPa if supported by increased customer demands.	Low	5	160,000	1	Planned for implementation in 2012/13

ASSET RISK MANAGEMENT PLAN - APT ALLGAS ENERGY PTY LTD DISTRIBUTION NETWORKS

No.	Risk Identification and Assessment								Risk Treatment Plan					
	Asset	Location	Risk Description	Highest Risk Consequence Rating	Highest Risk Likelihood Rating	Highest Risk Inherent Level	Highest Inherent Risk Score	Budget Priority	Risk Treatment	Highest Risk Level A/T	Highest Risk Score A/T	Total risk treatment cost ($Real 2010/11)	Number of years for risk treatment	Status
19	High - pressure steel network	Moorooka, Tarragindi, Salisbury, Coopers Plains, Rocklea	Part of existing high-pressure steel network is more than 45 years old with pipeline coating in poor condition, some block valves not operatable, unknown quality of welds etc. Based o previous risk assessment MAOP of this network is downgraded to 700kPa. There is potential loss of supply to more than 10,000 domestic and 20 major industrial customers further to potential failure of mains in this network.	Severe	Unlikely	Moderate	9	3	Construct new DN100 Class150 pipeline 1.2km long in Muriel Avenue, Moorooka, and establish new district regulator. This pipeline will link Ellen Grove 1 and Runcorn 1 high-pressure steel networks and improve supply reliability for existing customers.	Low	5	660,000	1	Not yet planned
20	Domestic meter sets	All	Potential failure of existing regulators resulting in customer installation overpressuresation with potential injury.	Moderate	Possible	Moderate	8	3	Consider to establish Domestic Regulator Change Programme to be completed at same time as Meter Change Programme	Low	2	114,000	Continuous	Not yet planned
21	110mm PE80 SDR11 high-pressure PE main	Sherwood Road, Rocklea	Single supply main with minimum spare capacity and potential for loss of supply to more than 3,000 customers..	Severe	Unlikely	Moderate	9	3	Establish second supply to Corinda by constructing 110mm PE80 SDR11 main extension 2.6km long with two new district regulator stations.	Low	2	650,000	1	Not yet planned
22	High - pressure steel network	Acacia Ridge	Large number of existing industrial customers in Acacia Ridge Industrial Estate has no back up supply. There is potential loss of supply to more than 20 industrial customers.	Severe	Unlikely	Moderate	9	3	Establish new district regulator station at Hellawell Road, Sunnybank Hills, as a backup supply to Runcorn 1 high-pressure steel network.	Low	5	80,000	1	Not yet planned
23	High-pressure steel services	Carole Park, Crestmead and Lytton	Some of existing industrial customers high-pressure steel services do not have service valve and can not be easily isolated in case of emergency on customer service or metering station.	Moderate	Possible	Moderate	8	3	Install missing service valves on high-pressure steel services supplying industrial customers.	Low	2	250,000	2	Not yet planned
24	110/160mm PE80 SDR11 mains	From Cobalt Street, Carole Park to Augusta Parkway, Brookwater	There is 10km long, single gas main supplying more than 1,500 domestic and 50 industrial and commercial customers, with high new customer connection rate. This main has no sufficient capacity to meet ongoing growth in customer demand and is exposed to potential third party damage and related loss of supply to more than 1,500 customers.	Moderate	Possible	Moderate	8	3	Construct new 250m long 110mm PE80 SDR17.6 main that will link existing Envestra's PE network in Bellbird Park with APA Group's PE network in Brookwater. This back up supply to APA Group's high-pressure polyethylene network with high new customer demand growth can provide between 200Sm3/h and 500Sm3/h at approximately 100kPa what will be sufficient to supply all domestic and most of commercial and industrial customers in Springfield.	Low	5	62,500	1	Not yet planned
25	DN200 High-Pressure Steel Main	From Tingalpa Gate Station to South Brisbane	Existing DN200 high-pressure steel main approximately 13km long is single supply main to more than 10,000 domestic customers and number of large industrial and commercial customers including Glassworks, Parmalat, PA and Mater Hospitals. It is more than 30 years old. There is potential loss of supply to more than 10,000 customers related to third party damage or main failure.	Severe	Unlikely	Moderate	9	3	Establish link between Tingalpa and Mt Gravatt high-pressure distribution networks by constructing DN100 Class150 pipeline 1.6km long. Consider to establish and additional link between Tingalpa and Runcorn 1 high-pressure distribution networks by constructing DN150 Class150 pipeline 3.5km long.	Low	5	960,000	1	Not yet planned
26	High - pressure steel network	Darra, Rocklea, Archerfield, Acacia Ridge, Coopers Plains, Willawong	Existing high-pressure steel networks with large number of existing mostly industrial customers has very limited spare capacity and back up supply to meet potential future customer demands. There is potential loss of supply to more than 40 large industrial customers.	Severe	Unlikely	Moderate	9	3	Construct 4.2km long DN150 class150 and 1.1km long DN100 class150 steel pipelines to interconnect Willawong, Ellen Grove and Runcorn high-pressure steel networks.	Low	5	2,520,000	2	Not yet planned

Appendix 8 - Capital Expenditure Plan

PLANNED CAPITAL EXPENDITURE - APT ALLGAS ENERGY PTY LTD NETWORKS

No.	Description	Unit	Unit Cost ($/Unit) Material	Labour	Contrac.	Total Direct	10/11 Total	11/12 Total	12/13 Total	13/14 Total	14/15 Total	15/16 Total
1	**Growth - Domestic**											
2	New Domestic Meter Set	Each	105	23	70	**198**	3,057	3,428	3,512	3,600	3,690	3,807
3	New Domestic Service - Estate	Each	165	38	893	**1,095**	2,424	2,764	2,815	2,868	2,921	2,999
4	New Domestic Service - Existing Domestic	Each	300	38	2,050	**2,387**	633	664	697	732	769	808
5	New Main - Estate	m	6	8	41	**55**	33,936	38,696	39,410	40,152	40,894	41,986
6	New Main - Existing Domestic	m	12	15	165	**192**	5,798	6,524	6,676	6,834	6,996	7,210
8	**Growth - Commercial and Industrial**											
9	Industrial and Commercial Meter Station < 10TJ/Annum	Each	3,250	65	1,885	**5,200**	192	182	187	192	197	203
10	Industrial and Commercial Meter Station > 10TJ/Annum	Each	30,000	600	17,400	**48,000**		1	1	1	1	1
11	New Industrial and Commercial Service < 10TJ/Annum	Each	1,200	600	3,000	**4,800**	192	182	187	192	197	203
12	New Industrial and Commercial Service > 10TJ/Annum	Each	2,000	1,000	5,000	**8,000**		1	1	1	1	1
13	New Main - Industrial and Commercial <10TJ/annum	m	53	18	210	**280**	3,840	3,640	3,740	3,840	3,940	4,060
14	New Main - Industrial and Commercial >10TJ/annum	m	120	60	300	**480**		100	100	100	100	100
18	**Stay in Business/Growth - Augmentation**											
19	Tingalpa Gate Station Upgrade - Increase capacity; additional Class 300 outlet	Each	400,000	40,000	200,000	**640,000**	0.45	0.40				
20	Ellen Grove Gate Station Upgrade - DN150 Cl.300 inlet; odouriser; E&I	Each	125,000	12,500	62,500	**200,000**	0.60					
21	Broadbeach Augmentation Project, 63/90mm PE80 SDR11, 250m long	Each	50	5	145	**200**	250					
22	Surfers Paradise/Broadbeach HP Steel Augmentation Project, 100NB Class 150, 3.6km lon	m	98	33	392	**522**		1,800	1,850			
23	Minor Network Augmentation	Each	7,500	2,500	30,000	**40,000**	1	1	1	1	1	1
24	Telemetry - Fringe point monitors	Each	4,200	300	300	**4,800**	4		2		2	
25	Telemetry - District regulator stations	Each	21,000	1,500	1,500	**24,000**	2					
26	PE Network reinforcement, Medway Street, Rocklea, 63mm PE, 80m long	Each	5,100	1,700	20,400	**27,200**	1					
27	Surfers Paradise PE Network Augmentation Project, 90mm PE80 SDR11, 120m long	Each	100	10	290	**400**	120					
28	Upgrade of Cleveland Pipeline to Class 300, 100NB Class 300 0.2km long	m	120	40	480	**640**			200			
29	South Coast Pipeline Stage 2, 200NB Class 600, 10.2km long	m	105	35	420	**560**				4,000	3,000	3,200
43	**Stay in Business - Renewal**											
44	Meter Change - Meters Domestic	Each	85	15	68	**168**	2,000	1,962	1,686	3,231	5,200	2,536
45	Meter Change - Meters Industrial and Commercial < 10 TJ/Annum	Each	1,232	103	308	**1,642**	180	221	167	162	226	312
46	Meter Change - Meters Industrial and Commercial > 10TJ/Annum	Each	3,000	250	750	**4,000**	12					
47	Mains Renewal - Block	m	22	4	150	**176**	32,144	17,500	17,500	17,500	17,500	17,500
48	Mains Renewal - Piece	m	53	4	224	**280**	400	400	400	400	400	400
49	Service Renewal	Each	180	38	1,482	**1,699**	110	100	100	100	100	100
50	Replace existing district regulator stations	Each	32,000	16,000	16,000	**64,000**	4					
51	Upgrade existing district regulator stations	Each	2,800	350	2,450	**5,600**	10					
52	Industrial and Commercial Meter Station Upgrades	Each	6,000	750	5,250	**12,000**	10					
53	Oakey Gate Station - Upgrade of station including odouriser and E&I installations	Each	225,000	22,500	112,500	**360,000**	1					
54	Doboy Gate Station Removal	Each	75,000	7,500	37,500	**120,000**	1					
55	Replace existing odouriser - Toowoomba Gate Station	Each	70,000	5,000	5,000	**80,000**	1					
56	Domestic Regulators Change Program	Each	30	2	15	**46**	260					
57	Facilities upgrades and replacements	Each	200,000	100,000	100,000	**400,000**		1	1	1	1	1

PLANNED CAPITAL EXPENDITURE WITH RATES ESCALATION AND CPI - APT ALLGAS ENERGY PTY LTD NETWORKS (Nominal)						
No. Description	10/11 Total	11/12 Total	12/13 Total	13/14 Total	14/15 Total	15/16 Total
TOTAL	**24,912,430**	**25,701,094**	**25,716,908**	**28,157,991**	**28,844,730**	**29,985,721**
TOTAL GROWTH	**13,551,011**	**15,101,656**	**16,221,137**	**17,101,952**	**18,322,692**	**19,571,847**
TOTAL STAY IN BUSINESS	**10,437,448**	**7,396,001**	**7,436,382**	**9,583,032**	**9,842,613**	**9,882,778**
TOTAL NON SYSTEMS	**923,970**	**3,203,438**	**2,059,389**	**1,473,006**	**679,425**	**531,095**
1 Growth - Domestic	**9,775,464**	**11,276,580**	**12,108,979**	**12,766,741**	**13,680,403**	**14,623,510**
2 New Domestic Meter Set	761,056	879,890	944,087	994,558	1,064,832	1,137,510
3 New Domestic Service - Estate	3,346,570	3,934,337	4,196,448	4,393,930	4,674,472	4,969,298
4 New Domestic Service - Existing Domestic	1,904,994	2,060,270	2,264,951	2,444,599	2,682,563	2,918,452
5 New Main - Estate	2,359,111	2,773,448	2,958,219	3,097,430	3,295,193	3,503,027
6 New Main - Existing Domestic	1,403,733	1,628,635	1,745,274	1,836,223	1,963,343	2,095,223
8 Growth - Commercial and Industrial	**3,775,547**	**3,825,076**	**4,112,157**	**4,335,212**	**4,642,290**	**4,948,338**
9 Industrial and Commercial Meter Station < 10TJ/Annum	1,258,516	1,229,971	1,323,534	1,396,578	1,496,778	1,596,999
10 Industrial and Commercial Meter Station > 10TJ/Annum		62,382	65,333	67,143	70,134	72,618
11 New Industrial and Commercial Service < 10TJ/Annum	1,161,707	1,135,358	1,221,724	1,289,149	1,381,641	1,474,153
12 New Industrial and Commercial Service > 10TJ/Annum		10,397	10,889	11,191	11,689	12,103
13 New Main - Industrial and Commercial <10TJ/annum	1,355,325	1,324,585	1,425,345	1,504,007	1,611,914	1,719,845
14 New Main - Industrial and Commercial >10TJ/annum		62,382	65,333	67,143	70,134	72,618
18 Stay in Business/Growth - Augmentation	**807,245**	**1,606,761**	**1,557,154**	**3,189,301**	**2,527,164**	**2,771,602**
19 Tingalpa Gate Station Upgrade - Increase capacity; additional Class 300 outlet	363,033	332,706				
20 Ellen Grove Gate Station Upgrade - DN150 Cl.300 inlet; odouriser; E&I	151,264					
21 Broadbeach Augmentation Project, 63/90mm PE80 SDR11, 250m long	63,027					
22 Surfers Paradise/Broadbeach HP Steel Augmentation Project, 100NB Class 150, 3.6km long		1,222,070	1,315,422			
23 Minor Network Augmentation	50,421	51,985	54,444	55,953	58,445	60,515
24 Telemetry - Fringe point monitors	24,202		13,067		14,027	
25 Telemetry - District regulator stations	60,506					
26 PE Network reinforcement, Medway Street, Rocklea, 63mm PE, 80m long	34,286					
27 Surfers Paradise PE Network Augmentation Project, 90mm PE80 SDR11, 120m long	60,506					
28 Upgrade of Cleveland Pipeline to Class 300, 100NB Class 300 0.2km long			174,221			
29 South Coast Pipeline Stage 2, 200NB Class 600, 10.2km long				3,133,349	2,454,692	2,711,086
43 Stay in Business - Renewal	**9,630,203**	**5,789,240**	**5,879,228**	**6,393,730**	**7,315,449**	**7,111,177**
44 Meter Change - Meters Domestic	423,539	428,379	385,529	759,289	1,276,440	644,561
45 Meter Change - Meters Industrial and Commercial < 10 TJ/Annum	372,654	471,728	373,324	372,181	542,344	775,245
46 Meter Change - Meters Industrial and Commercial > 10TJ/Annum	60,506					
47 Mains Renewal - Block	7,131,299	4,002,865	4,192,190	4,308,355	4,500,268	4,659,679
48 Mains Renewal - Piece	141,180	145,559	152,443	156,667	163,646	169,443
49 Service Renewal	235,633	220,856	231,302	237,712	248,300	257,096
50 Replace existing district regulator stations	322,696					
51 Upgrade existing district regulator stations	70,590					
52 Industrial and Commercial Meter Station Upgrades	151,264					
53 Oakey Gate Station - Upgrade of station including odouriser and E&I installations	453,792					
54 Doboy Gate Station Removal	151,264					
55 Replace existing odouriser - Toowoomba Gate Station	100,843					
56 Domestic Regulators Change Program	14,945					
57 Facilities upgrades and replacements		519,853	544,440	559,527	584,450	605,153
73 Non System Capital Expenditure	**923,970**	**3,203,438**	**2,059,389**	**1,473,006**	**679,425**	**531,095**
74 Miscellaneous Items - Non System	126,053	271,623	284,470	292,353	305,375	316,193
75 Warehouse Racking - Mansfield (Mark Beddows)	75,632					
76 Warehouse Racking - Toowoomba (Mark Beddows)	12,605					
77 2 Compressors - Mansfield (Mark Beddows)	75,632					
78 Truck (Mark Beddows)	176,475					
79 Bar Code Equipment (Mark Beddows)	8,824					
80 Kitchen replacement - Mansfield (Mark Beddows)	32,774					
81 Optical Methane Gas Detector (Peter Lather)	50,421					
82 Replace existing stopple equipment over 4 years period	88,237	90,974	95,277	97,917		
83 Transmission pipeline emergency repair clamps for uncontrolled gas escape repair	12,605					
84 Emergency stopple fittings	264,712					
85 IT Systems - Knowledge Management		617,325				
86 IT Systems - Upgrades and renewals		12,998	122,511	240,580	14,613	15,130
87 IT Systems - Road Map Initiatives		1,916,775	1,448,289	419,760		
88 IT Applications - FRC related upgrades		39,010	40,855	279,674	43,857	45,411
89 IT Systems - SCADA related upgrades		254,733	67,987	142,723	315,580	154,361