

The Allen Consulting Group

The New Zealand gas industry in 2006

Review of its state and performance

15 November 2006

Final Report to the Gas Industry Company

The Allen Consulting Group

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Executive summary

The natural gas industry plays a very large role in the New Zealand economy, and its state and performance has an impact on productivity and growth. The Gas Industry Company has engaged the Allen Consulting Group to assess the industry's state and performance to assist it to report on such to the Minister.

From the outset, we must acknowledge that the New Zealand gas industry is very small by global standards. Gas is used principally to generate electricity and penetration into the residential market is currently low. Market development initiatives and expected outcomes that may be appropriate in other jurisdictions might not be so in New Zealand.

Further, the New Zealand gas industry is in a transitional state on two dimensions:

- at the upstream end, the market is moving from a great dependence upon one gas field and producer to a situation where gas comes from an increasing number of fields and producers. This brings with it the need for more complex transmission open access and trading systems; and
- across the industry, substantial new market arrangements — instruments and institutions — are being designed, developed and put in place to bring about the outcomes expected by the New Zealand Government in its current Government Policy Statement on Gas Governance (the 2004 GPS).

Having regard to these features, we have reviewed the current state of each sector in the New Zealand gas industry. We have also sought to maintain a realistic and pragmatic view as to what should be expected of it and how its performance should be measured now and over time.

Focus on competition

The 2004 GPS places a large emphasis on the need for the New Zealand gas industry to be competitive and we agree that competition should be the focus of our review.

In segments of the market that can operate competitively, competition will lead to:

- efficient prices (where prices reflect the marginal costs of supply and there are incentives for suppliers to drive down prices);
- the development of new products and services that are aligned with customer demands; and
- the distribution of benefits across all customers.

In the segments of the market that are natural monopolies, regulation seeks to create conditions that achieve similar outcomes and that facilitate effective competition in the competitive segments.

The body of our work involves a detailed scan of the policy context and each sector in the industry. From our examination, we draw out the major issues with which the gas industry must deal before assessing its overall state and performance.

Evolution of government policy and regulatory reform

The New Zealand Government conducted an extensive review of the gas industry in 2002 culminating in the publication of the 2004 GPS and the establishment of the Gas Industry Company. Policy continues to evolve and there are currently two major issues that arise for the gas industry:

- *Challenges of the co-regulatory model* — The model of co-regulation in the New Zealand gas industry is innovative and brings with it a great opportunity for the gas industry to bring forward practical and effective market and regulatory development solutions. In return for giving the industry this opportunity, the Government expects the industry to fund, cooperate, support and contribute voluntarily to the Gas Industry Company's work program. The success of Gas Industry Company will largely depend on the insight and expertise it brings to bear on its challenges and the willingness of its board and membership to support the new initiatives necessary to bring about the outcomes the Government expects.
- *Emerging energy policy* — As they are further developed, the related energy policy documents embedded in the 2004 GPS could create a number of additional objectives, which could go well beyond the explicit market and regulatory developments outlined in the GPS today. When the draft New Zealand Energy Strategy is released later this year, the Government needs to give careful consideration to the wording of its government policy statement on gas governance to ensure that it seeks outcomes from the industry that are reasonably consistent with one another and consistent with the NZES, and that it also continues to be clear about how the industry should achieve these outcomes within its commercial environment in which the industry operates.

Production and processing sector

Exploration for natural gas and the development of new production and processing facilities has increased in recent years in response to the depletion of the Maui field and the consequent higher prices.

The sector still remains highly concentrated with three companies — Shell, Todd and OMV, individually and together — in a dominant position, and this is likely to remain so for some years.

The major issue for the production and processing sectors is:

- *Maintaining the attractiveness of New Zealand for new entry investment* — The gas industry can enhance New Zealand's attractiveness for new exploration and production investment by reducing barriers to entry. In particular, it can improve the ability of third parties to gain access to existing processing facilities, and an information disclosure regime is being considered to achieve this. In contrast, the prospect of the Government discouraging new gas-fired generation could reduce the attractiveness of New Zealand as an exploration investment destination. Such a policy could neutralise the incentives created by the Government's fiscal concessions currently in place to encourage new exploration and production, even that necessary to sustain the currently installed gas-fired capacity and other customer demand in the medium to long term.

Transmission and wholesale trading sectors

As transmission services and wholesale gas are perfect complements, we have dealt with them together. They are perfect complements because transmission services have to be purchased with wholesale gas.

New Zealand has two major transmission pipelines, one owned by Vector Transmission (VT) and one owned Maui Development Limited (MDL, owned by Shell, Todd and OMV). Each pipeline is governed by a different type of code. VT is a signatory to the New Zealand Pipeline Access Code; however, it is its bilateral transmission services agreement and interconnector agreements that describe the terms and conditions (including price) that apply in each case. In contrast, MDL provides transmission services beyond that related to legacy gas are set down in the Maui Pipeline Operating Code (MPOC). The Gas Industry Company is currently working on ways in which it can make both access arrangements more effective.

The wholesale gas market has many participants but is dominated by three large companies — Contact Energy, Genesis Energy and Vector. Wholesale customers including electricity generators and petrochemical plants consume around 70 per cent of New Zealand's gas.

The major issues for the transmission and wholesale sectors are:

- *Clarity of legacy, capacity and balancing arrangements* — There is a need for the Gas Industry Company to facilitate forums with the objectives of developing a complete picture of current arrangements for Maui legacy gas, capacity offerings and gas balancing, identifying and agreeing the issues, developing an action plan, and communicating their conclusions to the industry as a whole. The industry needs this as a starting point for resolving its other issues.
- *Vertical integration* — There are two noteworthy cases of vertical integration in this sector, where affiliated businesses have interests in both large monopoly transmission pipelines and competitive wholesale trading activities: the Maui mining companies (Shell, Todd and OMV) and Vector. It is of concern to some participants that Vector undertakes the role of commercial, technical and system operator for its own pipeline, the role of technical and system operator for the MDL pipeline.
- *Structure of the VT transmission contracts* — As Vector's transmission services agreement and interconnector agreements are bilateral contracts, if changes are to be made to the manner in which the VT transmission pipelines are operated in the interests of the market as a whole, each agreement would have to be amended through bilateral negotiations. The structure of VT's transmission contracts could impede the efficiency and development of the transmission sector and wholesale trading. In contrast, the MPOC is the basis of all new transmission contracts on the Maui pipeline and can be changed more easily to enable industry-wide market developments.

- *Effective open access* — We agree that there is a need to formally establish the principles of effective open access to transmission pipelines. An effective open access regime will involve arrangements that provide policy makers and industry participants with confidence that transmission network services will be provided to existing and prospective transmission users in an efficient non-discriminatory basis and that the access arrangements provide a firm foundation for competition between the transmission users. In doing so, it will be important to recognise the price regulation role of the Commerce Commission to minimise any overlap and ensure its role is complementary to that of the Gas Industry Company.

The Gas Industry Company has encouraged Vector to develop a VT operating code along the same lines as the MPOC. Along with the MPOC, this code has the potential to become an important component of an effective open access regime. We understand that Vector has commenced work to develop its code and is making good progress.

- *Unbundling of wholesale contracts* — The flexible Maui contracts are coming to an end and transmission pipeline owners are now offering less unbundled contracts in their place. We see this as a positive development in the market. The unbundling of contracts will ensure that market participants bear directly the costs and risks associated with their behaviour in the market — such as the purchase of sufficient wholesale gas to meet their customers' needs — and this will drive more efficient outcomes.
- *Enhancing wholesale trading* — The Gas Industry Company has made a good start in terms of investigating the opportunities to enhance wholesale gas trading, especially improving the transactional efficiency of the secondary trade, such as creating a standard wholesale gas contract and a simple communications platform that matches buyers and sellers. Achieving clarity in relation to capacity offerings and gas balancing should be a pre-condition for any conceptual design and consideration of a more sophisticated trading platform or spot market that could further enhance trading opportunities. Along with this clarity, the establishment of an effective open access regime will create a much better basis for the consideration of nodal balancing markets. If a trading platform is considered too soon, it could become discredited before its potential benefits can be defined and recognised.

Distribution sector

We note recent bypass activity and the Commerce Commission's work to establish a price control for Vector¹ and Powerco.

The major issue for the distribution sector is:

¹ Only in relation to Vector's distribution network in Greater Auckland, Tuakau and Ramarama.

- *Distinguishing the roles of the Commerce Commission and the Gas Industry Company* — The Commerce Commission is well advanced in its work to set a price control. The Gas Industry Company might find itself in an impossible position to establish reasonable terms and conditions of access to the distribution pipelines for retailers if the Commerce Commission does not define the related level of service to retailers to which its price control relates. At this stage, it would be appropriate for the Gas Industry Company to put forward to the Commission a sample retailer/distributor service agreement that the Commerce Commission can use to define a standard service to retailers to which its price control relates.

Retail sector

We have examined the pattern of gas usage and prices over the past five years, and we have reviewed the activities of retailers.

The major issues for the retail sector are:

- *Development of retail market systems* — The New Zealand has a small retail gas market and, accordingly, each decision by the industry to further develop retail market systems must take account of the costs and benefits. A customer registry is being developed and there will be a need for rules to clearly spell out the links between the customer registry, the allocation and reconciliation process, and the service provided by metering providers and data agents.
- *Promotion of the direct use of gas* — We have detected a common view that the direct use of gas is always more efficient than using electricity and that the direct use of gas should be promoted. Whether the direct use of gas is more efficient or more economic than the use of electricity for a given consumer in any setting — industrial, commercial or residential — will depend on a complex range of factors. The best way to ensure that each consumer has the ability to make the correct decision about whether to use gas directly, or to use electricity or some other fuel, is to ensure that the prices of gas and electricity to the customer are fully reflective of the costs down both value chain, that each sector down the chain is performing efficiently, and that customers have the capability and information they need to make accurate price comparisons.
- *Customer information* — More can be done to empower customer choice, including establishing a free gas price comparator website that also includes a useful tool to enable customers to properly choose between gas and electricity given their own circumstances.
- *Customer protection* — There could be an opportunity to design a new regulatory framework for customer protection that involves the Electricity and Gas Complaints Commission (EGCC) but allows it to focus on complaints. The framework could include a marketing code of conduct that the Gas Industry Company might develop.

State of the gas industry

We describe the state of the gas industry in terms of the most fundamental indicators as to whether competition can exist: the number of firms and market concentration, and the barriers to entry and exit.

Number of firms and market concentration

Based on the information we have available, there is no doubt that the whole New Zealand gas industry is concentrated. The dominant companies at the production and processing end are Shell, Todd and OMV, and Contact Energy and Genesis Energy at the wholesale and retail end.

Barriers to entry and exit

Given these high levels of market concentration, it is important to identify and address the major barriers to entry and exit. From our desk-top research, it would appear that the barriers for new entrants to the production, processing, wholesale and retail sectors arise from the same factors that are challenging the industry incumbents:

- the need for companies to explore for, find and develop economically recoverable quantities of gas in new fields;
- the costs associated with establishing new production and processing facilities, including liquid storage;
- the transaction costs caused by the increasing complexity of the wholesale market: the increased number of fields from which gas is purchased, the unbundling of gas and transportation contracts, understanding the manner in which transmission pipelines are balanced and gas is allocated and reconciled;
- the availability of rights for parties seeking access to the transmission pipeline on reasonable terms and conditions;
- the lack of clarity about the service that distribution pipelines will provide to retailers under the terms of the use of system contracts;
- concerns by some that vertically integrated pipeline companies might not be providing access on a non-discriminatory basis;
- lack of clarity in relation to responsibilities for gas quality and the management of gas emergencies;
- the transaction costs and time delays associated with retail customer switching;
- the difficulties facing customers as they seek to make informed choices as to which gas retailer they should engage, or whether to use gas in the first place; and
- the transaction costs associated with meeting the regulatory requirements of a customer protection regime — currently the requirement to be a party to an approved complaints resolution scheme.

Most of these barriers are unavoidable to some extent; however their impacts can be mitigated. We agree with the Gas Industry Company that there are substantial benefits to be gained by placing the highest priority upon the creation of an effective open access regime for transmission and facilitating more competition at the wholesale level. These initiatives will improve the industry's efficiency in the transmission and wholesale sectors, and create a transparent and firm foundation for the development of the emerging new retail market systems.

We have not identified any barriers to exit that require immediate attention

Performance of the gas industry

Market development activity

Market development initiatives are required to overcome the most substantial barriers to entry that currently exist. In the first instance, we have gauged the industry's performance in terms of its efforts to meet this challenge.

Does the current GPS reflect the right priorities?

The priorities and tasks set out in the gas industry in the 2004 GPS are strongly consistent with the need to develop the fundamental elements of a well functioning gas market, particularly in relation to the wholesale market, access to the transmission and distribution pipelines, and the establishment of a customer switching registry.

The timetable set down in the 2004 GPS requires review in the light of what the gas industry has achieved to date, the approach it is taking, and what it can achieve over the next few years.

Does the gas industry have a sound plan to deliver the outcomes necessary to improve competition?

Through the Gas Industry Company, the industry has a clear work plan to achieve most of the outcomes required in the GPS²; however, we note that its plan is subject to change from time to time. By the end of June 2007, the Gas Industry Company plans to have considered and designed the vast majority of the specific industry outcomes set down in the GPS, and to bring the required arrangements and systems into operation over the following 12 to 18 months.

One area where the Gas Industry Company's plan appears to need further consideration is the timing of the work to develop reasonable the terms and conditions of access to distribution networks in the light of the Commerce Commission's work to establish a price control for the Vector and Powerco pipelines.

Is the gas industry supporting the Gas Industry Company to deliver on the plan?

While it is clear that the industry does not agree with all the decisions that the Gas Industry Company makes, our observation is that it is providing a good level of support.

² Gas Industry Company 2006, *Strategic Plan 07-09*.

What areas should be considered for the next GPS?

The Gas Industry Company is well advanced in its work to achieve the outcomes listed in the GPS — some in relation to the retail market are complete. While some are not complete and have some way to go, the industry's understanding of what they involve is becoming much clearer. Given this, and the emergence of the New Zealand Energy Strategy, it is nearing the time when the GPS should be reviewed and revised, as it should be every two to three years.

In our view, the next GPS could:

- continue to set down the overarching objectives of the gas industry to enhance its ability to operate competitively and thereby efficiently;
- recognise the role of the industry body (the Gas Industry Company) in not only market development but also in monitoring, operation and maintenance of market arrangements;
- provide for a two yearly cycle whereby the industry body would:
 - formally assess the state of the gas industry in terms of its market concentration and barriers to entry and exit;
 - monitor progress of market developments and the level of competitive activity;
 - revise the industry's strategies and priorities for on-going developments, which would form the basis of the industry body's strategic plan;
 - report competition outcomes with an expectation of incremental improvements.

A two year cycle is appropriate given that many market development initiatives have long lead times and their benefits will take some time to become measurable.

An appropriate time for the completion of the next full assessment of the industry's state and performance would be April 2009. This would be the earliest time at which the industry's performance could be measured on the basis of its competitive activity given that its new wholesale and retail market systems are planned to come into operation in mid 2008. In the meantime, the Gas Industry Company's annual report will enable it to report on its progress with market developments and the industry's competitive activity to the limited extent information is available.

Competitive activity

We have set down a concise list of indicators that *together* can provide a good picture of the level of competition that exists in, or is facilitated by, each sector. No single indicator stands on its own.

Table E.1

RECOMMENDED INDICATORS OF COMPETITIVE ACTIVITY (FOR A FINANCIAL YEAR)

Exploration & production	Processing	Transmission	Wholesale trading
Participation in government auctions of frontier region blocks (MED)	Offers of excess capacity to new gas suppliers (IS)	Bids and offers of capacity posted (WT)	Bids and offers of gas posted (WT)
Number of wells drilled (MED)	Number of processing contracts in place (IS)	Capacity used and/or reserved (WT)	Number and quantities of short term gas contracts in traded (WT)
Number of mining permits issued (MED)		Number and quantities of short term capacity contracts traded (WT)	Shipper satisfaction with trading arrangements (IS)
		Number of access disputes (IS)	
Evidence of collusion or exclusive dealing (CC)	Evidence of collusion or exclusive dealing (CC)	Confirmation of effective ring-fencing (AP)	Evidence of collusion or exclusive dealing (CC)
Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)

Distribution	Retail trading (ind & comm)	Retail trading (residential)
Number of new connections (IS)	Number and type of market offers made (IS)	Number and type of market offers made (IS)
Time and average cost to connect a new customer—greenfield & brownfield (IS)	Gross, net and multiple switching (SR)	Gross, net and multiple switching (SR)
	Customer satisfaction with retailer arrangements (CS)	Customer satisfaction with retailer arrangements (CS)
Number of access disputes (IS)	Number of customer complaints (EGCC)	Number of customer complaints (EGCC)
Confirmation of effective ring-fencing (AP)	Evidence of collusion or exclusive dealing (CC)	Evidence of collusion or exclusive dealing (CC)
Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)

Source: ACG analysis.

Notes:

1. 'Gross switching' is the total number of customer switching transactions over a period; 'net switching' is the number of customers who have switched at least once over the period; and 'multiple switching' is the number of customers that have switched more than once over the period.

2. Information sources: MED is Ministry of Economic Development, CC is Commerce Commission, WT is wholesale trading system; AP is auditor of pipeline owner, ID is information disclosed under the Gas (information disclosure) regulations, SR is switching registry, IS is industry survey, and CS is customer survey.

Each of these indicators is:

- *meaningful* – it has some direct relationship to a transaction that creates value in the market;

- *comparable* – it can be compared with similar activity in other markets or in the same market over time; and
- *measurable in a cost-effective manner* – it can be measured using information already collected, that should be generated by market infrastructure (when such infrastructure becomes available), or that should be able to be collected inexpensively from the industry.

For example, many of the indicators measure the level of trading transactions that will be made possible by the regulatory and market arrangements that are being put in place. Other indicators measure the extent to which the market is satisfying or responding to customers' needs.

We have sought to rely as much as possible on existing information sources. We have also included a number of indicators for which some form of industry or customer survey will be needed to collect the required information. Thirdly, we have recommended that the effectiveness of the transmission and distribution pipeline's ring fencing be confirmed. This would require a report from an independent expert, perhaps an external auditor.

Assessment of current competitive activity

We are unable to undertake any meaningful assessment of the competitive activity of the whole gas industry based on the information we have available to us at this stage.

The only related information we have available to us is in relation to the number of wells drilled and the number of mining permits issued in 2005 (see Chapter 3), both of which have increased over recent years in response to the depletion of the Maui field and rising gas prices. These indicators confirm that the exploration and production companies are responding appropriately to price signals.

Competitive activity target

We recommend that a target range of 5 to 20 per cent be applied to the indicator, gross number of customer switches. However, given that many of the market systems and arrangements that will underpin the market over the next few years are not yet developed or implemented, it would be unrealistic to set performance targets for the other indicators at this stage.

To facilitate future assessments, we recommend that the Gas Industry Company:

- liaises with the Ministry of Economic Development, the Commerce Commission, the EGCC and gas industry participants to arrange for the information necessary to determine the state and performance of the industry in the manner we have described (with guidelines where necessary); and
- starts to collect whatever information can be made available so that at least a partial competitive activity assessment can be provided in its 2007 and 2008 annual reports.

Overall findings and conclusions

Our overall finding is that the state of the New Zealand gas industry is concentrated and that there are substantial opportunities to enable better levels of competition and, by implication, better level of industry efficiency.

The performance of the industry in developing the new market arrangements expected in the GPS has been good. It needs to continue its support of the processes being conducted by the Gas Industry Company so that the solution being developed can benefit from the wider industry experience.

It is too early to meaningfully measure competitive activity because the market systems are not yet in operation and the required information will not be available for a full assessment until April 2009. However, arrangements can now be made to collect the information and make at least a partial assessment at the end of 2006-07.

Chapter 1

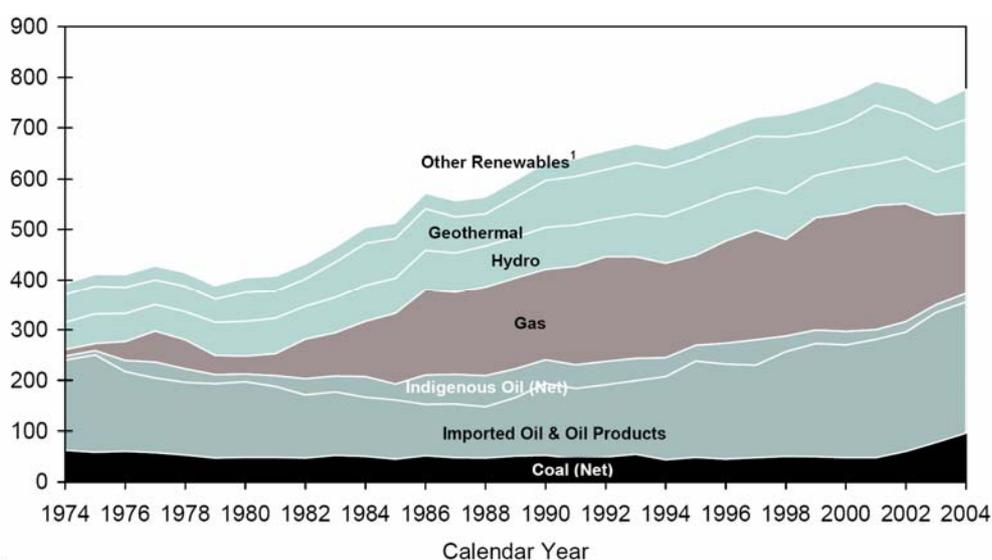
Introduction and background

1.1 Context and purpose of this report

As illustrated in Figure 1.1, natural gas is a major source of primary energy in New Zealand and plays a very large role in the productivity and growth of the country's economy.

Figure 1.1

TOTAL PRIMARY ENERGY SUPPLY 1974-2004 (PJ)



Source: Dang, H. 2006, *Data collection/processing approach to the energy balance – The case of New Zealand*, Presentation to the International Energy Agency, 28 April, p. 6

Note: 'Other renewables' includes electricity generation from wind, biogas, industrial waste, wood and solar water heating.

Not surprisingly, in recent years the gas industry has been the subject of a substantial Government reform program, which has focused on exploiting New Zealand's natural gas in the most efficient way through a range of strategies: introducing competition, regulating the monopoly aspects, and developing governance arrangements. The 2004 Government Policy Statement on Gas Governance (Appendix B) sets out government policy objectives and desired outcomes for the industry.

The Gas Industry Company was formed as the basis of co-regulatory arrangements with the New Zealand Government to oversee development of the gas industry. It has an obligation under its constitution to report regularly to the Minister on the performance and present state of the industry.

The Gas Industry Company intends to prepare such a report in the near future and are seeking to come to a view as to the industry's performance. This report has been prepared to assist the Gas Industry Company to do so.

1.2 Terms of reference

Our terms of reference required us to deliver six analysis and advisory tasks, which were to.

1. review the performance and present state of the New Zealand gas industry in each of the different parts of the supply chain (production, wholesale, transmission, distribution and retail);
2. review the Company's existing analysis and the submissions of industry participants in order to identify participant views on the areas of concern;
3. identify any areas in addition to the existing priorities that need particular attention;
4. propose performance indicators that could be used by the industry and Government to monitor efficiency in each part of the supply chain;
5. where possible, establish baseline measurements for each performance indicator; and
6. where practical, suggest three year and long-term benchmark levels for each performance indicator, based on international experience.

1.3 Our process

We approached this consultancy in three stages.

Stage 1 — Reviewed the present state and performance of the gas industry

After settling our approach with the Gas Industry Company, we prepared a draft report in which we have:

- reviewed the evolution of Government policy and reform;
- reviewed in detail each sector of the gas industry in terms of its market structure, industry-led developments and strategic challenges;
- developed a framework by which the industry's state and performance can be assessed; and
- assessed the industry's state and performance and provided recommendations on the way forward.

The Gas Industry Company provided its initial comments on our draft report.

Stage 2 — Consulted Gas Industry Company staff on the draft report

We met with Gas Industry Company staff on 13 October 2006 to discuss the draft report.

On the basis of comments received them, we reviewed our report.

Stage 3 — Provide final report and present it to the GIC board

We presented the main points of our report to the Gas Industry Company board on 6 November 2006, and, on the basis of further comments, we finalised our report.

1.4 Particular features of the New Zealand gas industry

We have acknowledged that the natural gas industry plays a very large role in the New Zealand economy, and that its performance will have an impact on the growth and security of the country's energy supplies.

However, we must also acknowledge that the New Zealand gas industry is very small by global standards. Market development initiatives and expected outcomes that may be appropriate in other jurisdictions might not be so in New Zealand.

Further, the New Zealand gas industry is in a transitional state on two dimensions:

- at the upstream end, the market is moving from a great dependence upon one gas field and producer to a situation where gas comes from an increasing number of fields and producers. This brings with it the need for more complex transmission open access and trading systems.
- across the industry, substantial new market arrangements — instruments and institutions — are being designed, developed and put in place to bring about the outcomes expected by the New Zealand Government in its current Government Policy Statement in Gas (the 2004 GPS).

Having regard to these features, we have reviewed the current state of the New Zealand gas industry. We have also sought to maintain a realistic and pragmatic view as to what should be expected of it and how its current and future performance should be measured now and over time.

1.5 Competition is the key focus

The 2004 GPS places a large emphasis on the need for the New Zealand gas industry to be competitive and we agree that competition should be the focus of our review.

In segments of the market that can operate competitively, competition will lead to:

- efficient prices (where prices reflect the marginal costs of supply and there are incentives for suppliers to drive down prices);
- the development of new products and services that are aligned with customer demands; and
- the distribution of benefits across all customers.

In the segments of the market that are natural monopolies, regulation seeks to create conditions that achieve similar outcomes and that facilitate effective competition in the competitive segments.

For this reason, when considering the state and performance of the New Zealand gas industry, we have focused on how the industry is developing and operating as a well functioning competitive market.

1.6 Framework for the assessment of state and performance of the industry

State of the industry

The state of the industry in each sector can simply be described in terms of:

- the number of firms in the sector and the level of market concentration; and
- the barriers to entry and exit: the areas in need of market development;

After examining each of the industry sectors in detail (Chapter 3 to Chapter 6), we assessed the industry's current state (Chapter 7).

Performance of the industry

We have measured the performance of the gas industry on two levels: market development activity and competitive activity.

Market development activity

The Government clearly expects the gas industry to develop its own market. In relation to market development, we have gauged the performance of the industry as the extent to which it is doing what it should to improve competition, or the facilitation of competition, in each sector. We have taken account of the policy context of our review (Chapter 2) and the strategic issues the industry faces. We have also recognised that the Government and the industry must determine priorities, allocate resources and set timetables for these activities with regard for the small size of the New Zealand gas industry, for the costs and benefits of the options available, and, over time, for the changes in competitive activity.

Our assessment of market development performance is therefore based on the following questions:

- Does the current GPS reflect the right priorities?
- Does the gas industry have a sound plan to deliver the outcomes necessary to improve competition?
- Is the gas industry supporting the Gas Industry Company to deliver on the plan?
- What areas should be considered for the next GPS?

Competitive activity

In Section 7.3, we develop a list of indicators that *together* can provide a good picture of the level of competitive that exists in, or is facilitated by, each sector.

We describe the criteria by which we chose them and the information sources they require.

After reviewing the industry in detail, we determined the extent to which we can assess its current competitive activity.

1.7 Sources of information

The information on the gas industry that we gathered and used for our review came from a wide variety of public sources including:

- annual reports, access codes, contracts and information memoranda published by gas industry businesses;
- information provided in accordance with the *Gas (information disclosure) regulations*;
- publications by or for, and submissions to:
 - the Commerce Commission;
 - the Consumers Institute of New Zealand;
 - the Electricity and Gas Complaints Commission;
 - the Energy Efficiency and Conservation Authority; and
 - the Gas Association of New Zealand;
 - the Gas Industry Company;
 - the Minister of Energy;
 - the Ministry of Economic Development, Companies Office, and Crown Minerals, including *Energy Data File* and *Domestic Gas Prices*;
- media reports and company press releases; and
- independent research papers.

In addition, the Gas Industry Company provided us with advice as to the current status of its work plan as there have been changes since the publication of its strategic plan in June 2006.

The usefulness of the information collected from the gas industry and published by the Ministry of Economic Development (for pipeline information disclosures, energy data files, and retail price publications) is compromised by what appears to be a lack of consistency in relation to format, definitions and timescales. To the extent that this information continues to be required from the industry, there should be clear guidelines to ensure that the information is provided in a consistent format and is accurately and consistently collated and reported.

Chapter 2

The evolution of government policy and regulatory reform

It is important to consider the performance of the gas industry in the context of what the New Zealand government expects of it. Over recent years, the manner in which the Government has expressed its energy policy and expectations for the industry has evolved, and continue to do so. This section examines that evolution.

2.1 Review of the gas industry

In view of the importance of the gas industry to New Zealand's economy, and the challenges it faces as Maui gas declines, in February 2001 the Government instigated a major review of the industry, which it conducted in two stages:

- the commissioning of an independent report;
- deliberations within Government culminating in three Ministerial policy papers;

Recommendations arising from the review were implemented in the following steps:

- requesting the Commerce Commission to report to the Minister under section 56 of the Commerce Act on whether 'control' should be introduced on gas transmission and/or distribution pipelines;
- facilitation of a re-negotiation of the Maui contract; and
- establishment of an industry co-regulatory body.

We examine each stage and step in turn along with the current implications for our report.

Independent report on the gas industry

The Ministry of Economic Development commissioned ACIL Consulting to:

- review the efficiency of the gas industry; and
- assess the issues and discuss the policies that needed to be considered over the following few years with regard for the challenges that faced the industry at that time.³

³ ACIL Consulting, 2001, *Review of the New Zealand Gas Sector, Report to the Ministry of Economic Development*, October.

While the gas industry did not universally endorse the ACIL Consulting report⁴, it marked an important point in the way the gas industry was seen by its stakeholders. We will discuss in later chapters how the gas industry has moved to meet many of the issues that ACIL Consulting raised, together as an industry, and individually on a commercial basis. But first, we will outline the Government's response.

Developments in government policy on the gas industry

The Minister of Energy issued three papers to the Cabinet Economic Development Committee in November 2002, and the Committee accepted the recommendations of each.

Gas sector review, paper 1: background

The first paper reflected on the findings of ACIL Consulting report, noted that gas-fired electricity generation is likely to be the most cost-effective large scale energy source for medium term new generation capacity requirements in the North Island, highlighted the transition through which the gas industry was progressing, and sought consideration of the policy issues raised in the following two papers.

Gas sector review, paper 2: market structure and economic regulation

This paper argued the case that the Government should request the Commerce Commission to report to the Minister under section 56 of the *Commerce Act 1986* (Commerce Act) on whether 'control' should be introduced on gas transmission and/or distribution pipelines. It also promoted the idea that the industry would be best positioned to bring forward arrangements to improve the retail and wholesale gas markets in accordance with a new government policy statement.

Gas sector review, paper 3: open access to Maui pipeline

This paper demonstrated that open access to the Maui pipeline was essential to enabling adequate gas to northern market power generators, at least in the medium term. It argued that the Government should facilitate negotiation of an open access regime in a manner set down in the new government policy statement

2.2 Request to Commerce Commission to report on 'control' of gas pipelines

As requested by the Government, the Commerce Commission conducted a Gas Control Inquiry into whether control under Part 4 of the Commerce Act should be imposed on any of the gas transmission or distribution companies.

In order to conclude that control could be imposed under Section 52 of the Act, the Commission needed to determine:

- whether competition is limited or is likely to be lessened in the relevant market, and
- whether control is necessary or desirable in the interests of persons who acquire or supply the goods in the affected market or markets.

⁴ Corydon Consultants Ltd 2002, *Review of New Zealand's gas sector, summary of submissions*, April, pp. 2-4.

Having determined that the market met the legal definition for control to be imposed, the Commission next considered whether an order imposing control ‘should’ be made. In this respect, the Commission weighed up the wider economic costs of subjecting the network to price regulation against the range of expected benefits. In doing so the Commission considered the efficiency costs of achieving reductions in excess returns, the magnitude of the benefit to acquirers, the impact of a recommendation not to control, and series of other qualitative factors.

As noted above, the Commission determined that there were separate markets for the provision of gas distribution services in the area encompassed by each gas distribution business. It also noted that there were separate markets for the provision of gas distribution services to commercial and industrial consumers in the vicinity of bypass markets. Finally, it concluded that distribution networks had the characteristics of natural monopolies and, outside of the specific bypass markets, that competition was limited.

To determine if the legal test for imposing control was met, and to see if control was necessary or desirable in the interest of acquirers, the Commission conducted what it called a Net Acquires Benefit test. This test involved:

- identifying the benefits of control measured as the potential price reduction to customers;
- identifying the potential administrative costs to the regulator and regulated business of imposing the control; and
- balancing one against the other.

The Commission’s conclusion was that, in the case of the distribution networks of both Powerco and Vector⁵, excess returns were being earned and that there would be net acquirer benefits from imposing control. The Commission also estimated the net public benefit (efficiency gain) that could be brought about by imposing control. In contrast, the Commission estimated a negative net public benefits from imposing control on all businesses. The Commission ruled that after considering its additional tests regarding whether control should be imposed, including consideration of the net efficiency cost to the economy and the absolute impact on end users, that control should be imposed on these businesses.

We understand that Powerco and Vector are challenging whether the Commission was correct to apply the Net Acquirers Benefits test rather than the more conventional public benefit test.

As part of its recommendation the Commission also recommended that a targeted threshold regime should be introduced for the transmission pipelines and, if the Government were to introduce this, a similar provision should be enacted for the regulated distribution networks, repealing the price control and regulating both the transmission and distribution system through a consistent framework.

⁵ Only in relation to Vector’s distribution network in Greater Auckland, Tuakau and Ramarama.

The Minister of Energy accepted the Commission's recommendations and announced that Vector and Powerco will be made subject to control orders under Part 5 of the Commerce Act for a period of 11 years. He also proposed that the Government would introduce amendments to the Commerce Act introducing a threshold regime for both the gas transmission and distribution networks and transfer responsibility for information disclosure regime to the Commerce Commission.

In August 2005, the Commission published a provisional authorisation under the control order directing that from October 2005 the price charged by Powerco must fall by 9 per cent and the price charged by Vector by 9.5 per cent. It continues to review the businesses and expects to make a final determination on its price control in 2007.

2.3 Re-negotiation of the Maui gas contract

In 1973, the Crown entered into an agreement to purchase 50 per cent of the shares in Maui Development Limited (MDL) that developed the Maui gas field. At the same time, it also entered into an agreement with MDL to purchase most of the gas from the field to supply new and proposed gas-fired electricity generators. This agreement included delivery of the gas through the newly developed Maui pipeline to a range of delivery points. The contract bundled gas and transmission and had no arrangements for separating out the cost of energy or transmission. The contract runs for 30 years from the date of first delivery, expiring in June 2009.⁶

In the late 1980s, the Crown sold off its share in Petrocorp, the holding company for its 50 per cent stake in MDL.

In 1990, the Crown restructured its contracts, on-selling its rights to gas in a series of six contracts. These new contracts remain separate to the original contract and the parties can only enforce their rights through the Crown.

After industry consolidation and sales, three companies held the six 1990 contracts with rights to the following proportions of the Crown entitlement:

- Vector (through its purchase of Natural Gas Corporation) 27.47 per cent;
- Methanex 29.74 per cent; and
- Contact 42.79 per cent.

By 2002, Natural Gas Corporation had made arrangements to further on sell some of its gas commitments to Genesis Energy and Methanex.

⁶ http://www.bellgully.co.nz/resources/resource_00214.asp and http://www.bellgully.co.nz/resources/resource_00215.asp.

The latest revision to these contracts occurred in 2004 when the Maui mining companies (Shell, Todd and OMV), the Crown and the parties that held the final delivery rights to the Maui gas (Vector, Methanex, Contact) agreed to amend the terms of the Maui gas contract, limiting the remaining amount of gas to be delivered under the contract price — which is significantly below the current market price for gas — to 367 PJ. An independent expert determined at the time that 367 PJ was ‘economically recoverable’ from the Maui field. Any gas recovered in excess of this limit will now be sold by MDL at the market price, thus providing an incentive for further development of the field. Of the further gas recovered from the field, 40 PJ would be reserved for Methanex⁷ whilst Contact and Vector would have right of first refusal for the additional gas.⁸

2.4 Establishment of an industry co-regulatory body

The following developments led to the establishment of Gas Industry Company.

Government Policy Statement: Development of New Zealand Gas Industry

In March 2003, the Minister of Energy issued the *Government Policy Statement: Development of New Zealand Gas Industry* (the 2003 GPS). Significantly, the 2003 GPS specified the Government overall objective for gas:

To ensure that gas is delivered to existing and new customers in a safe, efficient, fair, reliable, and environmentally sustainable manner.

It set down the guiding principles and timetable for the gas industry to establish a governance structure and decision-making process to manage the further development of gas market arrangements and to prepare a work plan in relation to production and wholesale markets, access to transmission and distribution networks, retail markets and gas safety. The 2003 GPS also set down the Government’s approach to negotiating open access to the Maui pipeline.

While the Government was successful in negotiating open access to the Maui pipeline (see Section 4.3), the gas industry struggled to establish an appropriate governance structure. After extensive discussions within the gas industry, it was determined that the governance structure contemplated in its 2003 GPS needed statutory powers and functions to be effective.

Government Policy Statement on Gas Governance

As a consequence, in October 2004, the Government replaced the 2003 GPS with its Government Policy Statement on Gas Governance (the 2004 GPS, contained in Appendix B), which signalled a number of important changes to the Government’s policy on the gas industry.

⁷ This is often referred to as the ‘Methanex 20/20 deal’.

⁸ Hon Pete Hodgson 2004, Press Notice, *Maui gas agreement improves energy security*, 2 June.

- *Co-regulatory model* — The Government confirmed its preference for industry-led solutions where appropriate, indicated its intention to implement in cooperation with the gas industry a co-regulatory model of governance, and has highlighted its intention to establish a Crown regulatory authority, the Energy Commission, if the corresponding industry body does not deliver the expected outcomes;
- *Amended legislation* — The Government noted amendments to the Gas Act: (1) allowing the Minister of Energy to approve an industry body to recommend regulations and rules in the areas of wholesaling, processing, transmission and distribution of gas; and (2) allowing the Government to directly regulate retail and consumer issues.
- *New outcomes* — The specific outcomes the Government is seeking from the industry (see Box 2.1) have been adjusted to add the facilitation and promotion of the ongoing supply of gas, the enhancement of investment incentives, and the achievement of the Government's climate change objectives by minimising losses and promoting energy efficiency;
- *Related policy documents* — The 2004 GPS lists as related documents the Sustainable Development Programme of Action, the National Energy Efficiency and Conservation Strategy, the Climate Change Work Programme and the Government Policy Statement on Electricity Governance;
- *Areas for industry-led solution* — The 2004 GPS includes all the areas for industry-led solutions set out in the 2003 GPS except that it adds access to gas processing facilities to the list and removes gas safety, which will be covered under the regime being progressed through the *Energy Safe Review Bill* and the *Health and Safety in Employment Act*; and
- *Government oversight* — The Government set a deadline December 2005 for the industry body to bring forward all the industry-led solutions.

Box 2.1

OUTCOMES THE GOVERNMENT IS SEEKING FROM THE INDUSTRY

Consistent with this overall objective, the Government is seeking the following specific outcomes:

- a) the facilitation and promotion of the ongoing supply of gas to meet New Zealand's energy needs, by providing access to essential infrastructure and competitive market arrangements;
- b) energy and other resources are used efficiently;
- c) barriers to competition in the gas industry are minimised to the long-term benefit of end-users;
- d) incentives for investment in gas processing facilities, transmission and distribution, energy efficiency and demand-side management are maintained or enhanced;
- e) the full costs of producing and transporting gas are signalled to consumers;
- f) delivered gas costs and prices are subject to sustained downward pressure;
- g) the quality of gas services and in particular trade-offs between quality and price, as far as possible, reflect customers' preferences;
- h) risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties;
- i) consistency with the Government's gas safety regime is maintained; and
- j) the gas sector contributes to achieving the Government's climate change objectives by minimising gas losses and promoting demand-side management and energy efficiency.

Source: 2004 GPS, p. 2.

Contents of the related policy documents.

The following is the current status of the related policy documents set out in the 2004 GPS.

- *Sustainable Development Programme of Action* — Published in October 2004, the Sustainable Development Programme of Action states that New Zealand's current total known natural gas reserves are unlikely to meet demand in full beyond about 2012, and this is leading to higher gas prices.⁹ It highlights the Government's current gas market reforms and gas exploration incentives, and the tensions between the latter and sustainable energy objectives.¹⁰

⁹ Minister of Energy 2004, *Sustainable development, New Zealand programme of action, Sustainable Energy – summary*, October, pp. 7, 17-8 & 20.

¹⁰ *ibid.*, p. 12-3.

- *National Energy Efficiency and Conservation Strategy* — The Energy Efficiency and Conservation Authority (EECA) published in September 2001 the *National Energy Efficiency and Conservation Strategy* (NEECS), which asserted that the gas sector review [of 2001-2] would ensure consistency with ‘sustainable energy’.¹¹ The 2001 NEECS encourages the expanded use of gas directly by end-users to achieve national energy efficiency gains.¹² In July 2006, the Energy Efficiency and Conservation Authority proposed a framework of key parameters to underpin development of a replacement NEECS, which will be developed within the context of existing and emerging government strategies, most notably the upcoming New Zealand Energy Strategy and climate change policy.¹³
- *Climate Change Work Programme* — The Government published its Climate Change Work Program in June 2006 in which it states that the climate change work programmes related to the energy sector have been combined into a single programme through the parallel work streams developing the *New Zealand Energy Strategy* (NZES) and the NEECS replacement.¹⁴ Taken together, the NZES and the new NEECS will address:
 - a) opportunities to reduce energy emissions generally, including through development of the national energy strategy and energy research and priorities;
 - b) the option of a narrow carbon tax (or other price based measure, such as emission trading) on electricity generators;
 - c) incentives for renewable energy or disincentives for fossil fuel based electricity generation; and
 - d) a review of the current National Energy Efficiency and Conservation Strategy.

The general objective of the NZES is to provide long-term direction and leadership for the transition to a low carbon energy sector, with increasing renewable sources of energy and energy efficiency as key priorities.

To inform New Zealand’s policy debate and the development of the NZES, in August 2006, the Ministry of Economic Development published its *Energy Outlook to 2030* in which it examines the price and greenhouse gas emission implications of a ‘business as usual’ case and 11 sensitivity cases. These cases represent how New Zealand’s energy system might respond to a range of ‘hypothetical changes to the business environment’¹⁵, several of which include substantial reductions in the direct and indirect consumption of natural gas.

¹¹ Energy Efficiency and Conservation Authority 2001, *National Energy Efficiency Strategy, Towards a sustainable energy future*, September, p. 14.

¹² *ibid.*, p. 18.

¹³ Energy Efficiency and Conservation Authority 2006, *Framework for a replacement National Energy Efficiency and Conservation Strategy*, 4 July, p. 3.

¹⁴ Minister Responsible for Climate Change Issues 2006, *Climate change solutions, Whole of government climate change work programmes*, June, pp. 49-50.

¹⁵ Ministry of Economic Development 2006, *New Zealand’s energy outlook to 2030*, 18 August, p. vii.

- *Government Policy Statement on Electricity Governance* — The *Electricity Act 1992* allows the Minister to give the Electricity Commission a government policy statement containing objectives and outcomes to which the Government wants the Commission must give effect. The Minister of Energy published the current government policy statement on electricity governance (electricity GPS) in October 2004. The electricity GPS emphasises that security of electricity supply is a key priority of the Government, and it expects the Commission to take account and contribute to the Government’s wider policy objectives and to provide early warning if it believes there is any material risk that current settings for electricity and for other policy areas are unlikely to produce sufficient investment, particularly in generation and the national grid. The Commission must ensure that public information is provided on thermal fuel availability and generation capacity.

On 17 October 2006, the Minister of Energy signed an updated version of the current electricity GPS, which recognises the publication of the draft NZES in 2006 (and the final version in 2007), and which expands upon the Government’s expectation in relation to transmission planning including that grid upgrade plans should be consistent with wider government energy policy including applicable policies on renewable generation and climate change.¹⁶ The updated electricity GPS also requests that the Commerce Commission and the Electricity Commission review their memorandum of understanding to clarify their respective roles.¹⁷

Establishment of Gas Industry Company

As a consequence of the 2004 gas GPS, the gas industry established an incorporated company, Gas Industry Company, as a vehicle for the delivery of industry-led solutions for gas industry reform. The Governor-General approved Gas Industry Company as an ‘industry body’ under section 43ZL of the *Gas Act 1992* (Gas Act) on 22 December 2004.

As an approved industry body, the Gas Industry Company has a range of objectives as set down directly in the Gas Act and in the 2004 GPS, and these are reflected in its constitution.

¹⁶ Minister of Energy 2006, *Government Policy Statement on Electricity Governance*, 17 October, pp. 2 & 21-24.

¹⁷ *ibid.*, p. 28.

Box 2.2

PURPOSES OF THE GAS INDUSTRY COMPANY

The principal purpose of the Company is to perform the functions and duties, and exercise the powers, of the industry body under Part 4A of the Gas Act, including (to the extent permitted or required by the Gas Act or regulations or rules made under that Act) -

- (a) to recommend gas governance regulations and gas governance rules under Part 4A of the Gas Act; and
- (b) to administer, monitor compliance with, investigate, enforce, and apply penalties or other remedies for contraventions of, any or all of the gas governance regulations and gas governance rules; and
- (c) to establish, operate, and facilitate the operation of, markets for industry participants; and
- (d) to establish or implement one or more complaints resolution systems required by gas governance regulations or gas governance rules; and
- (e) to recommend regulations under section 43ZZB of the Gas Act that require industry participants to pay a levy to the Company, and collect any such levy; and
- (f) to advise and report to the Minister in relation to the New Zealand gas industry..

Source: Clause 4.1 of the Gas Industry Company constitution.

The Gas Industry Company may recommend to the Minister the making of regulations or rules for the purposes listed in Box 2.3. The Minister may not recommend regulations or rules to the Governor-General unless the Gas Industry Company has been given a reasonable opportunity to recommend them. Once a regulation or rule is made, it becomes legally binding under the Act.

Box 2.3

PURPOSES OF THE REGULATIONS & RULES FOR WHICH THE GAS INDUSTRY COMPANY MAY MAKE RECOMMENDATIONS

Wholesale gas market

- (a) providing for the establishment and operation of wholesale markets for gas, including for—
 - (i) protocols and standards for reconciling and balancing gas;
 - (ii) clearing, settling, and reconciling market transactions;
 - (iii) the provision and disclosure of data and other market information;
 - (iv) minimum prudential standards of market participation;
 - (v) minimum standards of market conduct;
 - (vi) arrangements relating to outages and other security of supply contingencies;

Processing facilities

- (b) setting reasonable terms and conditions for access to, and use of, gas processing facilities where—
 - (i) this is reasonably necessary to allow new fields to be developed; and
 - (ii) spare capacity is available or could be made available if the person accessing or using the facilities paid the reasonable costs (including the costs of capital) of providing the additional capacity;

Transmission and distribution of gas

- (c) prescribing reasonable terms and conditions for access to transmission or distribution pipelines;
- (d) requiring expansions, upgrades, or service quality improvements to gas transmission pipelines including specifying how these will be paid for.

Source: Section 43F(2) of the Gas Act.

The creation of the Gas Industry Company provides a substantial opportunity for the gas industry to take a leading role in the development and reform of gas markets and regulation, with a direct line of communication to Government to seek legally binding regulations and/or rules where appropriate. However, it also has the opportunity to encourage the gas industry to take initiatives based on pan-industry contractual arrangements, subject to provisions of the Commerce Act and the terms set out in its constitution.¹⁸

Since November 2005, members of Gas Industry Company have included ten diverse businesses; the major gas industry players:

- *producers* — OMV New Zealand Limited, Shell (Petroleum Mining) Company Limited, Swift Energy New Zealand Limited;
- *pipeline businesses* — NGC Holdings Limited, Powerco Limited, Vector Limited, and Wanganui Gas Limited; and
- *wholesale and retail market participants* — Contact Energy Limited, Genesis Power Limited, Mighty River Power Limited.

Some of these companies have interests in other parts of the value chain.

Gas Industry Company has a board of seven directors; four independent of the gas industry (including the Chair) and three non-independent directors.

Under its constitution, as required by the Gas Act, Gas Industry Company must report regularly to the Minister on¹⁹:

- the performance and present state of the New Zealand gas industry;
- Gas Industry Company's performance and achievement of its objectives; and
- any other matters the Gas Industry Company thinks fit or the Minister requests in writing.

2.5 Gas retail regulation

Complaints Resolution

The Government has amended the Gas Act to require every gas distributor and every gas retailer to participate in a complaints resolution system that is approved by the Minister for the purpose of addressing complaints relating to those gas retailers and gas distributors by all or any of:

- small consumers (including potential small consumers);
- owners and occupiers of land into, through, or against which pipelines have been laid down or placed.

We describe the industry's work to establish these arrangements in Section 6.3.

¹⁸ Gas Industry Company 2006, *Strategic Plan 2007-09*, June, p. 8.

¹⁹ *Constitution of Gas Industry Company Limited*, as amended on 1 May 2006, section 4.4.

Regulation of retail

The Gas Act was also amended to allow the Government to regulate retail prices. Section 43H of the Gas Act 1992 permits the Minister of Energy to make regulations to ensure that gas providers offer a low fixed charge tariff option or options for delivered gas to domestic consumers that will assist low-use consumers and encourage energy conservation.

We describe the industry's work on this matter in Section 6.3.

2.6 Safety regime

The Government brought forward the Energy Safety Review Bill, which amends the Gas Act with relation to the registration and licensing of gas workers, plumbers and drainlayers as well as electricity workers, safety management systems and accident notification.

On 21 June 2005, the Government referred the Bill to the Commerce Commission for review. The Commerce Commission recommended in June 2006 that the sections dealing with gas workers be separated to create another bill — the Plumbers, Gasfitters and Drainlayers Bill — and that further consultation with the Plumbing, Gasfitting and Drainlaying Training Organisation continues.

In effect, the Government is in the process of creating new regulatory arrangements in relation to gas workers with which the gas industry will need to comply.

2.7 Exploration incentives

The Crown has responded to the looming gas shortage through a range of measures that reduce the overhead costs of exploration activity, and improve the profitability of newly developed fields. These reforms, introduced in May 2004, represent a stimulus to gas exploration. They apply for the period 30 June 2004 to 31 December 2009, and include²⁰:

- reducing the ad valorem royalty rate from 5 per cent to 1 per cent for gas (oil will remain at 5 per cent) for discoveries made within the period;
- allowing a deduction in relation to the accounting profit royalty on production from discoveries, within the period, of exploration and prospecting costs incurred in New Zealand and allowing such costs to be carried forward with interest;
- reducing the accounting profit royalty from 20 per cent to 15 per cent on the first \$750 million [cumulative] gross sales of petroleum offshore and the first \$250 million [cumulative] onshore on discoveries within the period;
- \$15 million over three years for seismic mapping and increased resources to Crown Minerals to promote New Zealand overseas as a petroleum prospecting destination; and
- a review of the tax rules applying to non-resident drilling rig operators, aspects of the capital treatment of development expenditure, and the application of certain GST rules to the oil and gas industry.

²⁰ Ministry of Economic Development 2004, *Government Boost for Gas Exploration*, 14 June.

Subsequent implementation activities include²¹:

- acquiring and interpreting seismic and other technical data to better attract competitive bids for exploration permits;
- improved information technology systems to make data readily and freely available to explorers;
- more frequent competitive tenders for permits in frontier petroleum basins;
- targeted marketing to bring larger international exploration companies to New Zealand;
- enforcing licence-holder obligations more rigorously by requiring them to carry out their projected work programmes; and
- removing tax rules that had created incentives for companies to keep offshore drilling rigs and seismic vessels in operation for less than 183 days in New Zealand waters.

The Government is currently seeking competitive bids for block offers of exploration permits for Great South Basin, where petroleum exploration permits will be allocated to those persons who are most likely to effectively and efficiently prospect or explore and develop the petroleum resource²².

2.8 Review of regulatory frameworks

In May 2006, the Minister for Commerce announced a review of the regulatory control provisions and the authorisation and clearance provisions of the Commerce Act. These provisions relate to the gas industry among others.

The review will consider whether the Act is aligned with the Government's policy objective to ensure that the imposition of regulatory control is consistent with providing for the long-term benefit of consumers within New Zealand.

The review will look to ensure:

1. there is clarity around the policy intent of imposing control;
2. there is appropriate guidance for business and regulators on when control is likely to be imposed;
3. there is appropriate guidance for business and regulators on how regulatory control should be imposed; and
4. there are effective and efficient processes to determine when and how control is imposed.

The review has just commenced and is planned to be complete by September 2007 after a process involving extensive consultation.

²¹ International Energy Agency 2006, *New Zealand 2006 Review, Energy Policies of IEA Countries*, pp.115-6.

²² Ministry of Economic Development Crown Minerals 2006, *Strike now, Great South Basin Petroleum Permit Blocks Offer Notice*, August, p. 2.

2.9 Implications for the gas industry

Challenges for the co-regulatory model

The model of co-regulation in the New Zealand gas industry is innovative and brings with it a great opportunity for the gas industry to bring forward practical and effective market and regulatory development solutions. In many other jurisdictions, solutions would be dictated by governments or regulators albeit after some consultation with the industry. The New Zealand gas industry has something of great value to it.

In return for giving the industry this opportunity to drive market and regulatory development, the Government expects the industry to fund, cooperate, support and contribute voluntarily to the Gas Industry Company's work program. Accordingly, the Gas Industry Company has no powers to direct the industry or gain information.

The success of Gas Industry Company will largely depend on the insight and expertise it brings to bear on its challenges and the willingness of its board and membership to support the new initiatives necessary to bring about the outcomes the Government expects. If Gas Industry Company fails to do this, the Government will create the Energy Commission (incorporating the Electricity Commission) that will substantially reduce the industry's ability to lead and bring forward market and regulatory solutions.

For this reason, we believe that an appropriate performance indicator for the industry is the extent to which industry participants in each sector are supporting the Gas Industry Company to bring forward the industry-led solutions expected in the 2004 GPS (see Section 7.2).

The emerging energy policy

The 2004 GPS sets out a very challenging range of areas with which the industry body must deal in terms of making the industry more market orientated and efficient. The explicit outcomes being sought in the 2004 GPS are reasonably consistent with one another and the operation of a well functioning infrastructure industry. They are also consistent with driving market outcomes that seek to make the best use of a valuable resource and thereby promote sustainable outcomes.

In particular, the 2004 GPS is precise about how the Government expects the gas industry to achieve a number of specific outcomes — for example, it expects that the gas industry:

- facilitates and promotes the on-going supply of gas to meet New Zealand's energy needs by providing access to essential infrastructure and competition market arrangements; and
- contributes to achieving the Government's climate change objectives by minimising gas losses and promoting demand-side management and energy efficiency.²³

²³ Sections 5 (a) and (j) of the 2004 GPS.

However, the related policy documents embedded in the 2004 GPS could create a number of additional objectives, which could go beyond the development of market and regulatory solutions outlined in the GPS. The Government has signalled its intent to publish a draft New Zealand Energy Strategy very soon. As we mentioned earlier, while preparing the draft, the Government has been considering how New Zealand's energy system might respond to a range of 'hypothetical changes to the business environment'²⁴, several of which include substantial reductions in the direct and indirect consumption of natural gas.

For this reason, when the draft NZES is released later this year, the Government needs to give careful consideration to the wording of its government policy statement on gas governance to ensure that it seeks outcomes from the industry that are reasonably consistent with one another and consistent with the NZES, and that it also continues to be clear about how these outcomes are to be achieved within the commercial environment in which the industry operates.

²⁴ Ministry of Economic Development 2006, *New Zealand's energy outlook to 2030*, 18 August, p. vii.

Chapter 3

Production and processing

Gas production and processing represent the supply base for the gas industry in New Zealand. Efforts to encourage exploration for, and the production and processing of, gas need to be aligned with economy-wide objectives of delivering a reliable supply of quality gas to the New Zealand users at the lowest price possible.

3.1 Sector definition

Gas production and processing, as examined here, takes in the activities that precede the transmission of wholesale gas. It includes:

- exploration efforts focused on discovering and proving new supplies of commercially exploitable natural gas (often jointly associated with oil exploration activities);
- extraction of gas from underground deposits;
- processing of gas to remove impurities (for example, water vapour, carbon dioxide, etc) and make it ‘market ready’; and
- consideration of opportunities to obtain bulk natural gas from other markets (for example, LNG or CNG supplies from overseas), as an alternative source of gas supply.

This definition straddles a range of activities, strategic issues, businesses and challenges. As a basis for examining these issues and interrelationships it is useful to quickly overview the key resource and its ownership within the industry. The interplay of resource availability, market structure and regulatory requirements and incentives is a key driver of action, and efficiency outcomes, within a sector. In the same way that we can better understand the operation of downstream gas markets by understanding the production and processing sector, to fully understand production and processing, we also need examine what is happening within the exploration sector. For this reason, this Chapter 3 touches on key issues in exploration where relevant.

3.2 Market structure

Production

At present, New Zealand’s gas supplies are dominated by reserves in the Taranaki region, with the Maui field having been by far the largest. Maui production is supplemented by a range of smaller fields including Kapuni, McKee, TAWN and Mangahewa. The relative size and ownership of these fields is shown in Table 4.1. In all, 12 gas fields are currently supplying New Zealand’s natural gas needs.

In recent weeks, gas has started to flow from the Pohokura field development in off-shore Taranaki.²⁵ Pohokura is the largest petroleum discovery in New Zealand since Maui.

The consortium of Shell, Todd and OMV continue to dominate the production sector, especially the three biggest fields (Pohokura, Maui and Kapuni), with a high level of diversity in the ownership of the smaller fields by independent oil companies²⁶ from the United States, New Zealand and Australia and, increasingly, by electricity generator Genesis Power.

²⁵ Oilvoice 2006, *Shell announces first gas from Pohokura, New Zealand*, 16 August.

²⁶ Independent oil companies are those not associated with the six major oil companies: Shell, ExxonMobil, Chevron, Total, Eni and ConocoPhillips.

Table 3.1

CURRENT NEW ZEALAND GAS PRODUCERS - FIELD OWNERSHIP, PRODUCTION SHARES, AND THEIR RESERVES AS AT 1 JANUARY 2006

Fields	Ownership (directly or through subsidiaries)	Operator	Production year ending Sep 2005	Onshore/ Offshore	Ultimate recoverable reserves (PJ)	Remaining Reserves (PJ)
Pohokura	Shell 48% OMV 26% Todd Energy 26%	Shell Todd Oil Services	0.0%	Offshore	753	753
Maui	Shell 83.75% OMV 10.00% Todd 6.25%	Shell Todd Oil Services	64.5%	Offshore	3,965	519
Kapuni	Shell 50% Todd 50%	Shell Todd Oil Services	16.5%	Onshore	1,548	402
Turangi	Greymouth Petroleum 100%	Greymouth Petroleum	0.0%	Onshore	147	147
McKee	Todd 100%	Todd	5.7%	Onshore	196	63
Mangahewa	Todd 100%	Todd	4.4%	Onshore	78	40 ²⁷
Kauri	Swift Energy 100%	Swift Energy	0.0%	Onshore	45	36
TAWN (Tariki, Ahuroa, Waihapa and Ngaere)	Swift Energy 100%	Swift Energy	4.5%	Onshore	155	31
Rimu	Swift Energy 100%	Swift Energy	4.3%	Onshore	24	21
Kaimiro/ Ngatoro	Greymouth Petroleum 100%	Greymouth Petroleum	0.1%	Onshore	28	9
Surrey	Westech Energy 100%	Westech Energy	0.0%	Onshore	0.5	0.5
Cheal & Cardiff	Shallow Petroleum JV ²⁸ Deep Petroleum JV ²⁹	Austral Pacific	0.0%	Onshore	6	6
Total			100.0%		6,946	2,027

Source: Ministry of Economic Development 2006, *Energy data file*, January, pp. 90, 92-3; Swift Energy 2002, *Press release, Swift Energy completes acquisition of Rimu/Kauri and TAWN assets in New Zealand*, 2 October; <http://www.greymouthpetroleum.co.nz/about.html>; <http://www.crownminerals.govt.nz/petroleum/docs/facts/producing-gas-reserves.xls>; and <http://www.companies.govt.nz/>; and GANZ 2006, *New Zealand gas matters*, October. p. 3.

Note: Reserve figures are based on the assumption that 1 billion cubic foot of gas equates to 1.075 PJ of energy.

The owners of a number of new gas fields have been granted mining permits for the development of the fields listed in Table 3.2.

²⁷ After publication of the Ministry of Economic Development's *Energy data file* in January 2006, the GANZ has indicated that a new well drilled into the Mangahewa field could produce a further 250 PJ.

²⁸ Shallow Petroleum Joint Venturers: Austral Pacific (36.5%), Arrowhead Energy Limited (33%), and TAG Oil Limited (30.5%). Austral Pacific Energy Ltd has signed a heads of agreement to acquire all the shares of Arrowhead Energy.

²⁹ Deep Petroleum Joint Venturers: Genesis Power (40%), Austral Pacific (25.1%), International Resource Management Corporation Limited (19.8%), and TAG Oil (15.1%).

Table 3.2

GAS RESERVES, NON-PRODUCING FIELDS AS AT 1 JANUARY 2006

Field	Ownership (directly or through subsidiaries)	Operator	Onshore/Offshore	Expected first production	Estimated recoverable reserves (PJ)
Kupe	Origin Energy Resources 50% Genesis Power 31% Mitsui & Co. 4% New Zealand Oil & Gas 15%	Origin Energy Resources	Offshore	4th quarter 2008	310
Radnor	Bridge Petroleum 33% TAG Oil 33% Westech Energy NZ 33%	TAG Oil	Onshore	4th quarter 2006	19
Windsor	Westech Energy 100%	Westech Energy	Onshore	Unknown	1
Total					330

Source: <http://www.crownminerals.govt.nz/petroleum/docs/facts/non-producing-gas-reserves.xls>;
<http://www.crownminerals.govt.nz/petroleum/permits/current.asp?resultStart=81>; and <http://www.companies.govt.nz/>.

Note: Reserve figures are based on the assumption that 1 billion cubic foot of gas equates to 1.075 PJ of energy.

Processing

These fields supply gas to a range of processing facilities, often as part of a vertically integrated operation — ownership of gas fields and processing facilities tends to be closely aligned. Recent advice to the Gas Industry Company from local gas producers points to 13 current and committed facilities of various sizes, with a handful of these dominating current capacities. These align with, and are situated near, the fields that they service. There are five main plants in operation (see Table 3.3):

- Oaonui (owned by Shell, Todd and OMV);
- Pohokura (owned by Shell, Todd and OMV).
- Kapuni (owned by Vector);
- Waihapa (owned by Swift);
- Rimu (owned by Swift); and

Table 3.3

CURRENT AND COMMITTED PROCESSING FACILITIES

Facility	Owner(s)	Estimated capacity (PJ pa)	Estimated utilisation
Oaonui (Maui)	Shell/Todd/OMV	175	25% average 55% peak
Pohokura	Shell/Todd/OMV	80	100%
Kapuni (upstream)	Shell/Todd	70	40%
Kapuni-KGTP (no CO ₂ removal)	Vector	52	0%
Kapuni-KGTP (CO ₂ removal)	Vector	26	90%
Kupe	Origin/Genesis/NZOG/Mitsui	20-25	80-100%
Waihapa (TAWN)	Swift	17	30%
Mangahewa	Todd	12	100%
Rimu/Kauri	Swift	10	50%
McKee	Todd	8	100%
Radnor	Bridge/Westech	4	0%-100%
Kahili Separation	Vector	1.73	0%
Kaimiro	Greymouth Petroleum	1.2	100%
Total		477-482	

Source: Gas Industry Company 2006, *Access to Gas Processing Facilities, Discussion paper*, August. p. 23.

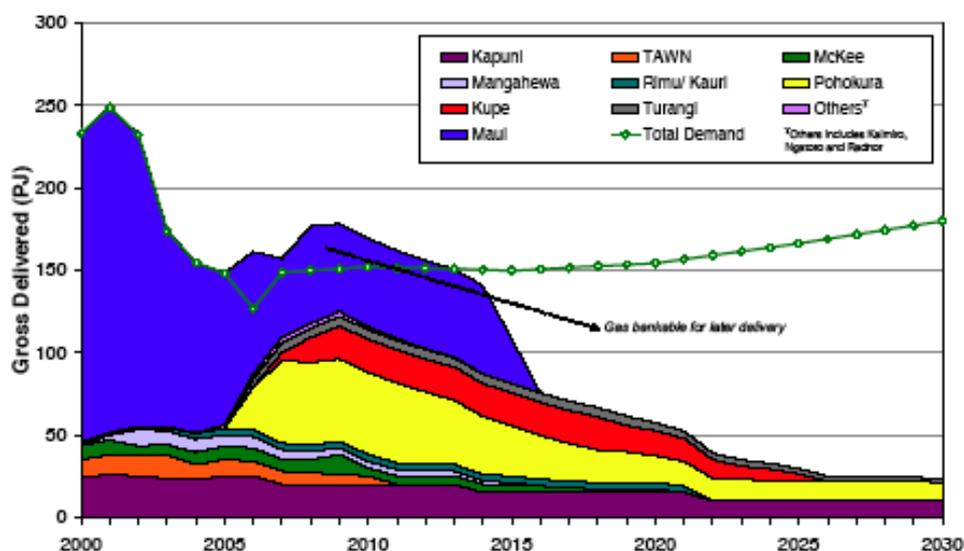
Depletion of the Maui gas field

Maui has traditionally supplied around two-thirds of New Zealand's natural gas. In 2003 a review of Maui reserves indicated they are depleting fast and likely to be exhausted by 2010 — or soon after. Unless significant reserves are discovered there is likely to be a scarcity of gas in New Zealand.

This development is a key driver of new exploration activity and the search for alternative sources of gas supply (including options for importing gas). Figure 3.1 indicates the declining output of the Maui field and others. Past experience also indicates that development and commercialisation of a new field can have a lead time of several years, leading us to the conclusion that discovery and development of additional new fields is reasonably urgent.

The effectiveness of the supply-response in mitigating a looming gas shortage, and potential economic disruptions associated with that, is a key litmus test for the efficiency of the New Zealand gas market and the policy and regulatory regime that attenuates it.

Figure 3.1

GAS PRODUCTION FROM NZ FIELDS — 2000 TO 2030 (PROJECTIONS)

Source: Ministry of Economic Development 2006, *New Zealand's Energy Outlook to 2030*, August, p. 7-1.

3.3 Industry-led market developments in the production and processing sectors

Exploration and new production

In the absence of gas imports, exploration sustains the production and processing sectors and the rest of the gas industry.

Oil and gas exploration is an expensive and high risk exercise. Past experience in New Zealand (since discovery of the Maui field) indicates a 'strike' rate of about 1 in 8.5 wells — and commercial deposits are even rarer. Typical costs are highlighted in the Cabinet Paper put forward by the Minister for Energy dealing with gas exploration incentives:

- mobilisation for off-shore drilling costs in the range \$3-5 million, (assuming local deployment from the North West Shelf area of Australia);
- mobilisation for onshore drilling averaging around \$200,000;
- mobilisation of a seismic survey ship from Australia costs around \$2 million;
- drilling costs for offshore wells of around \$10 million for one well, \$6 million for a second, and \$5 million for a third.³⁰

³⁰ Hon Pete Hodgson, Minister of Energy 2004, *Gas Exploration Incentives: Cabinet Paper*, 15 June, paras 21-23.

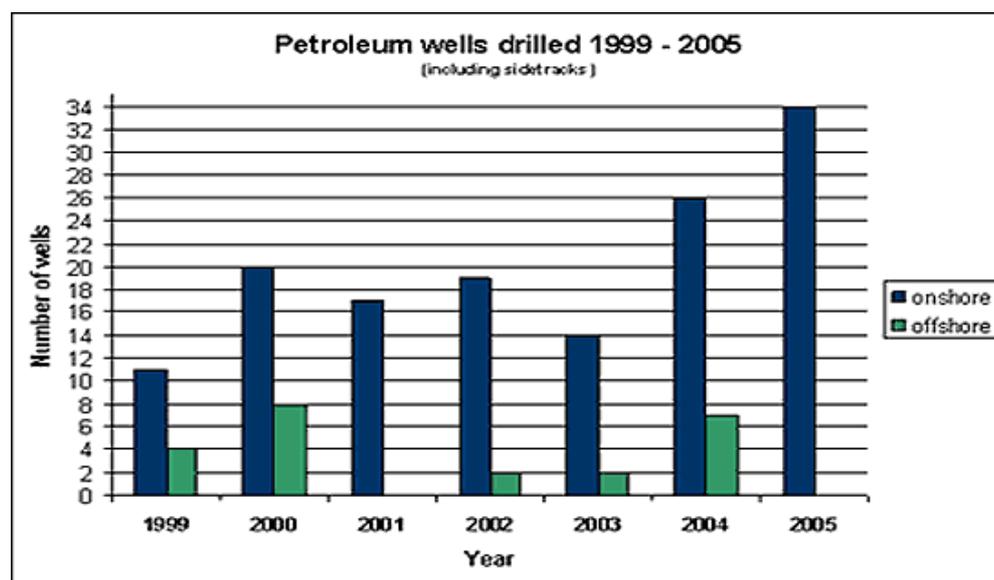
Nevertheless, the fiscal incentive package offered, combined with market-based incentives to address a looming shortage situation, appear to have stimulated a significant upswing in exploration activity (see Figure 3.2). Crown Minerals data indicates that the momentum established since 2004 has continued in more recent times. This exhibited in both the number of new drill sites and the depth of holes sunk.

In the first half of 2006, 15 new exploration and development wells were drilled, including the longest well yet recorded in New Zealand — a 7409 metre well drilled from an on-shore location to access an offshore target in the Pohokura field. Operators included Shell Todd Oil Services, Swift Energy, Austral Pacific, and Greymouth Petroleum. An additional 19 wells are planned for 2006, including two in the Canterbury area (one on-shore, the other off-shore).

There are five new oil fields scheduled to be developed over the next 24 to 36 months, three of which — Kupe, Turangi and Radnor — will produce gas. At least 20 wells will be drilled during the development of these fields. In addition, at least one development well was expected to be drilled from the Maui-A platform during the first half of 2006 to tap into additional reserves accessible from the current Maui- infrastructure.

Figure 3.2

PETROLEUM OIL AND GAS EXPLORATION ACTIVITY, 1999 TO 2005



Source: Ministry of Economic Development 2006, Petroleum data
(<http://www.crownminerals.govt.nz/petroleum/facts/all/wells-drilled.html>)

Exploration companies continue to seek oil and gas exploration permits in New Zealand. In 2003, 2004 and 2005, the Government issued 15, 31 and 11 permits, respectively. In 2005, the Government made four block offers:

- seven blocks covering 8,500 square kilometres were offered in offshore Taranaki;

- four blocks covering 43,300 square kilometres were offered offshore to the east of the North Island;
- five blocks covering 34,700 square kilometres were offered north-west of the North Island; and
- three blocks covering 33,700 square kilometres were offered further offshore at Taranaki.

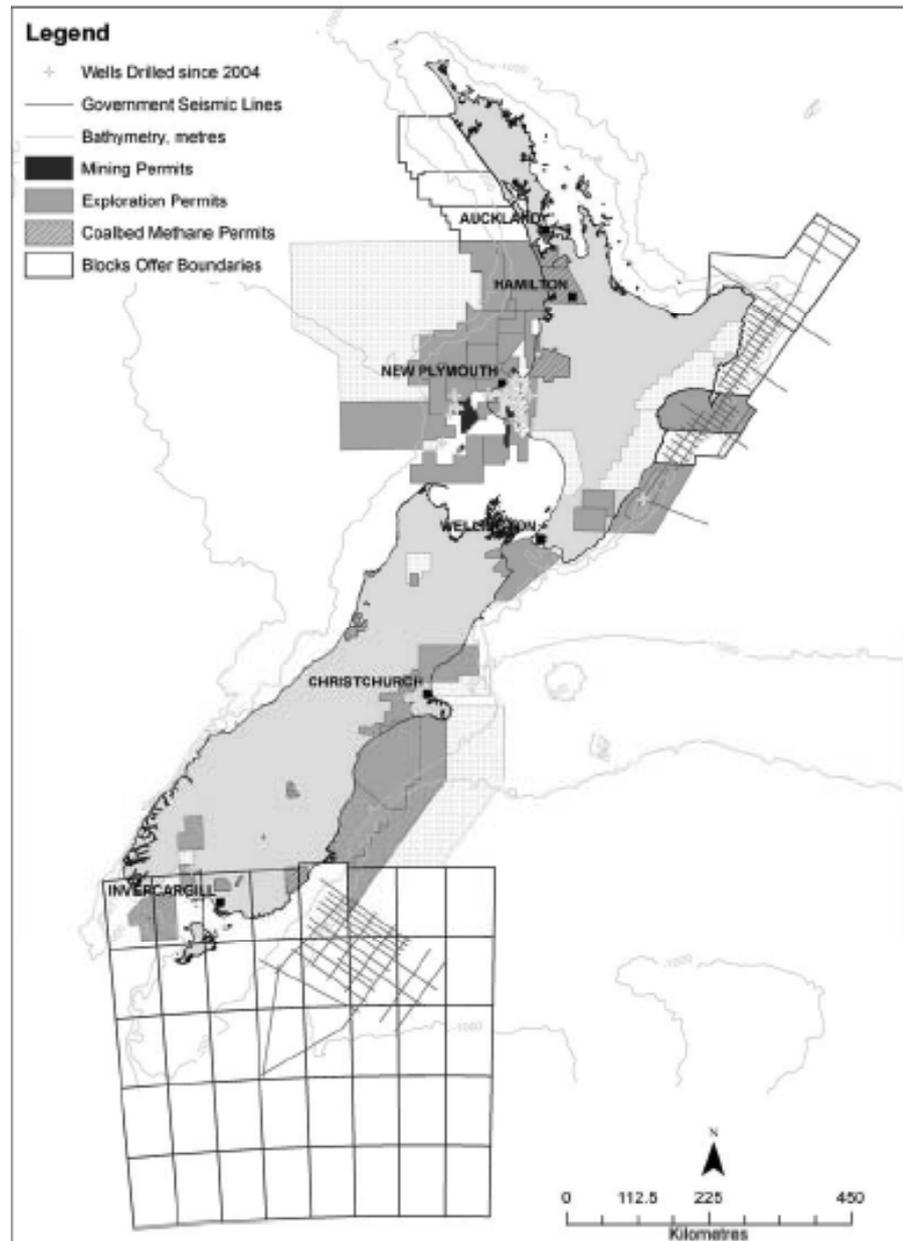
Permits for blocks covering over 11,000 square kilometres were awarded in February 2006 with decisions on the other blocks pending.

The Government is now offering an additional 40 blocks covering about 9,000 square kilometres in the Great South Basin — the southern offshore region of the South Island. Any natural gas discoveries in the Great South Basin would require a significant investment in domestic transportation infrastructure as there is currently no means of delivering natural gas from the South Island to users in the North Island.

A summary of current and planned drilling activity for 2006 is shown in Appendix D. Geographical representation of this activity is shown below in Figure 4.3.

Figure 3.3

MINING AND EXPLORATION PERMITS, AND WELLS DRILLED SINCE 2004



Source: J.M. (Mac) Beggs 2006, *Oil and Gas Exploration Status and Outlook*, 8th Annual New Zealand Energy Summit, July 18, Figure 4.

Gas import options

As indigenous gas becomes scarcer and more costly to extract, alternative sources of gas are being considered. Imports of liquefied and compressed natural gas (LNG and CNG) are an option for New Zealand, and the economics of this will be a key factor conditioning attitudes toward further exploration and development of marginal gas deposits.

Work by NZIER highlights the likely costs and infrastructure requirements of an LNG gas import strategy. These have been estimated at around \$550-600 million for a receiving and regasification facility with a capacity of around 60 PJ a year. The NZIER study also indicates potential gas prices (ex-terminal, and accounting for commodity price, shipping cost and exchange rate variations) in the range \$6.46 to \$9.45 per GJ.³¹ In 2005, Contact Energy and Genesis Energy co-sponsored a study on the feasibility of LNG imports, including a technical analysis of two of the most favourable delivery sites, which had been identified as Taranaki and Marsden Point (Whangarei). Contact is also investigating CNG options, which are more scalable to the New Zealand market.³²

Options for importing CNG are also being considered by Vector — although this technology, which obviates the need for an expensive regasification facility, is not yet commercially proven.³³

Review of potential open access requirements for processing facilities

As current gas fields run down, access to processing facilities becomes a potential ‘barrier to entry’ issue for new entrants considering development of new gas fields. The International Energy Agency notes the growing incidence of players in the downstream gas market engaging in gas exploration activity. Companies highlighted include Contact Energy, Genesis Energy, Mighty River Power, Methanex and Origin Energy.³⁴ This activity denotes an outlook of ‘contestability’ in the upstream gas market that could hinge on competitive access to on-shore processing facilities.

The recent Gas Industry Company discussion paper on this issue highlights the need for development of these access opportunities in the future, and transparency around the availability of spare processing capacity.³⁵

Costs of gas processing facilities have recently been closely scrutinised as part of the Gas Industry Company’s discussion of the need for access arrangements for third party gas producers. An extensive review of the economics and likely production costs of New Zealand gas treatment facilities was undertaken by Transfield Worley as background to that proposal.³⁶

The technical analysis suggests that while some economies of scale are likely to exist in gas processing (and larger plants are likely to have a cost advantage over smaller ones in terms of per unit processing costs) this advantage is unlikely to be so strong as to deter new players. Their estimate of the relationship between output and unit costs is shown in Figure 3.4.

³¹ NZIER 2005, *LNG: Everything you wanted to know but were afraid to ask ...*, NZIER working paper, February, pp. 20-22.

³² Contact Energy 2005, *Six Month Report to 31 March 2005*, p. 4.

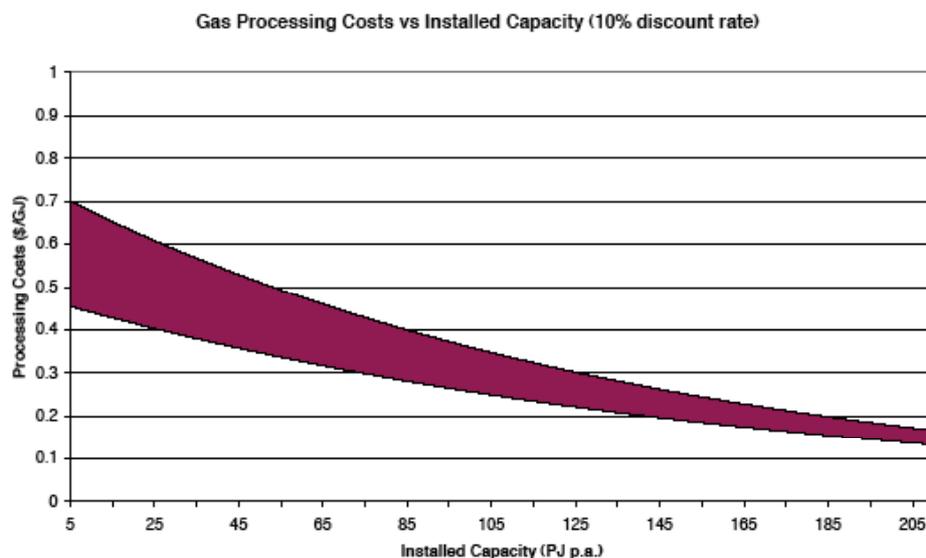
³³ Michael Cummings 2006, *Gas Market Outlook, presentation to the National Power Conference*, 2 March.

³⁴ International Energy Agency 2006, *New Zealand 2006 Review, Energy Policies of IEA Countries*, p. 118.

³⁵ Gas Industry Company 2006, *Discussion paper, access to gas processing facilities*, August.

³⁶ Transfield Worley 2006, *Cost Characteristics of Gas Processing Plants in New Zealand*, contained in Gas Industry Company 2006, *Discussion Paper, Access to Gas Processing Facilities*, Appendix III.

Figure 3.4



Source: Transfield Worley 2006, *Cost Characteristics of Gas Processing Plants in New Zealand*, in Gas Industry Company 2006, *Discussion paper, Access to Gas Processing Facilities*, Appendix III (p.18).

Transfield Worley's view is that actual practice indicates the preparedness of new market entrants to compete on the basis of small scale gas processing facilities, and the implication (backed up by their modelling) that lack of scale is not a significant impediment to competition. This is particularly the case when compared with pipeline construction costs — which represent a much greater impost and potential deterrent to new entry.

The Gas Industry Company also noted the concerns of several of the existing and potential gas producers (Bridge Petroleum, Contact Energy, Mighty River Power, NZOG, and Todd) obtaining access to liquid storage, which they believe could be defined as being included in gas processing facilities.³⁷ This is because liquid storage can become a bottle-neck that affects a gas producer's ability to get gas to market.

Overall, the availability of low cost technologies with relatively short installation lead times indicates a reasonable level of contestability in the industry, and it is likely that additional spare capacity could be made available through plant expansions. For this reason, the Gas Industry Company has suggested to the industry that a voluntary information disclosure regime be implemented and has sought the industry's response. On the basis of its consideration of the industry's views, it intends to make a recommendation to the Minister in June 2007 and bring into operation the recommended arrangements in November 2007.

³⁷ Gas Industry Company 2006, *Discussion Paper, Access to Gas Processing Facilities*, Appendix III, pp. IV-5 (Bridge Petroleum), IV-27.

We note the substantial amount of processing capacity already in place. While the construction of new processing facilities might be commercially feasible for new entrants, it is not necessarily efficient. The Gas Industry Company's proposed information disclosure regime will be useful in identifying when inefficient investments in new production facilities might have to be contemplated.

3.4 Strategic challenges in the production/processing sectors

Attractiveness of New Zealand for new entry investment

New Zealand competes with many other countries for investment in exploration, production and processing of natural gas, and world-wide there is a short-fall in investment to meet growing gas demand.³⁸ Its remoteness, small economy and complex geology create particular challenges.³⁹ Procurement managers in the oil and gas sectors have experienced problems with the availability and supply of hardware for all aspects of upstream activity.⁴⁰ However, its political and commercial stability and financial concessions have placed it within the top 20 countries in terms of exploration attractiveness. Despite this, New Zealand has been largely unsuccessful in attracting large-scale exploration — and ultimately production and processing — investment from any of the major oil companies other than Shell, which has a dominant role. This situation may continue for some time given that no other major oil company has an interest in any current New Zealand exploration permit.⁴¹ Some commentators believe that large new investment by other major oil companies in off-shore drilling is important to the reestablishment of substantial gas reserves. It remains to be seen whether any of the major oil companies other than Shell secure any of the exploration blocks currently on offer in the Great South Basin and whether any of the majors enter the production market.

In the meantime, the number and size of most of the existing and new entrant production and processing companies on New Zealand remains small, and all reasonable efforts need to be made to remove inefficient barriers to their further investment, if any remain, to ensure the most efficient operation of the sector.

We note the Gas Industry Company's work to consider establishing third party access to production facilities, which could include liquid storage. While we have not identified any other such avenues of investigation, we encourage any prospective new entrants to bring forward their ideas to the Gas Industry Company.

³⁸ International Energy Agency 2006, *Natural gas market review 2006, Towards a global gas market*, 16 June, p. 13.

³⁹ Haines, L. 2002, 'New Zealand', *Oil and Gas Investor*, April.

⁴⁰ British Trade International 2004, *The oil and gas market in New Zealand: a sector summary*, January, p. 16.

⁴¹ <http://www.crownminerals.govt.nz/petroleum/permits/current.asp?permitarea=all>

We also note the New Zealand Government's consideration of low-carbon energy supply scenarios, one of which involves the discouragement of new gas-fired generation.⁴² The prospect of such a policy approach could reduce the attractiveness of New Zealand as an exploration investment destination, and neutralise the incentives created by the Government's fiscal concessions to encourage new exploration and production, even that necessary to sustain the currently installed gas-fired capacity and other customer demand in the medium to long term. This is particularly the case given that gas-fired generation is the largest source of current and potential future demand for gas by far. Gas businesses with large stakes in electricity generation have a substantial challenge to secure gas over time and avoid their assets being stranded, and the Government has a substantial challenge to find a balance in its policy approach.

⁴² Ministry of Economic Development 2006, *New Zealand's Energy Outlook to 2030*, 8 August, p. 11-3.

Chapter 4

Transmission and wholesale

With the decline of the Maui gas field, New Zealand transmission and wholesale businesses are in a phase of major transition and the whole landscape in which transmission capacity and wholesale gas is traded is changing. This makes this sector an area of considerable focus for our report.

4.1 Sector definitions

Transmission

The transmission sector is the sector in which businesses provide and use high-pressure gas transportation services between production sites (injection points) and end users or distribution networks (delivery points). Our analysis of the sector will focus on the initial purchasing of transmission capacity and the balancing mechanisms currently employed for maintaining the security of the pipeline system.

Wholesale trading

We have defined the wholesale sector as the sector in which there is:

- primary and secondary trading in gas between producers and other wholesale participants (retailers, electricity generators and wholesale end-users) including trading in imbalance gas; and
- secondary trade in transmission capacity between transmission pipeline users.

Link between transmission and wholesale

Transmission services and wholesale gas are perfect complements. They are perfect complements because transmission services have to be purchased with wholesale gas.

It is important to recognise that the mechanics of the pipeline system are inexorably linked to the wholesale market. The wholesale arrangements are not only dependent upon suitable transmission arrangements but they are designed to enhance the efficiency and integrity of the pipeline system through the trading of gas and capacity. For this reason we have dealt with the transmission and wholesale trading sectors together.

4.2 Market structure

We describe the structure of the transmission and wholesale sectors in terms of:

- transmission pipeline owners;
- welded parties;
- transmission operators and shippers' agents;
- producers; and

- shippers.

Transmission pipeline owners

The transmission pipelines in New Zealand consist of:

- the Vector Transmission (VT) pipelines;
- the Maui pipeline owned by Maui Development Limited (MDL); and
- smaller pipeline systems owned by gas producers.

In our review, we have concentrated on the two major transmission pipelines; however, we list the smaller ones below for completeness.

Vector Transmission pipeline

Combined, the transmission pipelines owned by VT are the longest in New Zealand. They transport gas, mostly from the gas fields in Taranaki, to load centres across the North Island.

The five pipelines are⁴³:

- *The Central pipeline* — running from Kapuni to Huntly alongside the MDL pipeline. It is the largest of the Vector systems in terms of capacity and the backbone from which all the other subsystems radiate. Over recent years, it has been well utilised;⁴⁴
- *The North Pipeline* — running from Huntly north, to Auckland and on to Whangarei;
- *The Bay of Plenty pipeline* — running from Pokuru to the Bay of Plenty and Gisborne. It has been operating at around 50 per cent capacity;
- *The Frankley Road system* — a short arterial running between the Maui pipeline at Frankley Road and the Kapuni production station; and
- *The South Pipeline* — running from Kapuni south, down to Wellington and across Hawkes Bay.

For the purpose of calculating an optimised deprival value (ODV) of its transmission pipelines, VT assumes an asset life of 65 years. As of 2002, the average remaining life of the transmission pipelines was 42 years.⁴⁵ In 2005, the VT transmission assets had an ODV of \$472.7 million.⁴⁶

⁴³ Gas Industry Company 2006, *Discussion paper, Gas transmission access issues review*, June, p. 124.

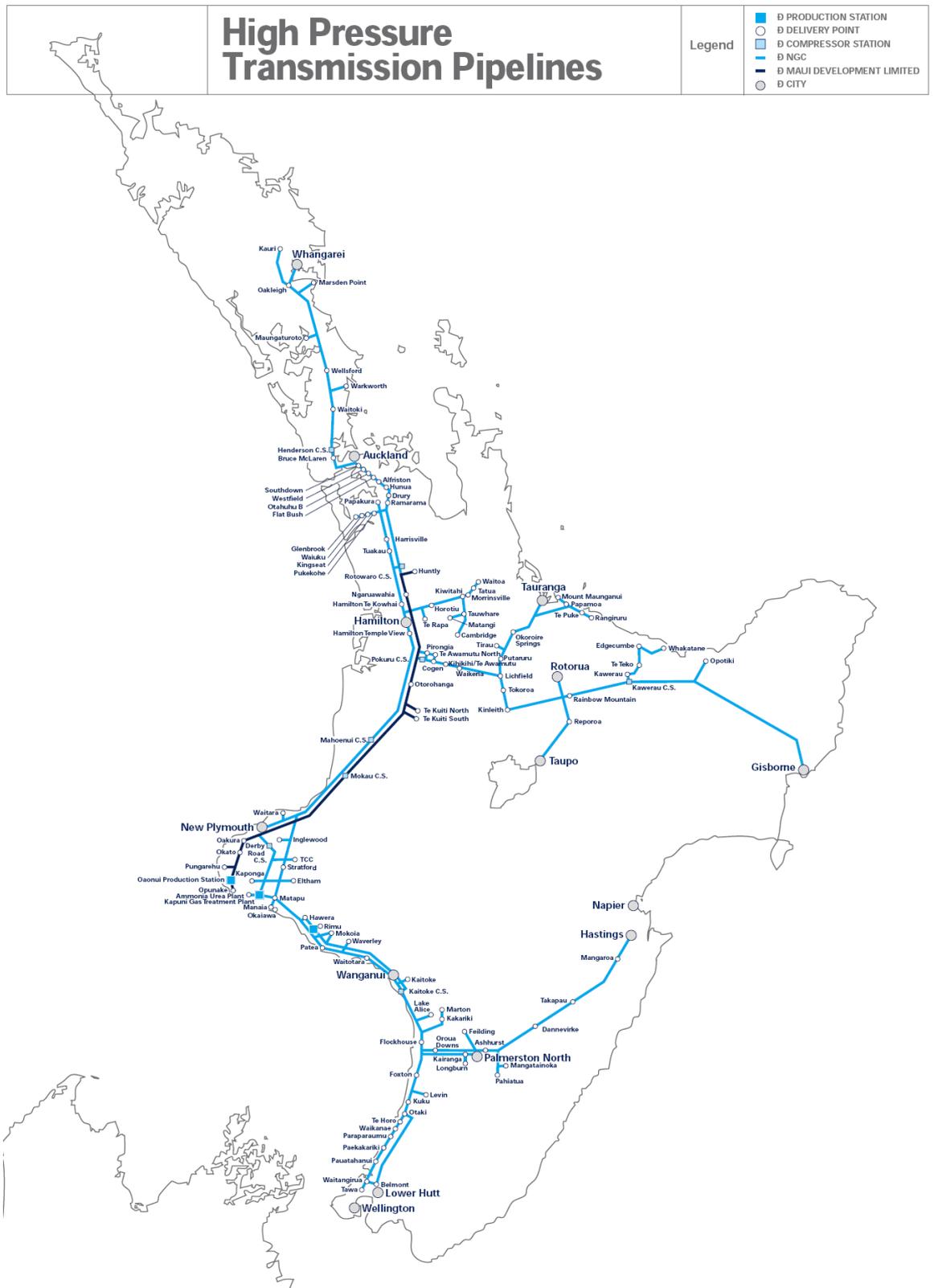
⁴⁴ PriceWaterhouseCoopers 2004, *Ministry of Economic Development, Infrastructure stocktake, Infrastructure audit*, p. 75.

⁴⁵ PriceWaterhouseCoopers 2004, *Ministry of Economic Development, Infrastructure stocktake, Infrastructure audit*, p. 76.

⁴⁶ NGC New Zealand Limited, *Information for disclosure pursuant to the Gas (information disclosure) regulations 1997*, p. 5029.

Figure 4.1

NEW ZEALAND GAS TRANSMISSION SYSTEM



Source: <http://www.gastransportation.co.nz/general/pipelinemap.pdf>.

Table 4.6 shows the capacity of these pipelines.

Table 4.1

VECTOR TRANSMISSION PIPELINES FOR YEAR ENDING 30 JUNE 2005

System	Length (km)	Gas conveyed (PJ)	Maximum monthly quantity (PJ/month)	Load factor
North & Central	827	54.05	5.17	87.44%
Bay of Plenty	612	12.46	1.23	83.48%
Frankly Road - Kapuni	83	16.41	2.12	63.89%
South	697	11.53	1.28	73.90%
Total	2,219			

Source: Vector Transmission 2005, *NGC-Gas Transmission Activities, Statement of Financial Performance, For the year ended 30 June 2005, For the purposes of the Gas (information disclosure) regulations 1997*, pp. 11 & 13.

The Maui transmission pipeline

The Maui pipeline runs from the Oaonui production station, the receiving point for Maui gas, to Huntly in the north. Originally built to transport Maui gas under a production contract that bundled both gas supply and transportation services, it is owned by MDL a joint venture company formed by the original Maui production companies that draw gas from the Maui field. These companies are:

- Shell (including subsidiaries) with 83.75 per cent;
- OMV New Zealand Ltd with 10 per cent; and
- Todd Petroleum Mining Company Ltd with 6.25 per cent.

On 6 March 2006, for what appears to be the first time, the Maui commercial operator provided to the Ministry of Economic Development data about the Maui pipeline for the year ending 30 September 2005 according to reporting requirements within the *Gas (information disclosure) regulations*.

Measuring 700 millimetres in diameter, the Maui pipeline is significantly larger than any other gas transmission system in New Zealand. Capable of carrying 125 PJ of gas per year into the Waikato area, this compares to around 10 to 11 PJ that the Vector system can transport into the same area.⁴⁷

⁴⁷ Commerce Commission, *Gas Control Inquiry, Final Report*, November 2004, p. 12.5.

Table 4.2

MDL PIPELINE CHARACTERISTICS FOR YEAR ENDING 31 DECEMBER 2005

Pipeline Segment	Length (km)	Nominal bore(mm)	Design MAOP (barg)	Gas conveyed in system peak week (MJ)
Oaonui – Frankly Road	43.9	850	72.4	2,287
Frankly Road – Huntly Offtake	246.7	750	72.4	1,879
New Plymouth power station lateral	9.0	500	49.6	0.232
Huntly power station lateral	8.7	400	49.6	0.183
Total	308.3			

Source: Maui Pipeline Early Open Access, Commercial Operator 2006, *Maui pipeline capacity disclosure, Year ending December 2005*, 1 March, pp. 4 & 10.

Other smaller pipelines

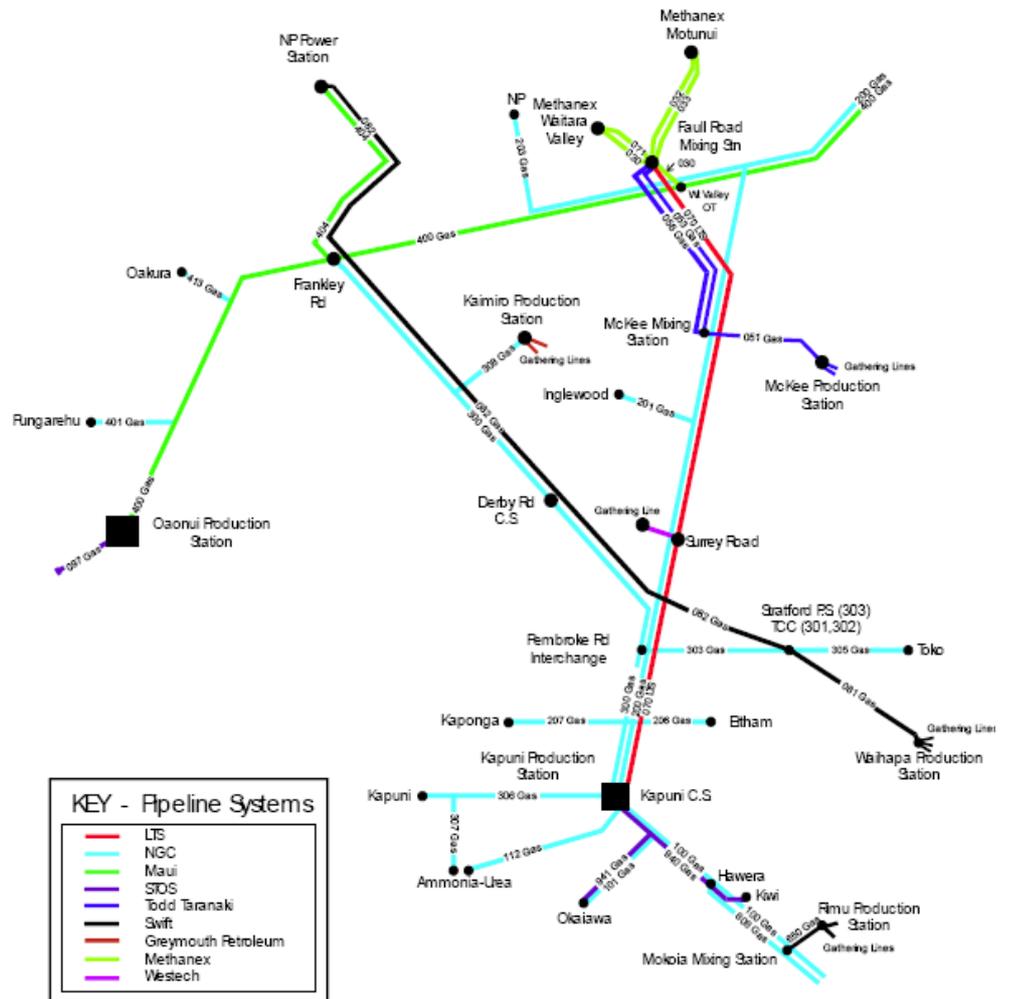
There are also smaller transmission pipelines⁴⁸ illustrated in Figure 4.2:

- *The LTS pipeline* (VT) — used to supply non-specification, high CO₂ gas from Vector's Kapuni gas treatment plant to Methanex's Waitara Valley methanol plant;
- *Kapuni to Hawera Pipeline* (Todd and Shell) — running from the Kapuni production station to the Kiwi co-generation station at Hawera;
- *TAWN Pipeline* (Swift Energy) — running from the Waihapa production station through to Stratford and on to New Plymouth;
- *Rimu to VT's South Pipeline* (Swift Energy) — running between Rimu production station to a tie in point on the VT system;
- *McKee Production Station to Faull Road* (Todd) — running from the McKee production station to the Faull Road mixing station; and
- *Surrey Road Pipeline* (Westech Energy) — carrying non-specification gas from the Surrey gas field to VT's LTS pipeline, a distance of around 1.2 kilometer.

⁴⁸ Commerce Commission 2004, *Gas control inquiry Final report, November*, Chapter 19, p. 19.1-8.

Figure 4.2

SMALLER TARANKI TRANSMISSION PIPELINES



Source: Natural Gas Corporation as cited in Commerce Commission 2004, *Gas control inquiry Final report, November*, p. 19.9.

Note: Natural Gas Corporation can now be taken to mean VT or Vector Transmission.

Characteristics of transmission network

Investments in gas transmission networks are lumpy, sunk and benefit from economies of scale. For this reason they are normally characterised as natural monopolies, which are unlikely to be duplicated where the network is not capacity constrained. It is unlikely, therefore, that existing transmission businesses face any real prospect of new competitive entry.

As overlaps in the transmission system are rare, there is usually limited scope for competition between suppliers of pipeline services. The Commerce Commission in its 2004 Gas Control enquiry, however, identified two economic markets for the purpose of its competition analysis⁴⁹:

- the market for provision of gas transmission services between North Taranaki and Huntly, where the Maui Pipeline and Vector pipeline overlap, and
- the market for provision of gas transmission services for the rest of the North Island

The Commerce Commission concluded that, following the introduction of open access on the Maui pipeline, there was some potential for competition between the two networks. However, it adopted the view that this competition was unlikely to be vigorous, given the relatively small size of the VT pipeline.⁵⁰

Welded parties

Welded parties have physical assets connected to the transmission pipelines and each operates under the terms of an interconnection agreement with the relevant transmission pipeline owner. There appears to be no definitive information as to the identity and location of the welded parties on the VT and Maui transmission pipelines. Table 4.3 shows a list that we have developed from the information we can find.

⁴⁹ Commerce Commission 2004, *Gas Control Inquiry, Final report* November, page iv.

⁵⁰ Commerce Commission 2004, *Gas Control Inquiry, Final report* November, p. 17.27.

Table 4.3

WELDED PARTIES

On VT pipelines		On the Maui pipeline	
At receipt points	At delivery points	At receipt points	At delivery points
<ul style="list-style-type: none"> • Vector at Kapuni production station) • Swift Energy at Mokoia mixing station and Stratford • Greymouth at Kaimiro production station <p>Soon:</p> <ul style="list-style-type: none"> • Origin Energy Resources at Kapuni production station (Kupe gas) • TAG Oil at Radnor production station 	<ul style="list-style-type: none"> • Vector Distribution • Powerco • Wanganui Gas Limited • Nova Gas <ul style="list-style-type: none"> • Todd at Kapuni production station (to Kiwi cogen at Hawera) • Contact Energy (Otahuhu power station & Te Rapa cogen) • Mighty River Power Limited (Southdown cogen) • Genesis Energy (Te Awamutu power station) • Various major users (Carter Holt Harvey, Blue Scope Steel, Fonterra etc) 	<ul style="list-style-type: none"> • Maui mining companies - Shell/Todd/OMV at the Oaonui production station • Todd at the Faull Road mixing station • Pohokura JV - Shell/Todd/OMV at the Pohokura production station • Greymouth Petroleum (Turangi gas) 	<ul style="list-style-type: none"> • Vector Distribution (Te Kuiti South, Te Kuiti North, and various minor delivery points) • Contact (New Plymouth power station) • Methanex (Waitara Valley & Motunui) • Genesis at Huntly power station

Source: Gas Industry Company; and Maui Development Limited 2005, *Early open access information packet for prospective shippers and welded parties*, September, p. 11; Commerce Commission 2004, *Gas control inquiry Final report*, November, p. 19.9; GANZ 2006, *New Zealand gas matters*, October, p. 3; and http://img.scoop.co.nz/media/pdfs/0606/Kupe_project_description_290606.pdf.

Note: We have been unable to clearly ascertain the location of the interconnection point on the Maui pipeline for Turangi gas.

VT and MDL are also welded parties to one another at their gas transfer points.

Operators and agents of the transmission pipeline

To function, the transmission system relies upon parties undertaking separate operators and agent roles.

Operators

For the VT pipeline systems, the roles are specified as in Table 4.4.

Table 4.4

TRANSMISSION OPERATOR ROLES – VECTOR TRANSMISSION

Commercial operator	<p>The key responsibilities of the Commercial Operator include:</p> <ul style="list-style-type: none"> • owning all Transmission assets; • managing relationships between Vector and its Shippers; • negotiating new Transmission Services Agreements; • negotiating and managing Interconnection Agreements; • arranging and managing other commercial agreements, eg for Balancing Gas and fuel; • formulating Transmission services; • setting Transmission prices; • preparing instructions to the System Operator on the general operating conditions of the transmission networks; • billing of Shippers for Transmission services; • carrying out the role of Gas Transfer Agent; and • dealing with regulatory authorities and other gas industry interests
System operator	<p>The key responsibilities of the System Operator include:</p> <ul style="list-style-type: none"> • analysing and scheduling nominated gas quantities; • monitoring and controlling the Transmission System; and • providing data to the Commercial Operator, MDL and other third parties and to OATIS.
Technical operator	<p>The key responsibilities of the Technical Operator include:</p> <ul style="list-style-type: none"> • planning and monitoring of capital and maintenance works on transmission system; • operation and maintenance of the SCADA system; and • pipeline modelling.

Source: Vector Transmission 2005, *Transmission system information memorandum*, October, pp. 3-4.

Similar roles for a commercial, system and technical operator are set out in the MPOC for the Maui pipeline, except that the commercial operator role does not include the ownership of the asset⁵¹, and the asset owner, MDL, will publish any instructions that it issues to the commercial, system or technical operator, and any written response⁵².

VT and MDL have implemented these arrangements to manage their potential conflicts of interest that could impede their ability to provide non-discriminatory access in a different manner:

- for the VT transmission pipelines, VT has created two ring-fenced operating roles — one for its technical operator and one for its system operator; and
- for the Maui pipeline, MDL has created one ring-fenced operating role — the commercial operator — and it has assigned the system operator and the technical operator roles to VT.⁵³

⁵¹ Maui Development Limited 2005, *Early open access information packet for prospective shippers and welded parties*, September, pp. 7-8.

⁵² <http://www.mauipipeline.co.nz/html/maui%20development/mdl-instructions.aspx>.

⁵³ MDL 2005, *Maui pipeline operating code*, 5 August, pp. 14-5.

Agents

Agents carry out a number of critical gas quantity information roles for VT and its pipeline users, as defined in Table 4.5.

Table 4.5

TRANSMISSION AGENT ROLES – VECTOR TRANSMISSION

Gas transfer agent	<p>At every gas transfer point (where gas transfer from one transmission pipeline to another) the relevant shippers appoint a gas transfer agent to administer the gas transfer agreements, which refers to the Gas Transfer Code.</p> <p>After month end, the gas transfer agent determines the daily receipt and delivery quantities of the VT and Maui shippers through the gas transfer point during the previous month and advises both the shippers and VT of such quantities. VT will use these quantities to determine the shippers' daily mismatches (balance) and running mismatch during the month.</p>
Allocation agent	<p>At every delivery point, the relevant shippers appoint an allocation agent to administer the allocation agreement.</p> <p>VT advises the allocation agent of aggregate daily energy quantities delivered at the delivery point, and the allocation agent would then divide each daily quantity between the shippers in accordance with the method agreed by shippers in the allocation agreement.</p> <p>The allocation agent then advises the shippers and VT of the shippers' daily delivery quantities for the previous month. VT uses these quantities to determine the shippers' transmission charges.</p>

Source: Vector Transmission 2005, *Transmission system information memorandum*, October, p. 8.

VT acts as the gas transfer agent at all gas transfer points unless otherwise agreed by the shippers.

A company called Tom Tetenburg and Associates Limited acts as the allocation agent for all delivery points in the New Zealand gas market.⁵⁴

Shippers - transmission pipeline users and wholesale market participants

In the New Zealand gas market the shippers — transmission pipeline users and wholesale market participants — are the same parties that consume or sell gas further downstream, and they fall into three categories:

- electricity generators;
- petrochemical industry; and
- retailers supplying (reticulated) end users connected to the transmission and distribution networks.

In addition, Vector acts in the wholesale market as a wholesaler. It has long term entitlements to gas from major fields and it sells this to other electricity generators, gas retailers, petrochemical plants and large end-use customers. This means that Vector's wholesale trading activities are on a scale similar to the major electricity generators Contact Energy and Genesis Energy. We examine the major wholesale contract portfolios later in this section.

⁵⁴ Gas Industry Company 2006, *Discussion paper, Options for amending allocation and reconciliation arrangements in the New Zealand gas industry*, p. 14.

Table 4.6 shows that wholesale market end users consume around 70 per cent of the gas produced in New Zealand.

Table 4.6

COMPARISON OF WHOLESAL AND RETAIL END USE CUSTOMERS

Segment	Gas usage for year ending September 2004		Gas usage for year ending September 2005	
	percentage	PJ	percentage	PJ
Electricity generation (including co-generation)	40.2%	60.23	49.2%	73.64
Petrochemicals	31.0%	46.44	20.3%	30.39
Wholesale (direct) use	71.2%	106.67	69.5%	104.03
Retail (reticulated) use	28.8%	43.15	30.5%	45.65
Total	100.0%	149.81	100.0%	149.68

Source Ministry of Economic Development 2005, *Energy Data File*, January, pp. 94 & 108.

Electricity generators

In the year ending March 2005, gas fired generation plant produced 16.1 per cent of New Zealand's electricity.⁵⁵ Table 4.7 contains a list of the major installed capacity.

⁵⁵ Ministry of Economic Development 2005, *Energy Data File*, January, p. 120.

Table 4.7

GAS FIRED GENERATION PLANT, 10 MW OR GREATER

Owner/operator	Plant name	Commissioned	Capacity (MW)	Gas used per year (PJ)
Contact Energy	New Plymouth (gas/oil)	1976	300	10
Contact Energy	Otahuhu B	2000	380	20
Contact Energy	Taranaki CC	1998	360	20
Contact Energy	Te Rapa (cogen)	2000	44	3
Contact Energy			1084	53
Genesis Energy	Huntly	1987	960	20
Genesis Energy	Huntly-P40	2004	40	unknown
Genesis Energy /Carter Holt Harvey	Kinieith (gas/wood/coal)	1998	40	unknown
Genesis Energy /Anchor Dairy	Te Awamutu (cogen)	1995	54	3
Genesis Energy			1094	
Alinta	Glenbrook (cogen)	1998	74	unknown
Bay of Plenty	Edgecumbe	1996	10	unknown
Mighty River Power	Southdown (cogen)	1997	125	5
Vector	Kapuni (cogen)	1998	23	unknown
Whareroa Kiwi Dairy Plant	Kiwi Dairy (cogen)	1997	50	unknown

Source: Ministry of Economic Development 2005, *Energy Data File*, January, pp. 94 & 108 and Gas Industry Company 2006, *Discussion paper, Gas transmission access issues review*, June, p. 123.

Genesis Power is constructing a new 385 MW (e3p) combined cycle generator, which is due for completion in December 2006⁵⁶, and Mighty River Power is adding 45 MW to its cogeneration plant at Southdown this year too⁵⁷.

Contact has already secured all necessary resource consents for Otahuhu C to proceed with up to 400 MW of new gas-fired generation.⁵⁸

⁵⁶ http://www.genesisenergy.co.nz/genesis/generation/our-thermal-plants/en/our-thermal-plants_home.cfm.

⁵⁷ <http://www.mightyriverpower.co.nz/Generation/AboutUs/CoGeneration/>.

⁵⁸ Contact Energy Limited 2006, *Annual financial results*, 25 August, p. 33.

Petrochemical industry

The petrochemical industry used 20 per cent (30.39 PJ) of New Zealand's net gas production in the year ending September 2005, compared with 31 per cent (46.44 PJ) the previous year.

Table 4.8

COMPARISON OF WHOLESALE AND RETAIL END USE CUSTOMERS

Segment	Gas usage for year ending September 2004 (PJ)	Gas usage for year ending September 2005 (PJ)
Methanex (methanol)	39.25	23.80
Ballance Agri-Nutrients (ammonia/urea)	7.19	6.59
Total petrochemicals use	46.44	30.39

Source Ministry of Economic Development 2005, *Energy Data File*, January, pp. 94 & 108.

Methanex has two methanol producing plants in New Zealand — one at Motunui and one at Waitara Valley — which it shuts down and restarts with regard for the price of New Zealand gas and the world price for methanol. Methanex's entitlement to Maui legacy gas has now expired and it closed its Motunui plant in 2005⁵⁹. It closed its Waitara Valley plant in July 2006, only to restart it again in September.⁶⁰

Ballance Agri-Nutrients manufactures ammonia and urea from natural gas. It uses Maui gas for fuel and a mixture of Maui and Kapuni gas as feedstock.⁶¹

Retailers

The other transmission pipeline users and wholesale market participants in the New Zealand gas market are the retailers, who include:

- retailers to industrial, commercial and residential customers:
 - Bay of Plenty Electricity;
 - Contact Energy;
 - Genesis Energy;
 - Mercury Energy; and
 - Wanganui Gas (including Directenz).
- retailers to only industrial and commercial consumers:
 - Auckland Gas Company;
 - Nova Gas;
 - EGas; and

⁵⁹ Ministry of Economic Development 2005, *Energy Data File*, January, p. 94.

⁶⁰ <http://www.crownminerals.govt.nz/news/news.asp?newsID=200239761>.

⁶¹ Ministry of Economic Development 2005, *Energy Data File*, January, p. 94.

– On Gas.

Bay of Plenty Electricity, Auckland Gas Company and Nova Gas are subsidiaries of the gas producer Todd Energy. Mercury Energy is the retail brand of Might River Power, and On Gas is the retail brand of pipeline owner Vector.

We describe the retail gas market in more detail in Section 6.2.

Producers

Producers sell wholesale gas under bilateral contracts to shippers. These contracts can be long or short term.

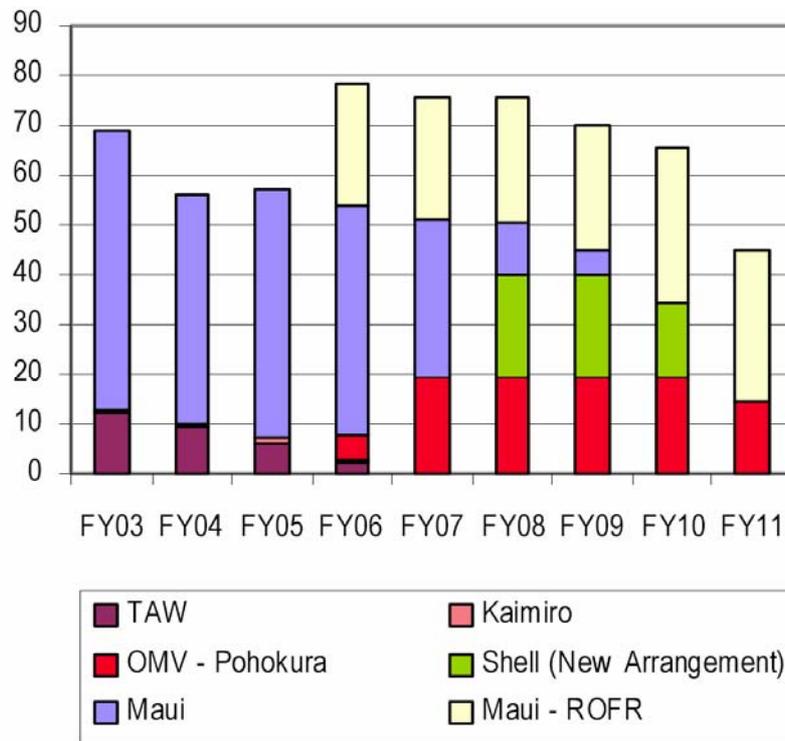
We have provided a list of New Zealand’s current gas producers in Table 3.1.

Major wholesale gas portfolios

Contact Energy, Genesis Energy and Vector have contracted for a large proportion of their generation and customer gas needs. Their wholesale purchase portfolios have been estimated to be as shown in Figure 4.3, Figure 4.4, and Figure 4.5, respectively.

Figure 4.3

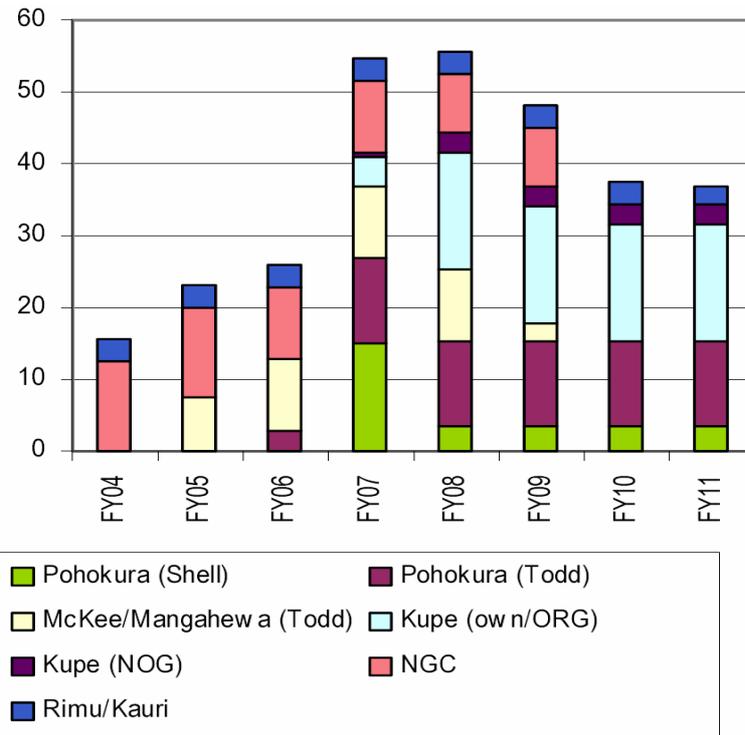
CONTACT ENERGY GAS PORTFOLIO AT 1 JUNE 2004, WITH ESTIMATED MAUI ROFR GAS ENTITLEMENTS (PJ)



Source: CS First Boston 2004, *Utilities sector – New Zealand, Gas supply in pictures*, 21 June.

Figure 4.4

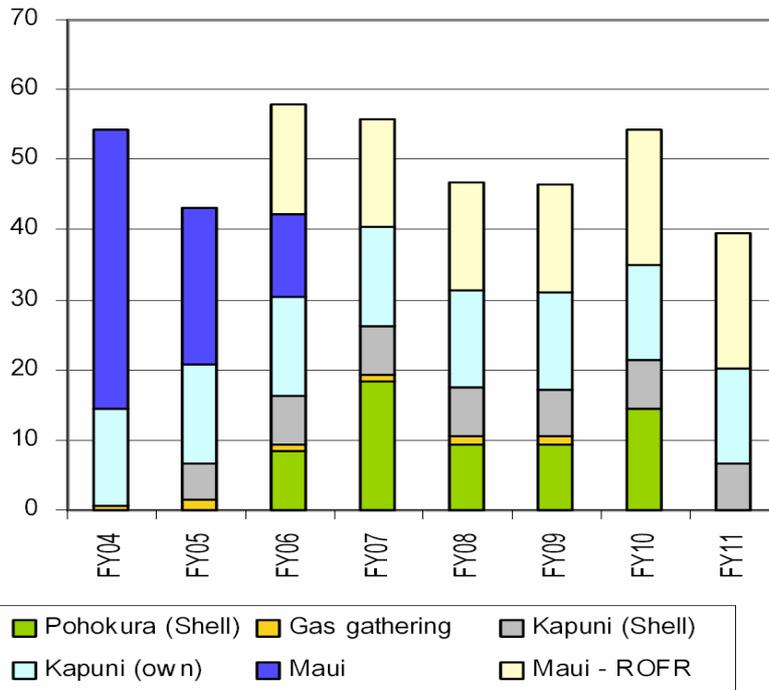
GENESIS ENERGY GAS PORTFOLIO AT 1 JUNE 2004 (PJ)



Source: CS First Boston 2004, *Utilities sector – New Zealand, Gas supply in pictures*, 21 June.

Figure 4.5

VECTOR GAS PORTFOLIO AT 1 JUNE 2004, WITH ESTIMATED MAUI ROFR GAS ENTITLEMENTS (PJ)



Source: CS First Boston 2004, *Utilities sector – New Zealand, Gas supply in pictures*, 21 June.

The expected increase in the gas trading by Genesis Energy reflects its increased gas demand for its new e3p combined cycle generator.

If these estimates are correct, they confirm the expectations of Contact Energy, Genesis Energy and Vector that they will continue to purchase the majority of New Zealand's wholesale gas and that gas will continue at least for the next few years to provide a large proportion of the country's primary energy needs.

Contact Energy and Vector have just announced that they will purchase additional Maui gas from MDL after concluding agreements under the right of first refusal (ROFR) process — 170 PJ and 105 PJ, respectively, over 2007 to 2014.⁶² Except for the financial year ending June 2006, these actual purchases are similar to the 2004 estimates shown above.

4.3 Industry-led market developments in the transmission and wholesale sector

The gas businesses that operate in the transmission and wholesale sector have undertaken several initiatives in recent years in response to the commercial imperatives and the expectation of the Government for market reform.

Voluntary codes

The gas industry developed a set of voluntary codes that formed the first basis of pipeline open access and wholesale market competition, and they include:

- *New Zealand gas pipeline access code* (14 July 1998) — the NZPAC sets down minimum standards of disclosure and conduct for pipeline owners and to facilitate non-discriminatory access to users. The code purports to apply to all transmission and distribution pipelines, subject to the owner becoming a signatory to the code. It deals at a very high level with matters such as behaviour standards, confidentiality and ring-fencing, pipeline services, developable capacity, receipt and delivery points, access requests, measurements and reconciliation, pricing, administration of the code, dispute resolution. Its main purpose appears to be to encourage each pipeline owner to publish its own information memorandum that specifies in more detail how the terms, conditions and prices for which initial and on-going access will be offered.
- *Reconciliation code* (1 July 2000) — this code seeks to assist the development of a competitive gas market by providing a uniform process for customer switching between competing retailers, and allocation and reconciliation of gas quantities between shippers at receipt points into a transmission system or distribution network at which possession, control or ownership of gas passes from one party to another.

⁶²

<http://www.contactenergy.co.nz/web/view?page=/content/w/pages/mediaandpublications/mediareleases&vert=mp&onlineMode=oh> and <http://www.vector.co.nz/news/175/>.

- *Gas contingency plan* (1 December 2005, revised by Natural Gas Corporation) — known by most as the National Gas Outage Contingency Plan (NGCOP), this plan seeks to enable the natural gas industry to manage the interruption to gas supplies into or from the transmission system. The plan describes five management phases: initiation, line pack preservation, stabilisation, post stabilisation and recovery.
- *Mutual aid plan* (1 August 2000) — this plan sought to document arrangements for gas companies to provide assistance to each other particularly in a regional emergency on a co-operative basis.

VT has also developed a code to deal with gas transfers between parties trading gas mostly at the VT and Maui pipeline welded points systems: the *Gas transfer code* (1 October 2005).

These documents have provided useful experience for the industry in terms of the development of new arrangements to support retail competition and in terms of the efficacy of voluntary codes.

Establishment of open access to major transmission pipelines

Vector Transmission pipelines

Vector Transmission has been a signatory to the NZPAC since it was developed in 1998. The only other signatory is Wanganui Gas.

The NZPAC does not set out how access will be provided. VT publishes a transmission system information memorandum (TSIM)⁶³ in accordance with its commitment to the NZPAC, along with its standard transmission service agreement (TSA), its standard interconnection agreement (ICA), and its related documents on VT's website.⁶⁴ These are an indication of the basis upon which VT offers to provide transmission services.⁶⁵ VT recently revised its TSIM and standard contracts to reflect the introduction from 1 October 2005 of the Maui Pipeline Operating Code, which we describe in the next section.

While there is some doubt that VT's TSIM, standard TSA or standard ICA are legal offer documents, they at least create strong expectations as to the terms and conditions (including prices) that VT would be willing to offer. The actual terms and conditions by which each welded party and shipper has gained access or connection to VT's pipelines are set out in the individually negotiated and confidential ICAs and TSAs, respectively.

Maui pipeline

Given the rapid depletion of the Maui field and the expiry of the legacy contracts in 2009, there will be increasing capacity available on the Maui pipeline to move gas from sources other than the Maui field. With this in mind the Government invited the industry to develop an open access framework for the pipeline. On 1 October 2005, an open access regime for the Maui pipeline, negotiated between the pipelines owners and gas wholesalers came into affect.

⁶³ http://www.gastransportation.co.nz/transmission/050929TransmissionInformationMemorandum2005_06.pdf.

⁶⁴ <http://www.gastransportation.co.nz/openaccess.html>.

⁶⁵ <http://www.gastransportation.co.nz/>.

The conditions for access under the regime are set out in the Maui Pipeline Operating Code (MPOC). The MPOC aims to:

- satisfy the legacy rights of the Maui Buyer under the Maui Gas Contract;
- provide third party access on a non-discriminatory basis;
- meet the reasonable revenue aspirations of the Maui Pipeline owners;
- strike a balance between the commercial rigour required to maintain operational balance and the commercial flexibility that allows entrants to access the Maui Pipeline on a reasonable commercial basis;
- meet the objectives set out in the Government Policy Statement relating to the gas industry;
- not expose the Maui Pipeline to commercial risk or operational risk stemming from the activities of interconnected networks; and
- ensure the code remains pragmatic and robust in the face of an evolving industry.

Like the NZPAC, the MPOC is voluntary. The Maui pipeline owner, Maui Development Limited (MDL) has committed to providing access in accordance with the MPOC.

MDL publishes the MPOC and its fees and changes on its website.⁶⁶

Unlike the NZPAC, the MPOC requires MDL to deal with all shippers and welded parties on an arms length basis and ensure that either:

- the terms and conditions in its ICAs and TSAs (other than those associated with Maui legacy gas) are the same as the ones in the code; or
- it discloses any special terms and conditions.⁶⁷

This means that all MDL's ICAs and TSAs (other than those with associated with Maui legacy gas) can be changed simply by changing the MPOC in accordance with a recommendation made by the Gas Industry Company after consulting the gas industry and consented by MDL.⁶⁸ MDL may not unreasonably withhold or delay its consent unless it is likely to incur significant additional cost or be materially adversely affected. Accordingly, the Gas Industry Company has been given an important role to develop the MPOC, and usage of the important Maui pipeline, in a manner that benefits the industry as a whole.

The technical provisions of the MPOC are being introduced progressively under what is known as 'early open access'.

⁶⁶ <http://www.mauipipeline.co.nz/default.aspx>.

⁶⁷ Section 2.1 of the Maui Pipeline Operating Code.

⁶⁸ Section 29.4 of the Maui Pipeline Operating Code

Communication standards for managing open access

A voluntary industry workgroup, the Gas Industry Communications Standards Working Group, has developed communications protocols that have been adapted by the Open Access Transmission Information System (OATIS) to support open access to the Maui pipeline⁶⁹ and to the VT pipelines. The Maui and VT commercial operators implemented the OATIS system, and it went 'live' in early September 2006 to become the new industry system to schedule and allocate natural gas on the Maui and VT pipelines.⁷⁰ It is expected that OATIS will be fully operational by the end of 2006. When it is, the benefits of Maui open access can be better realised.

We note that there has been some disquiet among participants about delays in OATIS development given its role in implementing Maui open access, and how it will be maintained.⁷¹

MDL notified the industry on 3 November 2006 that the OATIS system would become fully operational and proposed that there be a four month transition process for the introduction of 'full open access' during which time the incentive pool arrangements would not apply and the Gas Industry Company would undertake an expedited review of some operation changes.⁷²

Gas specification

The 2004 GPS requires the Gas Industry Company to develop and submit to the Minister of Energy protocols and standards applying to wholesale gas trading, including quality standards.

In conjunction with its Wholesale Market Working Group (WMWG), the Gas Industry Company published a consultation paper in relation to its review of the technical specification of gas in New Zealand.⁷³ This consultation paper brought forward a Plant and Platform report that concluded there is little value in conducting a detailed review of the technical gas specification (NZS 5442: 1999).

Most stakeholders agreed, and in July 2006, the Gas Industry Company made the recommendation contained in Box 4.4.

⁶⁹ <http://www.gas.org.nz/>.

⁷⁰ <http://www.mauipipeline.co.nz/NoticeAttach.aspx?uidNotice=411>.

⁷¹ Contact Energy 2006, *Submission to Gas Industry Company transmission access issues review*, 21 July., pp. 14 & 26.

⁷² MDL 2006, Letter to Gas Industry Company, 3 November.

⁷³ Gas Industry Company 2006, *Consultation paper, Review of New Zealand specific ation for reticulated natural gas*, March.

Box 4.4

RECOMMENDATION TO THE MINISTER ON THE GAS SPECIFICATION

The main recommendation is that the current limits on the gas specification do not need to change as they achieve an appropriate balance between the various commercial interests.

The report also recommends that further work is done on compliance arrangements to ensure the enforcement of this standard. This work has already been foreshadowed in the Gas Industry Co's Transmission Access Issues Review.

Source: Gas Industry Company 2006, *Recommendation to the Minister of Energy by the Gas Industry Company on the specification of reticulated natural gas*, July, p. 2.

On 8 August 2006, the Minister accepted this recommendation.

Transmission issues review

The 2004 GPS requires the Gas Industry Company to develop and submit to the Minister of Energy for the establishment of an open access regime across transmission pipelines so gas market participants can access transmission pipelines on reasonable terms and conditions. To determine the scope for improvement to the current regimes that apply to the VT and Maui pipeline systems, in June 2006 the Gas Industry Company published a consultation paper, which sought to describe the arrangements and identify the issues.

The consultation paper defines nine themes within which it grouped the issues.

Table 4.9

TRANSMISSION ACCESS THEMES AND ISSUES

Theme		Issues and the GIC's initially suggested approach
Legacy	The rights of "legacy" Maui gas and the implications for transportation of legacy and non-legacy gas	<ul style="list-style-type: none"> • The need for balancing non-Maui gas, and the impacts of the MDL pipeline balancing regime, will increase as legacy arrangement fall away progressively up to 2009. • It is unclear how the current gas contingency plan takes account of legacy rights or would handle a Maui production contingency.
Capacity	The transport services offered by MDL and VT and their implications for wholesale gas trading and shipper-on-shipper competition	<ul style="list-style-type: none"> • MDL and VT offer different types of capacity service. • MDL offers a non-firm common carriage service and a more firm authorised quantity service, that is not yet well understood. • VT offers firm capacity through yearly contracts and short-term capacity (unauthorised overrun) at ten times the yearly contract price. This might have implications for short term wholesale trade. • MDL and parallel VT transmission services could be jointly marketed.
Balancing	The arrangements for pipeline balancing and their impact on operating and transaction costs	<ul style="list-style-type: none"> • While VT is the system operator of all transmission pipelines, it balances the MDL pipeline and its own pipelines separately. This could increase complexity and balancing costs to shippers. • The procedures by which VT balances the pipelines are not fully understood.

Theme		Issues and the GIC's initially suggested approach
Quality	The operational and contractual arrangements for managing gas pressure, composition and odourisation	<ul style="list-style-type: none"> • Obligations for gas quality should be placed on welded parties; however, often shippers are given these obligations. • VT is currently negotiating new ICAs, which will potentially address this. • Gas Industry Company proposes to develop an interconnection code to create common obligations and rights across all pipelines on issues such as gas quality.
Title tracking	The determination of traded quantities of gas before and after the gas day and their implications for pipeline operations and settlements	<ul style="list-style-type: none"> • Gas can change hands several time between a producer and a consumer. • Title tracking takes place in two timescales: before the gas day (ex-ante_ and after (ex-post). • Reliability and robustness of title tracking is important for efficient transportation and trading. • It would be appropriate to extend flow-on nominations to make ex-ante and ex-post nominations identical.
Allocation	The problems caused for retailers of having monthly determination of delivered quantities and how these problems might be mitigated	<ul style="list-style-type: none"> • There may be the opportunity for the allocation system (also current being reviewed, see section below on gas transfer, and allocation and reconciliation) to provide more frequent, perhaps daily, information of shipper's estimated pipeline cumulative monthly imbalances. • This would assist shippers to actively manage their imbalances and reduce balancing charges.
Operators	The management of conflicts of interest where pipeline operators have affiliate production or shipping businesses	<ul style="list-style-type: none"> • VT is the technical and system operator for the VT and MDL pipelines, and the commercial operator of the VT pipelines. • MDL, owned by three producers, contracts the commercial operator function of the Maui pipeline to a third party service provider. • These arrangements allow the operators substantial discretion in operations, and raise issues of conflict of interest and discriminatory access. • Ring fencing might not be adequate, and operating procedures are generally not published.
(new) Access	The principles and processes for allowing new entrants to interconnect with existing pipelines	<ul style="list-style-type: none"> • An access seeker not affiliated with MDL has had difficulty negotiating access. • MPOC provides no rights for access seekers and procedures for negotiating access are being developed ad hoc. • The situation might be similar for VT pipelines; however, VT is a signatory to the NZPAC, which has principles for dealing with access applications. • Gas Industry Company proposes to develop a code that established rights for access seekers, using the NZPAC principles as a starting point.
Governance	The multilateral frameworks required to oversee and enforce access arrangements and the changes to these arrangements proposed in this paper	<ul style="list-style-type: none"> • Access terms and conditions are managed by the industry through voluntary codes, standard contracts, and operating procedures. • Gas Industry Company concludes that there may be benefits in some codes, including the two new one proposed, becoming rules. • Contracts need to become consistent across all pipeline users and the codes/rules, rather than varied by pipeline owners for different shippers. • Operating procedures should be developed by pipeline operators but not compromise the intent of the codes or contracts. • A compliance and enforcement mechanism will be required.

Source: Gas Industry Company 2006, *Consultation paper, Gas transmission access issues review*, June.

The submissions that the Gas Industry Company received in response to its consultation paper demonstrated that gas businesses had both a diversity of view as to what issues needed to be addressed, and a diversity of understanding of the underlying issues, especially in relation to the legacy and balancing themes.

Overall, Gas Industry Co finds the submissions somewhat confused or confusing, which may reflect the fact that readers found the issues paper analysis confused or confusing. None of this is too surprising and just reinforces the view that balancing arrangements are complex and nobody has really got to the bottom of exactly how they will operate.⁷⁴

Upon reflection on the submissions received, the Gas Industry Company will initiate the following⁷⁵:

- *Legacy, capacity and balancing forums* — facilitate and chair industry forums with the objectives of developing a complete picture of current arrangements, identifying and agreeing the issues, developing an action plan, and communicating their conclusions to the industry as a whole;
- *Legacy transition plan* — facilitate the development of a Maui gas legacy transition plan;
- *Vector Transmission Operating Code (VTOC)* — request VT to develop and introduce a VTOC, which would have a similar structure to the MPOC. Specifically, it would contain standard terms for TSAs and ICAs to which all VT shippers and welded parties would be subject, would specify a process for changing the VTOC and would specify which terms (for example, price and term of capacity) could be agreed bilaterally. The change process would allow any party to propose a change, for this to be reviewed and approved by an independent person (for example, the Gas Industry Company) and to be subject to VT veto under specified circumstances;
- *VT capacity offering* — request that VT clarify the availability and terms of its interruptible capacity service and how it ensure that its affiliate firms cannot overbook capacity;
- *Operating procedures* — encourage both MDL and VT to publish all their operating procedures in relation to balancing and the like, and reinforce that pipeline operators have a role to educate shippers on such matters;
- *MPOC change process* — consider changes necessary to deal with the title change issues; and
- *Governance* — examine the conversion of the reconciliation code and the gas transfer code to rules, in a separate consultation process, in parallel with VT's development of the VTOC.

The Gas Industry Company will deal with the other transmission issues within other work streams, such as those described below.

Wholesale market development

In relation to wholesale markets, the 2004 GPS requires the Gas Industry Company to develop and submit to the Minister of Energy for:

⁷⁴ Gas Industry Company 2006, *Transmission access issues review, Submission analysis and work programme*, September, p.22.

⁷⁵ *ibid.*

- the development of protocols and standards applying to wholesale gas trading, including quality standards, balancing and reconciliation;
- the development of a secondary market for the trading of excess and shortfall quantities of gas; and
- the development of capacity trading arrangements.

In response, the Gas Industry Company formed the WMWG and published a consultation paper in March 2006 putting forward a concept design for a wholesale gas market⁷⁶, and in published a discussion paper on wholesale market design in September 2006⁷⁷.

After considering the submissions lodged in response to its concept design, the Gas Industry Company has conducted cost benefit analysis on some of the options available and will be putting forward the following preferred approach:

- *Longer term gas contract trading* — take no action to facilitate trading of long term contracts;
- *Shorter term gas contract trading* — facilitate development of a standard wholesale gas contract and a simple communications platform (a ‘matching platform’) that facilitates the matching of buyers and sellers, but leaves participants to make their own trades; and
- *Short term platform to trade imbalance gas* — further evaluate the costs and benefits of a more sophisticated platform (a ‘trading platform’) that could act as the point at which short term gas contract trades occur.

The Gas Industry Company will determine how it will move forward in the light of the submissions it receives.

The Gas Industry Company based its analysis of a trading platform on the nodal balancing market currently being proposed by the Gas Market Leaders Group⁷⁸ for implementation in Australia after a review of opportunities to develop the wholesale gas market there⁷⁹. That concept came originally from a proposal put forward by the Energy Retailers Association of Australia.⁸⁰ Alternatively, it could be some form of spot or hub market.

At this stage, the Gas Industry Company intends to make a recommendation to the Minister in June 2007 on the wholesale market developments that it will bring into operation the third quarter of 2008.

⁷⁶ Gas Industry Company 2006, Consultation paper, Concept design for wholesale gas market, March.

⁷⁷ Gas Industry Company 2006, Discussion paper, Wholesale market design, September.

⁷⁸ Gas Market Leaders Group 2007, *National gas market development plan*, 11 July.

⁷⁹ Allen Consulting Group 2005, *Options for the development of the Australian Wholesale Gas Market, Report to the Ministerial Council on Energy Gas Market Development Working Group*, June.

⁸⁰ Energy Retailers Association 2004, *An Australian wholesale market, its justification, framework and governance*, 30 September.

Gas transfer, and allocation and reconciliation

At every point at which gas that belongs to a number of parties moves from one transmission network to another (at a gas transfer point) and from a transmission network to a distribution network (at a transmission delivery point), the amount of gas owned by each party must be determined. These amounts of gas, in turn, determine:

- VT transportation charges, overruns, and imbalances;
- nominations on the Maui pipeline when they are set to be equal to the downstream nominations for the legacy arrangements; and
- distribution network imbalances.⁸¹

The manner in which gas quantities are initially allocated, then later amended when initial quantities are reconciled with actual meter readings at a later time, and the times at which this information becomes available, can have an impact on the risk profile of market participants in their capacity as shippers and retailers, and on their ability to manage their risk and costs.

In 1998, the Gas Association of New Zealand published the Reconciliation Code that suggests the manner in which allocation and reconciliation should be undertaken at transmission delivery points. And in September 2005, VT published the voluntary Gas Transfer Code, which specifies allocation at gas transfer stations, and it came into effect. Actual allocation and reconciliation arrangements are formalised in VT's transmission service agreements, distribution use of system agreements and multilateral allocation agreements between parties sharing gas transfer points and transmission delivery points (shippers and retailers).

As mentioned above, the 2004 GPS requires the Gas Industry Company to bring forward new arrangements for wholesale trading including reconciliation. Accordingly, in a June 2006 discussion paper, the Gas Industry Company identified a number of initial changes that it believes could be implemented to improve the downstream and upstream allocation and reconciliation; most significantly that the current voluntary codes should be made into mandatory rules. It suggested operational changes, which would be included in the first version of the new rules, include that:

- the Gas Industry Company would select the allocation agent at a gate station;
- moves would be made towards mandatory global allocation to address problems with the allocation of changes in unaccounted-for gas to the incumbent retailer;
- if global allocation is not made mandatory, 12 month rolling loss factors would be used;
- two reconciliation wash-ups would be prescribed, one at 4 or 6 months, and one at 12 months.⁸²

⁸¹ Gas Industry Company 2006, *Discussion paper, Option for amending allocation and reconciliation arrangements in the New Zealand gas industry*, June, pp. 11-2.

⁸² *ibid.*, pp. 29-34, 42.

We understand that, after considering submissions, the Gas Industry Company intends to move forward with plans to translate the current downstream code into mandatory rules in accordance with the consultation requirements in the Gas Act.

Emergency response

As we have mentioned earlier, the gas industry developed the NGOCP. The plan is voluntary and it relies heavily on the interruptability of power generation and petrochemical plants without providing compensation. Consequently, Contact Energy has withdrawn its support for the plan.⁸³

As a logical extension to its other work, the Gas Industry Company has been asked by gas businesses to review the current arrangements for managing gas emergencies and contingency situations.

The Gas Industry Company issued a discussion paper in July 2006, and it is currently reviewing submissions on its preferred approach that a replacement plan be developed that is mandatory. It anticipates making a recommendation to the Minister in June 2007 and that rules could be implementing that recommendation by late 2007.

4.4 Strategic challenges in the transmission and wholesale sectors

The major issues facing the transmission and wholesale sectors of the New Zealand gas industry are:

- the need for a common and thorough understanding of important aspects of the transmission regime, in particular the legacy, capacity and balancing arrangements;
- addressing the dilemma of vertical integration;
- effective open access;
- the unbundling of wholesale contracts; and
- the difficulties of enhancing wholesale trading at this time.

Clarity of legacy, capacity and balancing arrangements

There are important aspects of the current transmission access regime for both the Maui and VT pipelines that are not consistently or thoroughly understood, namely:

- balancing on the Maui pipeline and how this interacts with balancing on the VT pipelines, especially with the decline of the Maui legacy contracts;
- the nature of VT's interruptible capacity offerings.

⁸³ Gas Industry Company 2006, *Discussion paper, Review of gas emergency arrangements*, July, p. 1.

Independently, we came to the same view as the Gas Industry Company that there is a strong need to develop a common understanding of these aspects and document it: firstly, in industry forum and working papers and then, ultimately, in codes, contracts and procedures. It is only with this understanding that the industry, regulators and policy makers can see how the current codes, contracts and procedures work and fit together, what activities could give rise to inefficient market behaviour, and what issues need to be given priority. For this reason, we endorse the Gas Industry's intent to establish new industry forums.

Dilemma of vertical integration

The current scope of vertical integration

The ownership of businesses within the New Zealand transmission and wholesale sectors is concentrated. Among the small number of businesses that operate in these sectors, a number are vertically integrated (see Table 4.10).

Table 4.10

SCOPE OF VERTICAL INTERGRATION MAJOR BUSINESSES WITHIN THE TRANSMISSION AND WHOLESALE SECTORS

Businesses	Monopoly pipeline service providers, or have assets connected							Competitive wholesale market participants				
	LP	SP	CO	SO	TO	WP	GT	PD	PS	EG	PC	GR
Contact Energy						✓				✓		✓
Genesis Energy						✓		✓	✓	✓		✓
Greymouth Petroleum						✓		✓	✓			
Methanex						✓					✓	
Mighty River Power						✓				✓		✓
OMV	✓		✓			✓		✓	✓			
Shell	✓		✓			✓		✓	✓			
Swift		✓				✓		✓	✓			
Todd	✓	✓	✓			✓				✓		✓
Vector	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
Wanganui						✓						✓

Notes:

(1) We have included consideration of Contact and Genesis's interests in processing facilities for the Kupe field, and Shell/Todd/OMV interests in the Maui pipeline through MDL.

(2) LP is large transmission pipeline owner, SP is small transmission pipeline owner, CO is commercial operator, SO is system operator, TO is technical operator, WP is welded party, GT is gas transfer agent, PD is gas producer, PS is gas processor, EG is electricity generator, PC is petrochemical plant, GR is gas retailer.

Two cases of particular note

The two most noteworthy cases of vertical integration, where affiliated businesses have interests in both large monopoly transmission pipelines and competitive wholesale trading activities are:

- the Maui mining companies (Shell, Todd and OMV) with their interest in the Maui pipeline, and gas production and processing plants; and
- Vector with its ownership interest and gas transfer agent role in the VT pipelines, its technical and system operator role in the Maui pipeline, and its role as a gas processor and shipper.

Left unchecked, these types of relationships can give rise to the exercise of market power and the ability of monopoly providers to use their market power to advantage their upstream and downstream affiliates. Such behaviour can lead to inefficiencies in otherwise competitive sectors.

MDL identified this issue during the process to develop the MPOC and in discussions with market participants⁸⁴:

There may be industry concern that vertical integration could potentially lead to anti-competitive behaviour, including:

- improper access to and use of information
- preferential treatment of affiliates
- cross subsidisation of affiliates

The risk that a monopoly service provider that is vertically integrated will exercise its market power to the detriment of other market participants can be mitigated by ensuring there is an appropriate level of business separation of each role likely to create a conflict of interest. Options range from accounting separation, to business ring-fencing, to the creation of separate legal entities, to full business divestment.

Current business separation

The Maui pipeline companies appear to have created and implemented many of the structures for appropriate business separation within the MPOC on a voluntary basis. The Maui commercial operator function, which does not include asset ownership, is conducted at arms-length from MDL, and the roles of the Maui system and technical operator have been out-sourced to another business. MDL's instructions to the Maui commercial operator are published. The MPOC along with published prices and other codes forms the basis of all MDL's TSAs and ICAs (other than those associated with Maui legacy gas, which fall away in 2009).

We have some concerns about the structures that underpin VT pipeline access for a number of reasons, as do several shippers. The commercial operator for the VT pipelines does not operate at arms length from VT, and it negotiates TSAs and ICAs with parties who compete with Vector in the wholesale market. The VT system and technical operators have discretion to make decisions that have an impact on the commercial interests of shippers and yet the extent to which these roles are conducted independently of VT is unclear. A similar comment can be made about the role of VT as the system and technical operator of the Maui pipeline.

The separation of VT's technical and system operator roles from its commercial operator function becomes particularly important when one considers the

⁸⁴ Maui Development Limited 2005, *Maui Pipeline open access project, Review of draft operating code as provided by Shell & OMV*, April, slide 15.

opportunity for the commercial operator to sell short term or interruptible capability, perhaps in competition with secondary traders, and the extent to which the technical and system operators can affect the availability and value of that capacity.

Structure of the VT contract arrangements

In terms of VT's adoption of the NZPAC and separate bilateral TSAs and ICAs, there are two significant implications that could impede the efficiency of the transmission sector:

- the terms, conditions and prices that apply to each of VT's shippers and welded parties are confidential and can vary from party to party, potentially in a discriminatory manner; and
- if changes are to be made to the manner in which the VT transmission pipelines are operated in the interests of the market as a whole — for example, to facilitate new or enhanced wholesale trading arrangements — each TSA and ISA would have to be amended through bilateral negotiations.

In contrast, the MPOC is the basis of all new transmission contracts on the Maui pipeline and can be changed more easily to enable industry-wide market developments.

Vector Transmission Operating Code

We agree with the Gas Industry Company that there would be substantial merit in VT preparing a Vector Transmission Operating Code, with regard for its own business interest, along the same lines as the MPOC and that there appears to be a good window of opportunity for this new code to come into effect at the same time as VT's next round of TSAs on 1 October 2007. The Gas Industry Company's list of 'essential principles' is a good starting point (see Box 4.5).

Box 4.5

GAS INDUSTRY COMPANY'S ESSENTIAL PRINIPLES FOR THE VTOC

Although Gas Industry Co is flexible on the details, the essential principles of a VTOC arrangement should be that:

- all standard terms for TSAs and ICAs are contained in the code;
- non-standard terms are agreed bilaterally and are limited to the price, term and quantity of capacity services, to site-specific issues, and to any other terms which VT reasonably considers only affect VT and the particular shipper or WP concerned;
- terms and conditions for existing TSAs with expiry dates after 30 September 2007 are protected;
- commencement date is 1 October 2007; and
- a change process is provided under which any party can propose a change, Gas Industry Co or another independent party reviews and approves the change taking into account the guiding principles set out in the Gas Act and GPS, and - subject to a pipeline owner veto which can only be used under specified, reasonable circumstances - the change then takes immediate effect and applies to all VTOC parties.

Source: Gas Industry Company 2006, *Transmission access issues review, Submission analysis and work programme*, September, p. 46.

Note: WP is welded party.

To the Gas Industry Company's principles we would add that VTOC should set out:

- like the MPOC, requirements for an appropriate level of business separation between the commercial, technical and system operator, and other affiliate competitive businesses;
- how this business separation ensures that information provided by transmission pipeline users to VT's commercial operator is kept confidential from other parts of Vector's business;
- a requirement that the effectiveness of the business separation arrangements be independently assessed or audited on a regular basis;
- a requirement for certain interconnection and operating procedures to be published and complied with; and
- a reasonable level of initial and on-going consistency with the MPOC in several areas, especially for balancing, to ensure that together the two codes form a stable foundation for the primary trade in gas, and the primary and secondary trade in gas and transmission capacity across the New Zealand wholesale market.

We understand from the Gas Industry Company that Vector has established a project team and intends to make prompt progress with the development of the VTOC.

Effective open access regime

The 2004 GPS requires the Gas Industry Company to establish an open access regime. For it to be effective, the regime will involve arrangements that provide policy makers and industry participants with confidence that transmission network services will be provided to existing and prospective transmission users in an efficient non-discriminatory basis and that the access arrangements provide a firm foundation for competition between the transmission users. It establishes the commercial, legal or regulatory structures by which the following is established:

- reasonable terms, conditions and prices for each transmission service to both existing welded parties and shippers;
- enforceable rights and negotiating process for intending welded parties and shippers;
- appropriate drivers for efficient operation and capital expansion, innovation and responses to new market conditions;
- the effective and timely means by which access disputes will be resolved with regard for the interest of the industry participants and the market as a whole;
- appropriate levels of separation between the monopoly and competitive elements of each vertically integrated business; and
- a sound process by which the terms, conditions and prices of transmission services can be changed in the interests of the market as a whole.

The MPOC and the VTOC can be substantial and important components of an effective access regime, but will not create one on their own. The voluntary nature and current scope of both the MPOC and prospectively the VTOC (if it follows the MPOC model) limit their ability to satisfy all the principles of an effective access regime that we have listed. For example, the MPOC does not create enforceable rights and negotiating process for intending welded parties and shippers.

The Gas Industry Company has a responsibility under the 2004 GPS to bring forward for approval arrangements to establish an open access regime across transmission pipelines so gas market participants (transmission users) can access transmission pipelines on reasonable terms and conditions. For this reason, the Gas Industry Company is giving consideration to incorporating the elements of an open access regime for the specific case of the New Zealand market into legally binding rules, along with the reconciliation code, the gas transfer code and the NGOCP.

When formalising these elements, we would encourage the Gas Industry Company and the industry to consider:

- the means by which gas market participants can be assured that the terms and conditions of access are, and will continue to be, reasonable; and
- the design of the whole regime of economic regulation for gas transmission including the role of the Commerce Commission, which is to determine under Part 4 of the Commerce Act whether gas transmission pipelines should be subjected to price control and, if so, to set the price control under Part 5.

Transmission users could consider terms and conditions of a standard transmission service to be reasonable if they are determined through some type of ‘negotiation’ process with the transmission pipelines; potentially facilitated by the Gas Industry Company. The consultative process by which the MPOC was developed was a good start. On-going development of the terms and conditions embodied in the MPOC and VTOC will be required, especially in the light of wholesale market developments, and a formalised, facilitated and collaborative code change process will ensure that all interests can be appropriately balanced.

As each transmission pipeline owner does now, it could set its standard prices for its standard transmission service, having regard for the role of the Commerce Commission outlined above. The codes or rules could contain provisions governing how current and intending access seekers may negotiate for the provision of non-standard services such that the price for a non-standard service would be set with regard for the difference in cost to the transmission pipeline owner. This would ensure that access seekers would have a clear avenue of negotiation without the code effectively imposing a second layer of price regulation for the standard transmission service. Having said this, we endorse the Gas Industry’s Company’s intention to seek to limit the extent to which non-standard terms and conditions are struck under the new VTOC to matters of the price, term and quantity of capacity services, to site-specific issues, and to any other terms which VT reasonably considers only affect VT and the particular shipper or welded party concerned (see Box 4.5). Such a limitation will be important in promoting the tradability of transmission capacity contracts.

Unbundling wholesale gas contracts

As is typical in many other countries, gas contracts in New Zealand are bilateral long term contracts that reflect and underpin the large investments that producers, processors and customers (especially generators and petrochemical companies) make. Maui contracts, which have been quite flexible in terms of quantities used per day (being combined gas, transportation and balancing contracts), are coming to an end and we understand that new gas contracts being written are far less bundled and not inclusive of transportation or balancing.

Some might see this unbundling as being a sign of less competitive behaviour. However, what might be happening is that the flexibility that the Maui contracts previously incorporated will in future be provided through other explicit market mechanisms such as short term wholesale trading and the transmission balancing arrangements. We see this as a positive development in the market. The unbundling of contracts will ensure that market participants bear directly the costs and risks associated with their behaviour in the market — such as the purchase of sufficient wholesale gas to meet their customers' needs — and this will drive more efficient outcomes.

The success of the emerging situation will depend on the good design of these new market mechanisms and the ability of wholesale customers to manage the resulting new risks.

Enhancing wholesale trading

The Gas Industry Company has made a good start in terms of investigating the opportunities that exist to enhance wholesale gas trading, especially improving the transactional efficiency of the secondary trade.

We understand the imperative created by the GPS, and the reasons behind it. With the decline of the Maui gas field, there is a need to better accommodate a large number of gas receipt points and more complicated trading arrangements to ensure that the gas that is available is traded most efficiently.

However, the task of enhancing wholesale trading arrangements is difficult at this time when:

- there is still a substantial lack of clarity around aspects like balancing, and the nature of the pipelines' interruptible and short term capacity offerings;
- arrangements for gas transfer, allocation and reconciliation are being better defined and formalised; and
- VT's TSAs are still confidential and bilateral, and they could contain provisions that might need to be changed if certain wholesale trading options are implemented.

It is our belief that the creation of better clarity around balancing, short term capacity trading, and allocation might, by itself, assist the ability of shippers to conduct more efficient primary and secondary wholesale trading of both gas and capacity especially if they have access to standard wholesale contracts and a matching platform.

This clarity should be a pre-condition for any conceptual design and consideration of a trading platform that could enhance trading opportunities further. Along with this clarity, the establishment of a VTOC will create a much better basis for the consideration of nodal balancing markets such as the trading platform described in Gas Industry Company's recent discussion paper. This is because these types of markets require consistent nomination and balancing arrangements for all affected parties, which would be difficult to achieve if bilateral contracts that each deal with nomination and balancing remain in place. If a trading platform is considered too soon, it could become discredited before its potential benefits can be recognised.

The Gas Industry Company intends to create clarity around balancing and capacity and to formalise allocation arrangements in the next six months. We also understand that the Gas Industry Company has urged VT to bring into effect a VTOC by 1 October 2007 and that VT is making good progress. We suggest that these matters be given priority over the more advanced stages of wholesale market development — in particular, any form of trading platform — until their outcomes become clear. At this stage, the number of practical options and their net benefits for enhanced wholesale trading will become much clearer.

Chapter 5

Distribution

5.1 Sector definition

The distribution sector is the sector in which retailers (on behalf of end-use customers) or end-use customers directly contract to receive lower pressure gas network services from distributors.

Distribution networks transport gas from the delivery points on the transmission network to end users' points of connection.

5.2 Market structure

The North Island has over 2,800 kilometres of intermediate low and medium pressure pipelines. There are two main distribution companies and two smaller ones.

- Vector, a vertically integrated gas business, has the largest geographical footprint with 6 distinct distribution networks;
- Powerco, a standalone distribution company with no other gas industry assets, operates the second largest distribution network, concentrated in the southern North Island;
- GasNet, a subsidiary of Wanganui Gas, operates a small network covering the Wanganui and Rangitiki region and
- Nova Gas, a subsidiary of Todd Energy, has established a series of bypass networks alongside some of the existing suppliers.

Vector and Powerco are also electricity distributors.

All the distribution businesses, except that of Nova Gas, supply data annually under the *Gas (information disclosure) regulations*. This data has been used in Table 5.1 and Table 5.2 to compare the physical characteristics of Vector, Powerco and GasNet.

As Table 5.1 shows, Vector has the longest network with almost 8,000 km under management. Although Powerco and Vector both have a relatively similar number of customers, Powerco's customers are mostly concentrated in the residential and small commercial market⁸⁵, whereas Vector's portfolio includes a significant proportion of high use customers giving it a much larger share of the gas transported. Serving a small geographical region GasNet has by far the highest customer density.

⁸⁵ Commerce Commission 2004, *Gas control inquiry, Final report*, November, Paragraph 14.6

Table 5.1

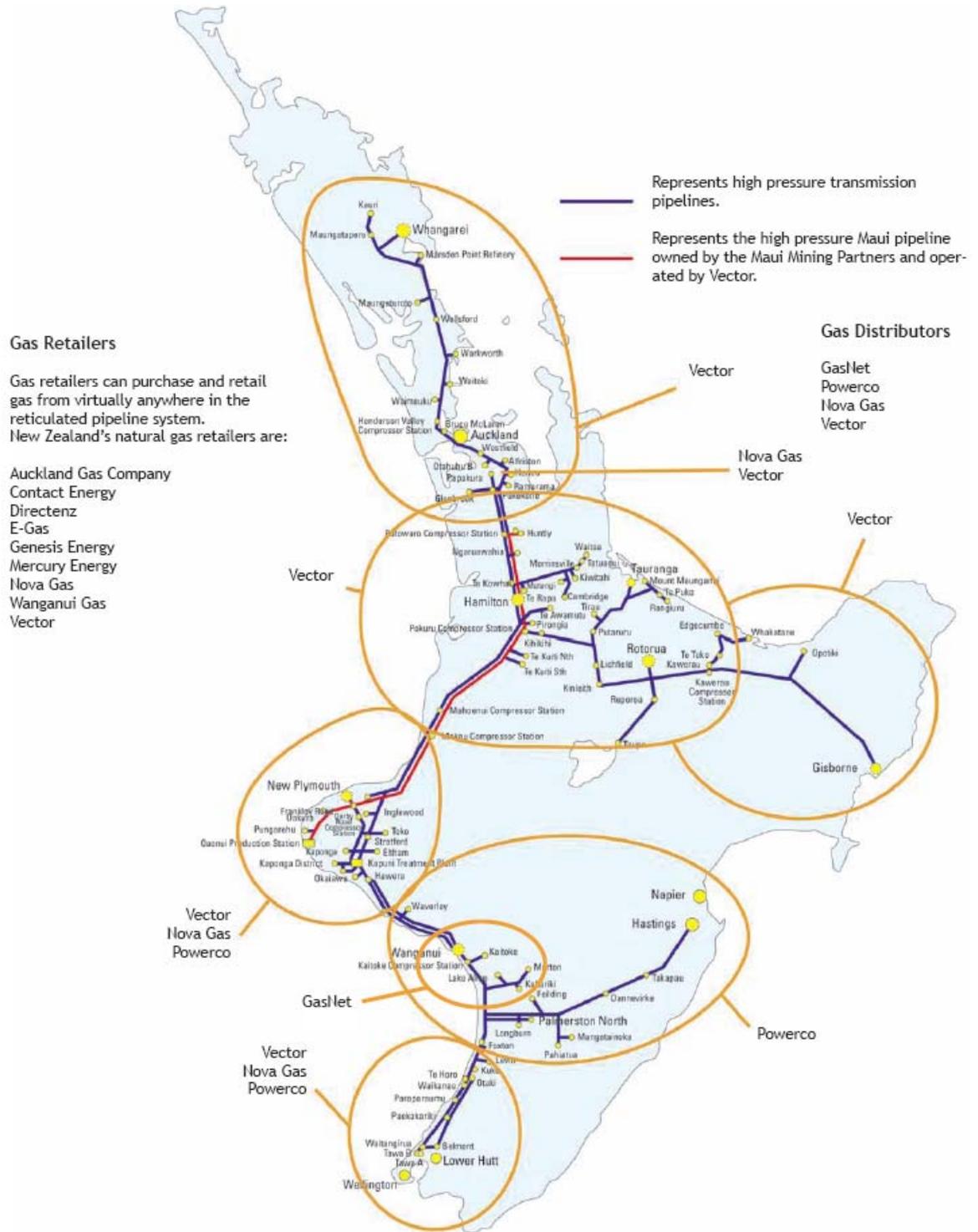
GAS DISTRIBUTORS' PHYSICAL CHARACTERISTICS

Gas Distributor	At 30 Jun 2005			At 15 Aug 2004
	Length (km)	Total customers	Proportion of known customers	Residential customers
Powerco	5,415	104,203	42%	101,676
Vector	7,968	132,527	54%	113,436
GasNet	360	10,776	4%	9,615
Nova	100	Unknown	Unknown	Unknown
Total	13,843	247,506	100%	224,637

Source: Information provided to the Ministry of Economic Development in 2005 in accordance with the Gas (information disclosure) regulations, and Ministry of Economic Development 2004, *Domestic Gas Prices Available up to 15 August 2004*, which only deals with locations each with 500 or more customers.

Figure 5.1

GAS DISTRIBUTION AREAS AND RETAILERS



Source: http://www.ganz.org.nz/file_download/78.

Table 5.2

GAS DISTRIBUTORS' OPERATIONAL CHARACTERISTICS

Gas Distributor	Gas conveyed	Share of Gas Conveyed	Load Factor (%)	Max monthly gas entering system
Powerco	9,891,000	28%	66.3	1,242,515
Vector	23,823,990	68%	80.0	2,481,916
GasNet	1,114,509	3%	74.0	125,474
Nova	Unknown	Unknown	Unknown	Unknown
Total	34,829,499	100%	N/A	N/A

Source: Information provided to the Ministry of Economic Development in 2005 in accordance with the *Gas (information disclosure) regulations*.

Customers of the distribution pipeline owners

Distribution pipeline owners primarily contract with retailers supplying gas to end-users, although in some cases they will also have direct contractual relationship with large gas users. All distribution networks apart from Nova Gas offer access or common carriage to retailers, who include:

- retailers to industrial, commercial and residential customers:
 - Bay of Plenty Electricity;
 - Contact Energy;
 - Directenz;
 - Genesis Energy;
 - Mercury Energy; and
 - Wanganui Gas.
- retailers to only industrial and commercial consumers:
 - Auckland Gas Company;
 - Nova Gas;
 - EGas; and
 - On Gas.
- large end use consumers connected to a distribution network and purchase wholesale gas.

Bay of Plenty Electricity, Auckland Gas Company and Nova Gas are subsidiaries of the gas producer Todd Energy. Mercury Energy is the retail brand of Might River Power, and On Gas is the retail brand of pipeline owner Vector.

We describe the retail gas market in more detail in Chapter 6.

5.3 Industry-led market developments in the distribution sector

The gas businesses that operate in the distribution sector have undertaken several initiatives in recent years in response to the commercial imperatives and the expectation of the Government for market reform.

Voluntary codes

In addition to those listed in Section 4.3 of our report, the Gas Association of New Zealand published a set of voluntary codes that formed the initial basis of retail competition. These codes clarified many of the procedures that needed to be clear when more than one retailer was to operate in a gas distribution area, and they include:

- *Model agreement for use of gas distribution system* (13 November 1998) — This agreement sought to establish a model as to what terms and conditions could be set out in such an agreement.
- *Gas industry event notification protocol* (17 May 2005) — this protocol seeks to facilitate the early exchange of information relating to accident, incidents and near misses.
- *Gas industry emergency response, Code of co-operation* (June 2005) — this protocol seeks to formalise co-operation between network operators, gas measurement system owners, and gas retailers when responding to emergencies.
- *Gas industry new connection protocol* (22 February 2006) — this protocol seeks to manage the safety aspects of the initial connection of consumers' gas supplies.
- *Gas industry disconnection and reconnection protocol* (22 June 2006) — this protocol seeks to manage the safe disconnection and reconnection of consumers' gas supplies.

These documents have provided useful experience for the industry in terms of the development of new arrangements to support retail competition and in terms of the efficacy of voluntary codes.

Published terms and conditions

Vector and GasNet publish on their respective websites, each of their standard agreement with a gas retailer.⁸⁶

Significant features of the Vector agreement include:

- allowance for one of two forms of relationship between the Vector, retailers and each of its connected customers:
 - an *interposed* relationship — the distributor provides network services to the retailer, and the retailer contracts with the end-use consumer for the supply of those services; and

⁸⁶ Vector 2002, *Agreement for use of network*, 1 March.

- a *conveyance only* relationship — the retailer contracts with the end-use customer for the supply of energy only to a point of connection and distributor does not provide network services to the retailer in respect of that point of connection. In this situation may only exist when the distributor and the end-use customer have a line services agreement in place between them.
- a requirement for retailers to be a party to an allocation agreement by which the parties would be bound by the reconciliation code that we described in Section 4.3;
- an obligation for retailers to ensure that metering is installed at no cost to Vector;
- a requirement for retailers to provide credit support to the value of one sixth of their estimated annual charge.

The GasNet agreement is different to Vector's in several respects. For example, GasNet will provide metering for each customer unless otherwise agreed with the retailer. There are also similarities. Under both agreements, a customer with annual consumption of 1 TJ or greater must have a time-of-use device fitted to its metering.

We have been unable to locate a similar document published by Powerco or Nova Gas.

Competition and the emergence of by pass pipelines

From an economic perspective, both the distribution and transmission networks feature similar characteristics. And like many network utilities — given they are large-scale capital ventures, with lumpy investment profiles, economies of scale, and involve significant sunk costs — are often regarded as natural monopolies. This would normally represent a significant barrier to entry.

In several regions with a concentration of large customers close to the transmission system, Nova Gas has developed networks bypassing the incumbent distributor. Novas uses these distribution networks to supply its own retail customers and told the Commerce Commission that in doing so it could typically half a customers distribution charges.⁸⁷ Nova has established its networks in parallel to:

- Vector network in south Auckland, and
- Powerco networks in Wellington, Hawera and Hastings.

As part of its gas control inquiry, the Commerce Commission concluded that the significant price reductions noticed in areas with by pass networks was indicative of vigorous competition.

⁸⁷ Commerce Commission 2004, *Gas control inquiry, Final report*, November, paragraph 18.9.

The Commission's view was that all of the distribution businesses were to some extent vulnerable to bypass, partially constraining their market power. It pointed to evidence that Natural Gas Corporation (now Vector) had identified clusters of large customers within its network that it considered vulnerable to bypass opportunities,⁸⁸ and had applied discounts of 20 per cent or more.

However, scope for bypass networks is limited to clusters of large scale commercial users, which tend to represent only a small proportion of each distributor's customer base. The length of the combined Nova Gas network (100 kilometres) and its proximity to the transmission system, demonstrates the limited scope for wide scale bypass. In most areas where no bypass networks had emerged, the Commission's view was that there was little prospect of further networks being developed.

5.4 Strategic challenge in the distribution sector

Distinguishing the roles of the Commerce Commission and the Gas Industry Company

At the same time as the Commission has been considering gas distribution pipeline price controls, the Government has given the Gas Industry Company responsibility to bring forward recommendations to the Minister of Energy on the making of regulation or rules prescribing reasonable terms and conditions for access to distribution pipelines. In the 2004 GPS, the Government expresses its expectation that the Gas Industry Company will bring forward for approval effective industry arrangements for the establishment of consistent standards and protocols across distribution pipelines so that gas market participants can access distribution pipelines on reasonable terms and conditions.

In the light of the Commerce Commission's work to establish a control order for Vector and Powerco's distribution networks, we detected a level of uncertainty in relation to the respective roles of the Commission and the Gas Industry Company in the regulation of distribution access. To clarify this, we consulted with the Ministry of Economic Development for guidance, and we were provided with the following advice:

⁸⁸ *ibid.*, paragraph 13.19.

Box 5.1

ADVICE FROM THE MINISTRY OF ECONOMIC DEVELOPMENT**Role of the Commerce Commission**

The role of the Commerce Commission under price control is to set revenue caps (including rates of return), and to provide incentives for efficiency improvements, for businesses that have monopoly characteristics such as gas pipelines – in accordance with Parts 4, 4A or 5 of the Commerce Act as applicable. When carrying out this role to set a price control, the Commerce Commission must have regard to a quality of service for which the revenue is set.

Role of the Gas Industry Company

In general, the role of the GIC is to deal with competition issues; creating market instruments and institutions with which the gas market can function efficiently. It also has consumer protection responsibilities beyond those covered in the Commerce Act [as set out in the 2004 GPS].

Potential overlap in gas distribution regulation

Section 43F(2)(c) of the Gas Act relates to the making of regulations that can prescribe reasonable terms and conditions for access to transmission or distribution pipelines, and the Gas Industry Company has a role to make recommendations to the Minister on making such regulations. As the terms and conditions of access can also define the gas distribution service, this creates an overlap in responsibility between the Commerce Commission and the Gas Industry Company; an overlap that will remain for some time and that needs to be actively managed.

Specific matters

Specific matters that the Gas Industry Company might consider in relation to its role in gas distribution:

Pricing structures – the Gas Industry Company should play a role in setting the principles by which a gas distributor's costs (recoverable revenue) could be allocated to particular customer groups and by which pricing structures are then determined; and

Quality of service – the Gas Industry Company should liaise with the Commission to ensure that the Commission defines a specific quality for service for the level of revenue it sets under a price control for a gas distribution business;

Memorandum of understanding

The Commerce Commission and the Gas Industry Company should consider entering into a memorandum of understanding that defines when and how they will communicate on various matters. Further, it would also be appropriate for the Gas Industry Company to make submissions to the Commission during its current price control process, particularly on the issue of defining the service.

Source: Personal communication with Mr Mike Lear, Principal Advisor, Energy & Communications Branch, Ministry of Economic Development, 17 October 2006.

In July 2006, the Commission published a discussion paper setting out a range of proposals for the form of price control it might impose on the two distribution businesses over a five year period.

As well as minimising the cost of control, the Commission has stated that its regulatory objective in determining the nature of the regulatory framework is to maximise the efficient operation of the network, ensuring that:

- the price of the distribution services reflect the cost of supplying those services (allocative efficiency),
- the services provided at the desired quality at minimum cost (productive efficiency), and

- the networks have appropriate incentives to invest, innovate and improve the range of services, increase productivity and lower costs over time. (dynamic efficiency).

In considering the appropriate level of services upon which it would base its price control, the Commerce Commission states:

- 14 In deciding upon appropriate quality standards for the Authorisation, the Commission is faced with two interrelated questions:
 - what standards are appropriate; and
 - what should be the acceptable level for those standards under control?
- 15 The appropriate level for the chosen standards must reflect consumer requirements and preferences in line with the price for the service, and not the current performance of the network. The Commission considers that a useful starting point for determining the quality of service program is to consider what is currently happening in New Zealand. Accepting the historic or current level of service relies on the business measuring and recording various aspects of the service provided in a consistent manner.
- 16 Currently the businesses are required under the Gas (Information Disclosure) Regulations 1997 administered by the Ministry for Economic Development to provide reporting on reliability as measured by system interruptions related to both transmission and distribution. The Commission is considering expanding the range of indicators against which the businesses can be measured. Further detail on potential quality measures is provided at Appendix 5 of this Paper. The Commission notes that the Gas Association of New Zealand (GANZ), of which Powerco and Vector are both members, is undertaking work with its members to establish a range of standardised performance measures against which each member can report to GANZ and thereby participate in industry benchmarking.

The Gas Association of New Zealand wrote to the Commission on 7 August 2006 and suggested a range of technical performance measure that could be used by the Commission to set the service standard against which it would determine gas distribution prices.

Similar issues have been considered in other jurisdictions. In Australia, under the National Gas Code⁸⁹, regulators have considered gas distribution service prices in the context of a reference service that is offered to network users (predominantly retailers) and that is set down in a proposed access arrangement. The reference service is defined by both technical and commercial terms and conditions, many of which have the potential to impose substantial cost and risk upon some or all retailers and/or end-use customers (it is very important to consider both).

⁸⁹ National Third Party Access Code for Natural Gas Pipeline Systems.

The Commission's work is clearly well advanced. It is giving consideration to an appropriate level of service to customers, and it does not appear to be a good time for the Gas Industry Company to commence a work stream that could disrupt the Commission's progress. However, the Gas Industry Company might find itself in an impossible position to establish reasonable terms and conditions of access to the distribution pipelines for retailers if the Commerce Commission does not define the related level of service to retailers to which its price control relates.

In our experience, the two elements of the commercial relationship between distributors and retailers that have been contentious during price regulation proceedings because of their potential to allocate risk and impose costs on the parties are:

- the terms under which retailers must make payments to distributors (for example, in advance or in arrears), which has a large effect upon the levels of working capital for each; and
- the manner in which distributors manage retailers' credit risk by requiring a level of credit support.

At this stage, it would be appropriate for the Gas Industry Company to make a submission to the Commission in keeping with its role in the regulation of distribution services; for example, it could put forward to the Commission a sample retailer/distributor service agreement that the Commerce Commission can use to define a standard service to retailers to which its price control relates.

At some point in the future, it would then be appropriate for the Gas Industry Company to establish arrangements governing the extent to which and how current and intending retailers may negotiate for the provision of non-standard services.

The Gas Industry Company is now expecting to commence consideration of distribution contracts in January 2008, after the Commerce Commission completes its price control determination in December 2007. In our view, the Gas Industry Company and the Commerce Commission need to commence discussions and exchange ideas sooner than that about how they can harmonise their work plans to achieve the best outcome.

Chapter 6

Retail trading

6.1 Sector definition

We define the ‘retail trading’ sector as the sector in which end-users purchase gas from retailers for their direct use. These end-users include industrial, commercial and residential customers.

In this sector, gas retailers purchase gas at a wholesale level and on-sell it to industrial commercial and residential end-use customers for a profit. They contract with local distribution companies to use their network to transport gas from the transmission network to customers’ premises under arrangements described in the previous chapter.

The nature of retailing to industrial and commercial customers is different to that to residential customers, and the nature and amount of information available for each is different, so we deal with them separately.

6.2 Market structure

Customer segmentation

The main source of information about New Zealand’s gas customers comes from Ministry of Economic Development’s *Energy Data File*, which describes them in terms of three segments:

- Industrial — Sometimes the *Energy Data File* includes generators, cogeneration and the petrochemical industry in this segmentation⁹⁰ and, at other times, it is combined with commercial customers as an ‘industrial and commercial’ retail (reticulated use) segment that excludes transport, generators, cogeneration and the petrochemical industry⁹¹.
- Commercial — Sometimes the *Energy Data File* includes transport and cogeneration within the commercial segment⁹² and, at other times, as mentioned above transport and cogeneration are separated from a combined retail ‘industrial and commercial’ segment⁹³.
- Residential — The residential segment appears to be consistently defined in the *Energy Data File* as residential end-users within reticulated use segment.

⁹⁰ Ministry of Economic Development 2005, *Energy Data File*, January, p. 107.

⁹¹ *ibid.*, p. 94.

⁹² *ibid.*, p. 107.

⁹³ *ibid.*, p. 94.

We have dealt with industrial and commercial customers that buy gas directly in the wholesale market in Chapter 4. This chapter seeks to review the retail market in which retailers sell gas to the remaining end use customers. At each point of the analysis we will try to be clear how we have defined a retail customer segment; however, because of the nature of the information available to us, we regret that the segment definitions are not always going to be consistent with one another.

Comparison of retail and wholesale customers

Retail customers only consume around 30 per cent of the gas produced in New Zealand, as shown in Table 6.1.

This table shows that over the past two years, sales to retail customers have been steady with an increase in gas sold to industrial and commercial customers.

Table 6.1

COMPARISON OF RETAIL AND WHOLESALE END USE CUSTOMERS

Segment	Gas usage for year ending September 2004		Gas usage for year ending September 2005	
	percentage	PJ	percentage	PJ
Industrial and commercial (excluding co-generation)	24.4%	36.55	26.0%	38.92
Residential	4.3%	6.44	4.4%	6.59
Transport	0.1%	0.15	0.1%	0.15
Retail (reticulated) use	28.8%	43.15	30.5%	45.65
Wholesale (direct) use	71.2%	106.67	69.5%	104.03
Total	100.0%	149.81	100.0%	149.68

Source Ministry of Economic Development 2005, *Energy Data File*, January, pp. 94 & 108.

Note: Gas usage figures for the residential sector have been taken from Table E.6 of the Energy Data File, and gas usage figures for the other sectors have been determined by extrapolation using the percentages in Chart E.3b. This generates results slightly different to that in MED's commentary on p. 94 of the *Energy Data File*; however the difference is small.

Penetration of gas into the retail market

The retail market for gas in New Zealand is very small particularly because there is a low level of penetration of natural gas as Table 6.2 illustrates.

Table 6.2

COMPARISON OF GAS AND ELECTRICITY END USE CUSTOMERS

Segment	Gas usage for year ending September 2005		Electricity usage for year ending September 2005		Proportion of gas to electricity	
	customers	PJ	customers	PJ	customers	PJ
Industrial and commercial	9,911	38.92	241,564	38.92	4%	45%
Residential	224,427	6.59	1,562,064	6.59	14%	14%
Retail (reticulated) use	234,338	45.65	1,803,628	45.65	13%	34%

Source Ministry of Economic Development 2005, *Energy Data File*, January, pp. 94 & 108-10, 133-5.

Notes:

(1) Gas usage figures for the residential sector have been taken from Table E.6 of the Energy Data File, and gas usage figures for the other sectors have been determined by extrapolation using the percentages in Chart E.3b.

(2) Industrial and commercial gas customers exclude cogeneration. Commercial and industrial electricity customers include public lighting, rail, urban traction, agriculture, hunting, forestry and logging, and fishing.

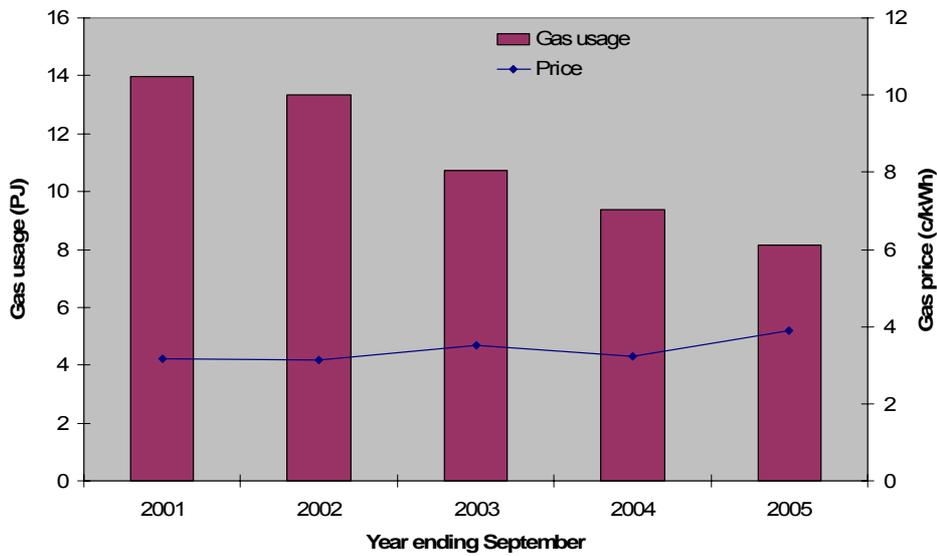
Industrial and commercial customers within the retail market

Other than the *Energy Data File*, there is little other information available to describe the industrial and commercial segment.

In Figure 6.1 we illustrate the usage and price information presented in the Energy Data File on the ‘commercial’ sectors, which in this case includes transport and cogeneration. The data underlying Figure 6.1 has been provided by gas retailers. Figure 6.1 shows a trend of substantially decreasing demand within the ‘commercial’ segment. This is difficult to explain given that the usage trends more generally, such as those shown in Table 6.1, are stable, if not increasing.

Figure 6.1

COMMERCIAL CUSTOMERS (INCLUDING TRANSPORT AND COGENERATION) – USAGE AND PRICES



Source: Ministry of Economic Development 2005, *Energy Data File*, January, p. 109.

Note: \$1/GJ = 0.36 c/kWh.

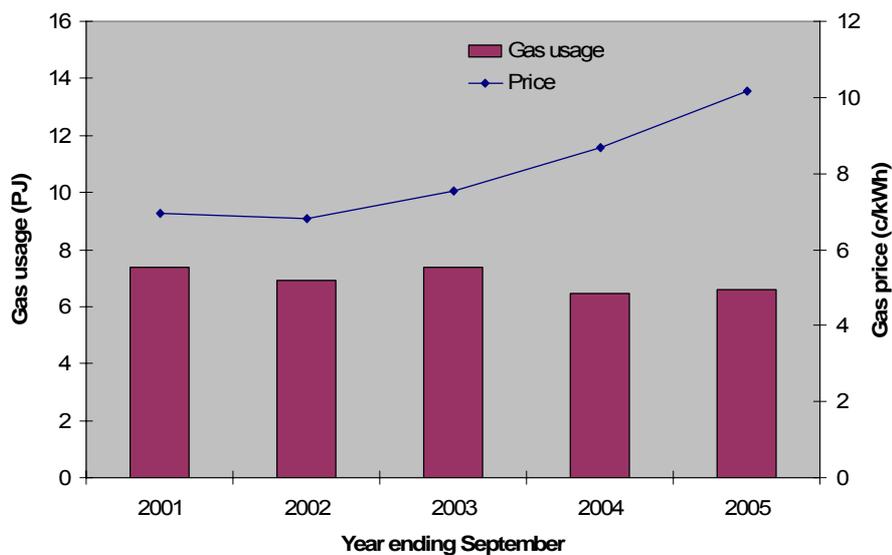
Residential customers

The information available to describe residential retail customers is much deeper.

Figure 6.2 provides a direct comparison of gas usage and price for residential customers with commercial customers in Figure 6.1. It shows that residential customers use less gas and pay higher prices than ‘commercial’ customers.

Figure 6.2

RESIDENTIAL CUSTOMERS – USAGE AND PRICES



Source: Ministry of Economic Development 2005, *Energy Data File*, January, p. 108.

Note: \$1/GJ = 0.36 c/kWh.

Gas retailers

Industrial and commercial customers within the retail market

Seven gas retailers supply gas to retail industrial and commercial customers: Contact Energy, EGas, Genesis, Mighty River Power (Mercury Energy), Todd Energy (Nova Gas, Auckland Gas Company, Bay of Plenty Electricity), Wanganui Gas and Vector (On Gas).

We have no information about offer prices or their contractual terms and conditions or their competitiveness.

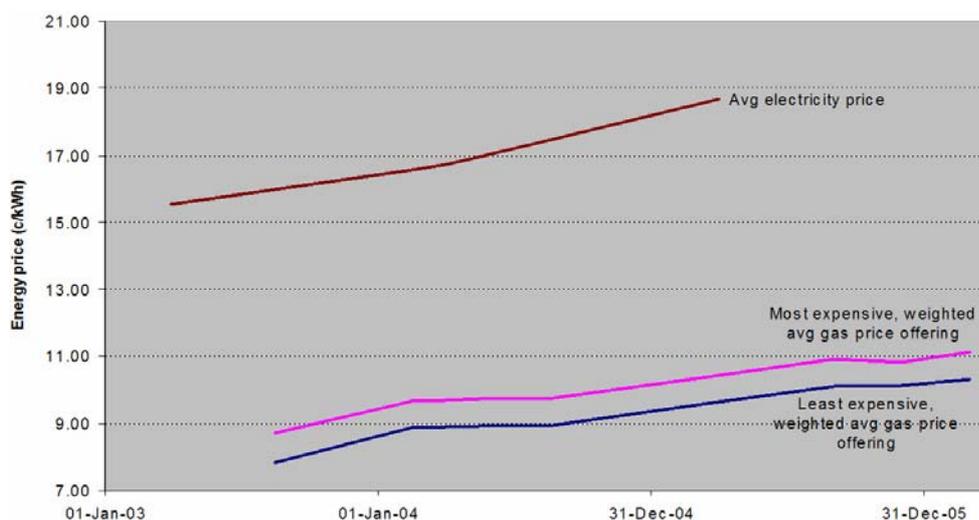
Residential customers

Five retailers supply gas to residential customers: Contact Energy, Genesis, Mercury Energy, Bay of Plenty Electricity, and Wanganui Gas (including Directenz).

The residential gas price information that the Ministry of Economic Development publishes provides some insight into these retailers' activities. This information seeks to disclose the price offerings of each retailer to the residential sector, in each of 29 geographic locations — each with 500 or more customers. The MED based its effective gas prices on a 'model' customer that uses 7,000 kWh per year of gas. Figure 6.3 shows the customer-number weighted average of the most and least expensive gas price offerings across these locations, and compares it with the average price of electricity to residential customers across New Zealand. From this graph, one might conclude that gas is better value than electricity; however, we caution against drawing hasty conclusions and we discuss the complexities of this in the following sections.

Figure 6.3

RESIDENTIAL CUSTOMERS - COMPARISON OF GAS PRICE OFFERINGS WITH ELECTRICITY PRICE



Source: Ministry of Economic Development 2004, *Domestic Gas Prices Available up to 15 August 2004*, Ministry of Economic Development 2006, *Domestic Gas Prices Available up to 1 March 2006*, and Ministry of Economic Development 2005, *Energy Data File*, January, p. 147.

An examination of the offers made by each retailer in August 2003 and in September 2006 in Table 6.3 shows the changing competitiveness of the retailers. Contact and Mercury have increased their competitiveness substantially, especially by offering lower prices for bundled gas and electricity contracts. Contact has also increased its retail coverage, while Mercury has continued to concentrate on the same territory. These figures indicate that Genesis and Directenz are likely to have lost market share over the period, and the very small retailers, Bay of Plenty and Wanganui, are struggling to remain competitive.

Table 6.3

COVERAGE AND COMPETITIVENESS OF RESIDENTIAL RETAILERS

Retailers to residential customers	Active in distribution areas that cover this proportion of customers		Proportion of customers for which the retail has the least expensive offering	
	In Aug 2003	In Mar 2006	In Aug 2003	In Mar 2006
Bay of Plenty Electricity	5%	5%	3%	0%
Contact Energy	56%	77%	0%	67%
Directenz	33%	31%	20%	8%
Genesis Energy	100%	100%	76%	11%
Mercury Energy	47%	47%	14%	44%
Wanganui Gas	5%	5%	0%	0%

Source: Ministry of Economic Development 2004, *Domestic Gas Prices Available up to 15 August 2004*, Ministry of Economic Development 2006, *Domestic Gas Prices Available up to 1 March 2006*, and Ministry of Economic Development 2005, *Energy Data File*, January, p. 108.

Notes:

(1) There appears to be an error in the number of customers shown in the Ministry of Economic Development's *Domestic Gas Prices Available up to 1 March 2006*: it is the same as the number of customers shown in *Domestic Gas Prices Available up to 15 August 2004*. Further, even though it does not include customers in geographic locations with less than 500 customers, the number of customers shown in *Domestic Gas Prices Available up to 15 August 2004* is 7857 more than the figure quoted in the *Energy Data File* for the same time. For this reason, we suggest the numbers in Table 6.3 be considered indicative, rather than definitive.

(2) Many of the least expensive retail price offerings were for dual-fuel arrangements.

(3) In some distribution areas, two retailers had the least expensive offering. Accordingly the percentages in the fourth and fifth columns sum to more than 100%.

We do not have all the information necessary to determine what retailers' market shares are either in terms of number of customers or gas sold. If Table 6.3 is a good reflection of what is happening in the retail market, and customers can readily switch from one retailer to another, Contact and Mercury Energy will have been increasing their market share over the past few years at the expense of Bay of Plenty, Directenz and Genesis. Interestingly, the retailers' public statements paint a different picture.

Contact Energy reported that it increased its retail gas revenue in 2004-05 — due to higher gas prices — even though it experienced a decline in gas customer numbers of 7,000 to 85,000.⁹⁴ In August 2006, Contact reported that its gas customers had declined by a further 6,000 over 2005-06.⁹⁵ Notwithstanding this, Contact has announced that from 1 October 2006, it has increased its gas and electricity prices by 8 per cent due to the increasing price of wholesale gas.⁹⁶

Mercury Energy only offers gas under dual fuel arrangements and, as we would have expected, reported last year that its gas customers had grown to 18,000, with a 23 per cent market share in Greater Auckland.⁹⁷

In October 2002, Genesis acquired Natural Gas Corporation's residential gas business (95,000 customers) and the FreshStart retail customer base (24,000 customers) from Todd Energy in June 2003⁹⁸. Genesis reported a net increase in gas customer numbers of 11,500 during 2003-04⁹⁹ and that it had 118,572 as at 30 June 2005¹⁰⁰. This could mean that Genesis has experienced a net decline during 2004-05 of around 11,900 gas customers.

Contact, Mercury and Genesis do not make a distinction between wholesale and retail gas customers in these remarks.

Wanganui Gas reported that in 2004-05 it increased its number of residential gas customers, while the customer base of its subsidiary Directenz declined. Together they increased their customer numbers by 3 per cent over the previous year.

The information provided by individual businesses is difficult to reconcile with the published residential retail prices to get a clear picture of what is driving or impeding retail competition.

New customer connections

The *Energy Data File* provides customer numbers for the residential, commercial and industrial segments, and we show these figures in Table 6.4.

⁹⁴ Contact Energy Limited 2005, *Annual report for the period ended 30 June 2005*, pp. 12 and 14.

⁹⁵ Contact Energy Limited 2006, *Annual financial results*, 25 August, p. 17.

⁹⁶ Radio New Zealand 2006, *Contact raises power, gas prices 8%*, 25 September.

⁹⁷ Mighty River Power 2005, *Annual Report 2005*, p. 29.

⁹⁸ Genesis Energy 2003, *Annual Report 2003*, p. 8.

⁹⁹ Genesis Energy 2004, *Annual Report 2004*, p. 21.

¹⁰⁰ Genesis Energy 2005, *Annual Report 2005*, p. 26.

Table 6.4

GROWTH IN CUSTOMER NUMBERS

Year ending September	Residential		Commercial		Industrial	
	No. of customers	Growth	No. of customers	Growth	No. of customers	Growth
2001	175,572		12,361		920	
2002	189,602	8%	10,821	-12%	948	3%
2003	210,252	11%	10,734	-1%	1,228	30%
2004	216,780	3%	9,374	-13%	1,617	32%
2005	224,427	4%	8,389	-11%	1,522	-6%

Source: Ministry of Economic Development 2005, *Energy Data File*, January, pp. 108-10.

Note: The MED notes (p. 107) that 'the number of industrial customers reported by gas suppliers show wide variations over past years but seems to have stabilised recently'. In this table, 'industrial' customers include the small number of wholesale (direct) customers, and 'commercial' customers include transport and cogeneration.

The trends in customer numbers for 2001-05 for commercial customers appears to reflect very generally the usage trends in Figure 6.1 and Figure 6.2. However, we note that residential customer usage is not increasing at the rate at which customer numbers appear to be.

Further, the trend in industrial customer numbers in Table 6.4 looks erratic and has no supporting usage trend. In our view, the industrial customer numbers in the *Energy Data File* are unreliable and some doubt must be cast on the precision of the other customer numbers.

We are unable to ascertain the reasons for the continuous increase in residential customer numbers, especially given the rising trend of residential gas prices. Potentially the reason is related to the higher rate at which residential electricity prices are rising as well.

Metering arrangements at a customer delivery point

The model distribution use of system agreement published by the Gas Association of New Zealand, along with Vector and GasNet's published agreements, permit other parties as well as the relevant gas distributor to install, maintain and operate, at or near the delivery point, gas metering in accordance with New Zealand Standard 5259, subject to any other arrangement between the distributor and the retailer.¹⁰¹ This provides a level of contestability in the provision of metering services; however the Commerce Commission has observed in its recent report on the extent to which the price of gas distribution services should be controlled:¹⁰²

¹⁰¹ Gas Association of New Zealand 1998, *Model agreement for use of gas distribution system*, 13 November, s. 10.2.

¹⁰² Commerce Commission 2005, *Gas control inquiry*, Final report, Public version, p. 3.5.

3.29 The Commission considers that while there is a degree of contestability for the supply of meters, in practice little substitution occurs. Consumers face a significant cost if they wish to have an existing meter removed and a new one installed. As the Commission considers that competition is limited, metering meets the threshold for control in s 52(a) of the Act.

3.30 The Commission concludes that for the purpose of the Inquiry it is appropriate to treat metering as one component of the various gas service markets, rather than placing it within a discrete market.

6.3 Industry-led market developments in the retail sector

The gas businesses that operate in the retail sector have undertaken several initiatives in recent years in response to the commercial imperatives and the expectation of the Government for market reform.

Voluntary code

In addition to those listed in Sections 4.3 and 5.3 of our report, the Gas Association of New Zealand developed a voluntary code to support retail competition:

- *Gas retailers protocols, Code of practice for gas retailers* (draft, April 2004) — This plan sought to establish voluntary operating standards for gas retailing activities in relation to safety, metering, information disclosure, customer transfers, and allocation and reconciliation, and to provide performance-monitoring processes to demonstrate and report compliance.

Pricing information to customers

With the assistance of the Ministry of Consumer Affairs, the Consumers' Institute has established a free website to assist customers to calculate their electricity bills with regard for competing retail offers. Electricity retailers support this by providing their prices.

Gas retailers support a similar calculator for gas. In contracts to electricity, to use the gas calculator, a customer must pay a fee of at least \$21 for a one quarter subscription. Once this subscription fee is paid, a customer also gain access to advice on make the choice between gas and electricity; however some of this material, for example 'plans compared', appears to be out of date.¹⁰³

Participation in the Electricity and Gas Complaints Commission scheme

The 2004 GPS invites the Gas Industry Company to recommend arrangements for 'the development of efficient and effective arrangements for the proper handling of consumer complaints'.

¹⁰³ <http://www.consumer.org.nz/>, accessed on 22 September 2006.

In March 2005, on the recommendation of the Gas Industry Company¹⁰⁴, the Minister of Energy agreed with the extension of complaints scheme administered by then Electricity Complaints Commission to cover gas customers, and it became the Electricity and Gas Complaints Commission (EGCC). At the same time, the EGCC's jurisdiction was increased so that it can now deal with disputes of amounts up to \$20,000. However, the Minister has stopped short of approving the scheme until it covered land owner and occupier disputes.

Box 6.1

RECOMMENDATION TO THE MINISTER ON CONSUMER COMPLAINTS

The Complaints Resolution System submitted by GIC is the Electricity and Gas Complaints Commissioner Scheme (The Scheme). The Scheme will provide gas consumers with access to an independent disputes resolution service through the Electricity and Gas Complaints Commission (EGCC) for complaints about their gas company. The Scheme will cover both gas retail and gas distribution companies on a voluntary membership basis.

Source: Gas Industry Company 2005, *Recommendation to the Minister of Energy by the Gas Industry Company on complaints resolution system*, 18 March.

We understand that the EGCC and Gas Industry Company have been working together to bring disputes between line and pipeline businesses and land owners and occupier within the jurisdiction of the scheme. This project is complete.

Since the EGCC scheme became capable of dealing with gas complaints, Contact Energy, Genesis, Mercury Energy and Wanganui Gas have become members.

Over the period July 2005 to June 2006, the EGCC fielded enquiries and refer gas customer complaints to gas retailers and pipeline businesses, and some of these complaints have been investigated by the EGCC.

Table 6.5

EGCC'S CASE PROFILE IN 2005-06

	Electricity	Duel fuel	Gas	Total
Enquiries	660	11	33	704
Complaints to EGCC	1239	39	72	1250
Investigations	124	2	10	136
No. of residential customers	1,562,000		224,427	
No. of investigations per million residential customers	81		53	
Likely number of eligible business customers (say annual consumption ≤ 2 TJ)	unknown		unknown	

Source: Electricity and Gas Complaints Commission 2006, Annual report 2005-06, p. 12, and Ministry of Economic Development 2005, *Energy Data File*, January, pp. 108& 133.

¹⁰⁴ Gas Industry Company 2006, *Recommendation to the Minister of Energy by the Gas Industry Company on Consumer Contract Arrangements*, 5 April, p. 26.

Note: An enquiry is a matter where only advice is given or is outside the EGCC's jurisdiction; a complaint is a matter that will be referred to a gas supplier; and an investigation is a matter that the EGCC seeks to resolve through its processes.

There may be a number of reasons why the case load for gas is lower than electricity — for example, customers are still unaware that the EGCC and retailers are not referring unresolved disputes, gas retailers are better at resolving disputes themselves.

Gas businesses that become members of the EGCC scheme sign up to its Gas Consumer Code of Conduct, and members' consumer contracts must not be inconsistent with the code. This code contains provisions in relation to:

- the nature of consumer contracts:
 - price changes;
 - service quality;
 - billing;
 - metering;
 - payment and bonds;
 - disconnection and reconnection;
 - faults and emergencies;
 - planned shutdowns;
 - obligations from point of supply;
 - complaint resolution;
 - liability; and
 - force majeure.
- oversight and review of the code; and
- enforcement of the code.

We note that the EGCC code of conduct takes its role beyond that of a dispute resolution body.

The Gas Industry Company anticipates recommending that the Minister approve under the Gas Act an extended EGCC scheme, which covers land owner and occupier disputes, in March 2007.

Model contracts

The 2004 GPS invites the Gas Industry Company to recommend arrangements for 'the development of model contract terms and conditions between consumers and retailers'.

The Gas Industry Company formed the Model Contract Working Group (MCWG) in June 2005. The MCWG researched contract issues and the EGCC code of practice, and published a discussion paper in November 2005. Upon considering the submissions received, the Gas Industry Company made the recommendations contained in Box 6.2 to the Minister of Energy in April 2006.

Box 6.2

RECOMMENDATION TO THE MINISTER ON MODEL CONTRACTS

The Gas Industry Co's recommendation is contained in six parts and is as follows:

1. That the Gas Industry Co does not develop a separate model contract for all terms and conditions between consumers and retailers.
2. That instead, model domestic contract guidelines continue to be effected through the existing EGCC Scheme (this scheme would continue to administer and develop its existing codes of practice in accordance with its own constitution and governance arrangements).
3. That the Minister and the Gas Industry Co jointly suggest to the EGCC members that the following amendments are made to the EGCC Scheme:
 - individual members should be required to publicly disclose the extent to which they comply with the code of practice.
 - retailers' invoices should:
 - (a) set out EGCC Scheme contact details;
 - (b) advise customers of the existence of the code of practice and how it can be accessed;
 - (c) on a periodic basis include a leaflet explaining the code of practice.

These amendments will encourage increased self-monitoring by Scheme members and also enhance the levels of access consumers have to the default benchmark terms.

4. That the Minister considers using his powers under the Gas Act to approve the EGCC Scheme. This would be the most efficient way to give the EGCC code of practice mandatory status.
5. That the Gas Industry Co reviews the effectiveness of the arrangements between consumers and their retailers within two years of the EGCC Scheme being approved. This review would include an evaluation of the nature of the contracts, and an evaluation of the level of compliance by retailers with the code of practice. Following this review, the Gas Industry Co would make recommendations to the Minister in light of the review findings.

The Gas Industry Co will initiate such a review earlier if warranted, for instance if the level of complaints/disputes raises significant concerns.
6. That the Gas Industry Co continues to consider specific issues relating to domestic contracts if, and as, they are brought to its attention. The Gas Industry Co will hold an annual consumer issues forum to assist in identifying contractual matters of most concern to consumers.

The Gas Industry Co will also consider issues at the request of the Minister, such as the recent request to investigate issues surrounding daily fixed charges, disconnection and transparency of bills.

Source: Gas Industry Company 2006, *Recommendation to the Minister of Energy by the Gas Industry Company on consumer contract arrangements*, 5 April, pp. 2-3.

The Minister responded on 26 July 2006 indicating that while he agreed with the recommended model contract arrangement in principle, the Minister will not approve the EGCC scheme until: (1) it has been expanded to include land owner and occupier disputes; and (2) the EGCC code of practice is extended to cover several additional contractual matters.

Lower fixed charges, billing information and disconnection/reconnection

The Minister of Energy wrote to the Gas Industry Company on 9 November 2005 requesting that the Gas Industry Company investigate and report back on:

- the level of fixed charges for small gas customers;
- the transparency of charges on bills (i.e. separation of transmission, distribution and retail components); and
- whether different practices and charging regimes by retailers for meter removal (and disconnection and reconnection of supply) are appropriate.

The Gas Industry Company consulted with gas retailers and distributors and provided a report to the Minister on 16 June 2006 with the recommendations contained in Box 6.3.

Box 6.3

RECOMMENDATIONS TO THE MINISTER ON FIXED CHARGES, BILL INFORMATION AND DISCONNECTION/RECONNECTION PROCEDURES
Fixed charges for small gas users

The Gas Industry Co does not recommend that regulations be prepared to limit or control retail fixed charges for small users, or the charges that retailers themselves pay for transmission, distribution and meter rental.

Transparency of charges on bills

It is not recommended that regulations be prepared to compel price component disclosure in customer invoices.

Disconnections and reconnections

It is not recommended, at this stage, that regulations be prepared to govern disconnection and reconnection charges and practices. However, the Gas Industry Co intends to establish an industry project team to further develop existing arrangements that establish standard practices across the industry for disconnection and reconnection of services. These arrangements will aim to improve outcomes for consumers by ensuring greater standardisation and by minimising the problem of inefficient meter removal.

Distributors will be invited to agree to standardised arrangements by 1 December 2006. If this does not occur, the Gas Industry Co will consider recommending regulations or rules to the Minister.

Source: Gas Industry Company 2006, *Recommendation to the Minister of Energy by the Gas Industry Company on fixed charges for small customers and other consumer issues*, 16 June, pp. 5-7.

It now seems unlikely that the industry will agree to standardise disconnection procedures by December 2006. To progress the matter, the Gas Industry Company will be creating a disconnection work stream that will entail the establishment of a working group and consultation on the issues and options. At this stage, it anticipates issuing a Statement of Proposal to the Minister, if required, in April 2008.

Compliance and enforcement

The Gas Act sets out a general framework to ensure the compliance and enforcement of regulation and rules made under the Act:

- regulations or rules may enable the appointment of an investigator for the purpose of monitoring or enforcing them¹⁰⁵;
- industry participants must co-operate fully with any investigation conducted by the investigator¹⁰⁶;
- after considering an allegation of a regulation or rules breach, a Rulings Panel may:
 - issue warnings;
 - issue record-keeping or reporting requirements;
 - impose fines;
 - make certain order suspending rights or imposing costs; and/or
 - propose to the Gas Industry Company that it recommend a change to a regulation or rule;¹⁰⁷
- The extent to which an industry participant may appeal the decision of the Rulings Panel¹⁰⁸.

With the new switching and registry arrangements in mind, the Gas Industry Company proposed a model to bring into effect the compliance and enforcement provisions in the Gas Act.¹⁰⁹ Briefly, the model described:

- the manner in which breaches are reported to Gas Industry Company, who would refer the matter to an investigator;
- the investigator would refer the matter to the Rulings Panel with a recommendation for early resolution, settlement or further consideration by the Rulings Panel;
- the Rulings Panel would comprise one member with the power to appoint up to two independent experts (industry and/or technical) to assist the panel. The Gas Industry Co may appoint an alternate for the member;
- the Rulings Panel may decide to have a hearing, or decide the matter on the papers;
- all decisions of the Rulings Panel would be published; and
- the Rulings Panel is subject to judicial review.

In response, the gas industry indicated a reluctance to initiate such formal and binding arrangements; however, the Gas Industry Company made the observation that¹¹⁰:

¹⁰⁵ Section 43U and 43W of the Gas Act.

¹⁰⁶ Section 43U of the Gas Act.

¹⁰⁷ Section 43X and 43Y of the Gas Act.

¹⁰⁸ Section 43ZA-4343ZK of the Gas Act.

¹⁰⁹ Gas Industry Company 2006, *Consultation Paper, Compliance and enforcement arrangements in the New Zealand gas industry*, 12 April p. 2.

¹¹⁰ Gas Industry Company 2006, *Decision paper on modified arrangement for compliance and enforcement arrangements for retail gas market registry and switching*, 19 July, pp. 3-4.

The Gas Industry Co needs to balance the industry's reluctance for a formal compliance regime against the need to deliver more effective outcomes for the sector, and the clear expectation of the Gas Act and the government.

Accordingly, the Gas Industry Company decided to adopt the model it had proposed with two modifications to improve its practicality and cost-effectiveness¹¹¹:

- the Gas Industry Company acting as a market administrator will determine whether breaches are sufficiently serious to warrant investigation and managing referrals to investigator; and
- reporting of breaches will be mandatory for the registry operator service provider and voluntary for industry participants.

Again with the new switching and registry arrangements in mind, the Gas Industry Company has developed draft gas compliance regulations that are designed to give effect to the adopted model, and the Gas Industry Company is consulting on the regulations.¹¹²

Customer switching between retailers

The 2004 GPS invites the Gas Industry Company to recommend arrangements for 'the standardisation and upgrading of protocols relating to customer switching, so that barriers to customer switching are minimised'.

The work of the Gas Industry Company and its members to develop customer switching arrangements has also had two areas of focus: the nature of the arrangements, and how they will be enforced.

The Gas Industry Company formed the Switching and Registry Working Group (S&RWG) in June 2005. The MCWG published an options paper and consulted in October 2005. Upon considering the submissions received, the Gas Industry Company and the S&RWG commissioned a cost benefit assessment of four options¹¹³:

- *Maintaining the status quo* — the voluntary Reconciliation Code would remain the sole arrangement governing gas retail customer switching.
- *Enhancing the Reconciliation Code* — this option involves amending the Reconciliation Code to specify information exchange processes, standard file formats and dispute resolution. The Reconciliation Code would become regulation and be mandatory for all industry participants.

¹¹¹ *ibid.*, pp. 14-5.

¹¹² Gas Industry Company 2006, *Statement of proposal, New Zealand gas industry, Part 2, Compliance and enforcement arrangements*, 31 August.

¹¹³ Gas Industry Company 2006, *Cost benefit analysis of options for switching arrangement in the New Zealand gas industry*, 16 March, pp. 3-4.

- *Central registry* — this option the development of a central database of records information necessary to initiate a switch, which also has the ability to co-ordinate all switch processes. A central registry could be achieved by either a single central registry (one physical database of information) or a virtual central registry (a network of cooperative databases co-ordinated through a central system).
- *Central registry integrated with allocation mechanism* — this option is an extension of the central registry option. The registry would be developed as described under option 3, but would include allocation and reconciliation processes, which establish daily gas quantities by retailer, as part of the registry.

The third option, the central registry, was shown to have the highest net benefit.¹¹⁴

Gas Industry Company also published a discussion paper on legal mechanisms to implement the central registry, in which it suggested that any mechanism to implement a central registry must be mandatory and that it should be done through rules.¹¹⁵ Subsequently, the Gas Industry Company developed draft rules that are designed to give effect to its adopted model, and it is consulting on the rules.¹¹⁶ It has also identified an issue with the Gas Act that requires resolution before the switching registry can be implemented. Section 43G(2)(c) of the Act refers to switching arrangements between retailers and customer, and does not refer to the other parties involved in the switching of a customer, namely distributors and meter owners.¹¹⁷

The Gas Industry Company is intending to release a decision paper in December 2006 and to make a recommendation to the Minister in March 2007. It is planning on bringing its switching registry into operation six months after the Gas Act is amended to recognise that distributors and meter owners have a role in customer switching. While the timing of such an amendment is a matter for the New Zealand Parliament, the registry could be operation in mid 2008.

Gas transfer, and allocation and reconciliation

This issue of allocation and reconciliation is important for the effective operation of retail, as well as wholesale markets. As we mentioned in Section 4.3, we understand that, after considering submissions, the Gas Industry Company intends to move forward with plans to translate the current voluntary gas transfer and reconciliation codes into mandatory rules, without significant change, in accordance with the consultation requirements of the Gas Act. It is planning to release a decision paper on downstream reconciliation and making a recommendation to the Minister in June 2007, so that the corresponding reconciliation system could come into operation in October 2008.

¹¹⁴ CRA International 2006, *Cost benefit analysis of options for switching arrangements in the New Zealand gas industry*, 28 February, pp. 2 & 16.

¹¹⁵ Gas Industry Company 2006, *Discussion paper, Mechanisms to implement a central registry*, 19 June, pp. 7 & 13.

¹¹⁶ Gas Industry Company 2006, *Statement of proposal, Switching arrangements for the New Zealand gas industry, Part I*, 31 August.

¹¹⁷ *ibid.*, p. 4.

6.4 Strategic challenges in the retail market

Development of retail market systems

If retail competition is to be effective, there is no doubt that the systems to support it must be capable of enabling customers to easily switch within a reasonable time, and they must ensure the risks to all retailers of trading in the market are manageable and do not advantage or disadvantage particular parties. However, New Zealand also has a small retail gas market and, accordingly, each decision by the industry to further develop retail market systems must take account of the costs and benefits.

The Gas Industry Company has commenced efforts by the industry to meet specific objectives of the 2004 GPS in relation to customer switching and reconciliation, with regard for cost and stakeholders' views, and this is likely to overcome some of the most obvious impediments to effective retail competition.

Once these first initiatives are in place, the need for others will emerge. Other initiatives might not be expensive, but more a matter of explicitly integrating the services already provided into a better coordinated set of arrangements—for example, there could be a need for rules to clearly spell out the links between the customer registry, the allocation and reconciliation process, and the service provided metering providers and data agents.

Promotion of the direct use of gas

The low penetration of gas into the retail market suggests that there is substantial potential for the direct use of gas to increase.

We have detected a common view that, universally, the direct use of gas is more efficient (and therefore more desirable) than using electricity and that the direct use of gas should be promoted. For example, the current National Energy Efficiency and Conservation Strategy lists as one of its output activities¹¹⁸:

Gas sector - Expanded use of gas directly by end-users can achieve national energy efficiency gains. Improved institutional arrangements can improve whole system efficiency of gas supply.

We caution against drawing simplistic conclusions on this matter, which is quite complex in fact.

Whether the direct use of gas is more energy efficient or more economic than the use of electricity for a given consumer in any setting — industrial commercial or residential — will depend on a complex range of factors including:

- the cost of producing or importing gas and/or other fuels, now and in the future;
- the extent to which gas and other fuels will be used to generate electricity, the efficiency of electricity generation for each fuel type, and the value that the community places upon the reliability of its electricity supply;

¹¹⁸ Energy Efficiency and Conservation Authority 2001, *National Energy Efficiency and Conservation Strategy*, September, p. 18.

- the additional cost of augmenting the gas transmission and/or distribution networks to provide new gas connections to customers who are not already connected;
- the losses of the electricity transmission and distribution network that supply the consumer, and the efficiency of the consumer's electricity appliances; and
- the losses of gas transmission system and distribution network that supply the consumer, and the energy efficiency of the consumer's gas appliances;

In more recent times, the Energy Efficiency and Conservation Authority has commissioned work that cast doubt upon the notion that the direct use of gas is universally better.¹¹⁹ While we have reservations about the methodology employed in this work, it highlights well the complex interplay of the factors involved.

In our view, the best way to ensure that each consumer has the ability to make the correct decision about whether to use gas directly, or to use electricity or some other fuel, is to ensure that the prices of gas and electricity to the customer are fully reflective of the costs down both value chain, that each sector down the chain is performing efficiently, and that customers have the capability and information they need to make accurate price comparisons.

Customer information

There is little doubt that the gas industry can do considerably more to empower retail customer choice both in relation to their choice of gas retailer, and in relation to their choice as to whether to use gas or electricity for one or a number of purposes.

One low cost means to achieve this would be to fund the Consumers Institute to remove its current fee for the use of its gas price comparator website, and perhaps a hard copy version. The current fee must create a significant barrier to the use of the website, cancelling out most if not all of any possible saving.

Secondly, customers need a useful tool to enable them to properly compare the costs of using gas and electricity and choose between them given their own particular circumstances. These costs should take account of both the fixed and variable costs of gas and electricity supply (retail prices), the costs of new gas connection if applicable, the costs of gas and electricity appliances, the purposes for which the appliances would be used, and the relative efficiencies of those appliances.

Customer protection

A customer protection regime for gas retail customers is emerging in which the EGCC not only plays the role of ombudsman in relation to commercial disputes between small business and residential customers, it also has a role in the design of the commercial relationship. This combines the roles of a rule making and rule enforcement, which is not ideal.

¹¹⁹ Charles River Associates (Asia Pacific) Limited 2004, *Increasing the direct use of natural gas in New Zealand*, volumes 1 and 2, 30 June.

We can understand and appreciate why this has come about. The New Zealand retail gas market is very small and it would be difficult at this stage, when there are so many other needs, to justify a more complicated arrangement. However, in due course, the industry through the Gas Industry Company does have the opportunity to seek to amend the EGCC scheme to implement a new regulatory framework for customer protection in which the EGCC can focus on resolving disputes. Elements of the framework could include:

- the Gas Code of Conduct being brought within the ambit of the Gas Industry Company, potentially as a rule under the Gas Act and harmonised with any similar code for electricity; and
- subject to the confirmation of a clear need, the development of an energy retailer marketing code that deals with the relationship between retailers and the customer to whom they market — such a marketing code currently applies in most Australian jurisdictions¹²⁰.

A retailer marketing code could supplement general consumer law by requiring retailers (or the marketers that act on their behalf) when promoting retail products to small customers by telephone, in person or over the Internet to:

- limit their direct approaches to customers to specified times;
- provide certain information;
- obtain a customer's acknowledge that such information has been provided prior to the customer signing a retail contract; and
- maintain certain records of their marketing activities.

The need for a marketing code will depend on the level of retailers' marketing activity, which may increase after the implementation of a switching registry, or any feedback from customers as to whether they have experienced difficulties with retailers' marketing practices.

¹²⁰ For example the Marketing Code of Conduct made by the NSW Minister for Energy on 1 June 2002 under the *Electricity Supply Act 1995*, and the *Gas Supply Act 1996*.

Chapter 7

State and performance of the industry

7.1 Current state of the industry

In relation to the competitive sectors, we summarise here our findings from the previous chapter on the most fundamental indicators as to whether competition can exist: the number of firms and market concentration, and the barriers to entry and exit.

Number of firms and level of market concentration

Production and processing

The production sector is highly concentrated with three dominant players: Shell, Todd and OMV, who together produced 91.1 per cent of New Zealand's gas in the year ending September 2005 and hold 75.4 per cent of its remaining recoverable reserves.

Twelve small independent companies make up the other producers: Swift Energy, Greymouth Petroleum, Westech Energy, Origin Energy Resources, Genesis Power, Mitsui & Co., TAG Oil, Austral Pacific, New Zealand Oil and Gas, Bridge Petroleum, Arrowhead Energy and International Resource Management.

The processing sector is closely aligned with the production sector and consequently highly concentrated. Shell, Todd and OMV also dominate the processing sector with 72.3 per cent of the capacity.

The other processing companies are: Vector, Swift Energy, Greymouth Petroleum, Westech Energy, Origin Energy Resources, Genesis Power, Mitsui & Co., TAG Oil, New Zealand Oil and Gas, and Bridge Petroleum.

This level of market concentration is likely to remain for several years to come given that only one moderately large field not owned by Shell, Todd or OMV (Kupe) is due to come into production over that period.

Wholesale trading

Firms in the wholesale sector include all the companies involved in production and processing along with the major electricity generators, the petrochemical plants and the gas retailers: Contact Energy, Genesis Energy, Alinta, Bay of Plenty Electricity, Mighty River Power (including Mercury Energy), Vector, Whareroa Kiwi Dairy Plant, Methanex, Balance Agri-Nutrients, Wanganui Gas (including Directenz), Auckland Gas Company, Nova Gas, EGas and On Gas. Vector also has a unique and significant role as the technical and system operator for both the VT and MDL pipelines.

While we have no direct trading data, we understand from the information we do have that the market is also concentrated with Contact Energy, Genesis Energy and Vector currently wholesaling the majority of New Zealand's gas (see Figure 4.3, Figure 4.4 and Figure 4.5).

Retail trading

Seven gas retailers supply gas to retail industrial and commercial customers: Contact Energy, EGas, Genesis, Mighty River Power (Mercury Energy), Todd Energy (Nova Gas, Auckland Gas Company, Bay of Plenty Electricity), Wanganui Gas and Vector (On Gas).

Five retailers supply gas to residential customers: Contact Energy, Genesis, Mighty River Power (Mercury Energy), Bay of Plenty Electricity, and Wanganui Gas (including Directenz).

While the customer number data is not precise, Contact Energy and Genesis Energy dominate the residential gas retail market with market shares (by our very approximate estimation) of 35 per cent and 47 per cent, respectively. Very little information is available on the market shares that exist in the commercial and industrial retail market.

Barriers to entry and exit

Given these high levels of market concentration, it is important to identify and address the major barriers to entry and exit. Here we identify them. From our desk-top research it would appear that the barriers for new entrants to the production, processing, wholesale and retail sectors arise from the same factors that are challenging the industry incumbents:

- the need for companies to explore for, find and develop economically recoverable quantities of gas in new fields;
- the costs associated with establishing new production and processing facilities, including liquid storage;
- the transaction costs caused by the increasing complexity of the wholesale market: the increased number of fields from which gas is purchased, the unbundling of gas and transportation contracts, understanding the manner in which transmission pipelines are balanced and gas is allocated and reconciled;
- the availability of rights for parties seeking access to the transmission pipeline on reasonable terms and conditions;
- the lack of clarity about the service that distribution pipelines will provide to retailers under the terms of the use of system contracts;
- concerns by some that vertically integrated pipeline companies might not be providing access on a non-discriminatory basis;
- lack of clarity in relation to responsibilities for gas quality and the management of gas emergencies;
- the transaction costs and time delays associated with retail customer switching;
- the difficulties facing customers as they seek to make informed choices as to which gas retailer they should engage, or whether to use gas in the first place; and

- the transaction costs associated with meeting the regulatory requirements of a customer protection regime — currently the requirement to be a party to an approved complaints resolution scheme.

Most of these barriers are unavoidable to some extent; however their impacts can be mitigated. We agree with the Gas Industry Company that there are substantial benefits to be gained by placing priority upon the creation of an effective open access regime for transmission and facilitating more competition at the wholesale level. These initiatives will improve the industry's efficiency in the transmission and wholesale sectors, and create a transparent and firm foundation for the development of the emerging new retail market systems.

We have not identified any barriers to exit that require immediate attention.

7.2 Performance - market development activity

Market development initiatives are required to overcome the substantial barriers to entry that currently exist. Here, we firstly gauge the industry's performance in terms of its efforts to meet this challenge.

Does the current GPS reflect the right priorities?

The priorities and tasks set out in the gas industry in the 2004 GPS are strongly consistent with the need to develop the fundamental elements of a well functioning gas market, particularly in relation to the wholesale market, access to the transmission and distribution pipelines, and the establishment of a customer switching registry.

The timetable set down in the 2004 GPS requires review in the light of what the gas industry has achieved to date, the approach it is taking, and what it can achieve over the next few years.

Does the gas industry have a sound plan to deliver the outcomes necessary to improve competition?

Through the Gas Industry Company, the industry has a clear work plan to achieve most of the outcomes required in the GPS.¹²¹ By the end of June 2007, the Gas Industry Company plans to have considered and designed the vast majority of the specific industry outcomes that the Government set down in the GPS and to bring the required arrangements and systems into operation over the following 12 to 18 months.

One area where the Gas Industry Company's plan appears to need further consideration is the timing of the work to develop reasonable the terms and conditions of access to distribution networks in the light of the Commerce Commission's work to establish a price control for the Vector and Powerco pipelines. As we mentioned earlier, we recommend that the Gas Industry Company and the Commerce Commission commence discussions and exchange ideas soon about how they can harmonise their work plans to achieve the best outcome.

¹²¹ Gas Industry Company 2006, *Strategic Plan 07-09*.

Is the gas industry supporting the Gas Industry Company to deliver on the plan?

While it is clear that the industry does not agree with all the decisions that the Gas Industry Company makes, our observation is that it is providing a good level of support through the following means.

Two senior officers of participants in the sector contribute their time to the Gas Industry Company as directors:

- Dr Ajit Bansal, Commercial Manager for Shell's Exploration and Production activity in New Zealand, Country Chairman for Shell New Zealand, and Chairman of Maui Development Limited;
- Mr Mark Franklin, Chief Executive Officer of Vector Limited and a Director of Natural Gas Corporation; and
- Mr Murray Jackson, Chief Executive of Genesis Energy.

Gas Industry Company issues and discussion papers attracted a good number of detailed, well thought out submissions from a range of industry organisations and other stakeholders, and that these submissions add considerable to the quality of the Gas Industry Company analysis and conclusions.

What areas should be considered for the next GPS?

The Gas Industry Company is well advanced in its work to achieve the outcomes listed in the GPS — some in relation to the retail market are complete. While some are not complete and have some way to go, the industry's understanding of what they involve is becoming much clearer. Given this, and the emergence of the New Zealand Energy Strategy, it is nearing the time when the GPS should be reviewed and revised, as it should be every two to three years.

In our view, the next GPS could:

- continue to set down the overarching objectives of the gas industry to enhance its ability to operate competitively and thereby efficiently;
- recognise the role of the industry body (the Gas Industry Company) in not only market development but also in monitoring, operation and maintenance of market arrangements;
- provide for a two yearly cycle whereby the industry body would:
 - formally assess the state of the gas industry in terms of its market concentration and barriers to entry and exit;
 - monitor progress of market developments and competitive activity — see section 7.3 below;
 - revise the industry's strategies and priorities for on-going developments, which would form the basis of the industry body's strategic plan;
 - report competition outcomes with an expectation of incremental improvements.

A two year cycle is appropriate given that many market development initiatives have long lead times and their benefits will take some time to become measurable.

An appropriate time for the completion of the next full assessment of the industry's state and performance would be April 2009. This would be the earliest time at which the industry's performance could be measured on the basis of its competitive activity given that its new wholesale and retail market systems are planned to come into operation in mid 2008. In the meantime, the Gas Industry Company's annual report will enable it to report on its progress with market developments and the industry's competitive activity to the limited extent information is available.

7.3 Competitive activity

Competitive activity indicators

We have set down a list of indicators that *together* can provide a good picture of the level of competition that exists in, or is facilitated by, each sector. No single indicator stands on its own.

Table 7.6

RECOMMENDED INDICATORS OF COMPETITIVE ACTIVITY (FOR A FINANCIAL YEAR)

Exploration & production	Processing	Transmission	Wholesale trading
Participation in government auctions of frontier region blocks (MED)	Offers of excess capacity to new gas suppliers (IS)	Bids and offers of capacity posted (WT)	Bids and offers of gas posted (WT)
Number of wells drilled (MED)	Number of processing contracts in place (IS)	Capacity used and/or reserved (WT)	Number and quantities of short term gas contracts in traded (WT)
Number of mining permits issued (MED)		Number and quantities of short term capacity contracts traded (WT)	Shipper satisfaction with trading arrangements (IS)
		Number of access disputes (IS)	
Evidence of collusion or exclusive dealing (CC)	Evidence of collusion or exclusive dealing (CC)	Confirmation of effective ring-fencing (AP)	Evidence of collusion or exclusive dealing (CC)
Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)

Distribution	Retail trading (ind & comm)	Retail trading (residential)
Number of new connections (IS)	Number and type of market offers made (IS)	Number and type of market offers made (IS)
Time and average cost to connect a new customer—greenfield & brownfield (IS)	Gross, net and multiple switching (SR)	Gross, net and multiple switching (SR)
	Customer satisfaction with retailer arrangements (CS)	Customer satisfaction with retailer arrangements (CS)
Number of access disputes (IS)	Number of customer complaints (EGCC)	Number of customer complaints (EGCC)
Confirmation of effective ring-fencing (AP)	Evidence of collusion or exclusive dealing (CC)	Evidence of collusion or exclusive dealing (CC)
Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)	Type of new products and evidence of innovation (IS)

Source: ACG analysis.

Notes:

1. 'Gross switching' is the total number of customer switching transactions over a period; 'net switching' is the number of customers who have switched at least once over the period; and 'multiple switching' is the number of customers that have switched more than once over the period.

2. Information sources: MED is Ministry of Economic Development, CC is Commerce Commission, WT is wholesale trading system; AP is auditor of pipeline owner, ID is information disclosed under the Gas (information disclosure) regulations, SR is switching registry, IS is industry survey, and CS is customer survey.

Each of these indicators is:

- *meaningful* – it has some direct relationship to a transaction that creates value in the market;

- *comparable* – it can be compared with similar activity in other markets or in the same market over time; and
- *measurable in a cost-effective manner* – it can be measured using information already collected, that should be generated by market infrastructure (when such infrastructure becomes available), or that should be able to be collected inexpensively from the industry.

For example, many of the indicators measure the level of trading transactions that have been made possible by the regulatory and market arrangements that are currently being put in place. Other indicators measure the extent to which the market is satisfying or responding to customers' needs.

We have sought to rely as much as possible on existing information sources such as:

- the Ministry of Economic Development — the annual and monthly production and retail data collected;¹²²
- the Commerce Commission — information in relation to evidence of collusion or exclusive dealing
- the EGCC — information in relation to the number of disputes raised by customers with distributors and retailers, even if these disputes are not referred to the EGCC.
- the Ministry or the Commerce Commission — information from the gas pipeline businesses in accordance with the *Gas (information disclosure) regulations*.

Secondly, we have also included a number of additional indicators for which some form of industry or customer survey will be needed to collect the required information. We expect that many gas businesses collect this information as a matter of course. These relevant indicators include:

- from a survey of industry participants:
 - offers of excess processing capacity;
 - the number and type of processing contracts in place;
 - shipper satisfaction with trading arrangements;
 - number of access disputes;
 - the number and type of retail market offers made;
 - number of new connections, time and average cost; and
 - types of new products and evidence of innovation; and
- from a survey of end-use customers:
 - customer satisfaction with retailer arrangements;

¹²² Dang, H. 2006, *Data collection/processing approach to the energy balance – The case of New Zealand*, Presentation to the International Energy Agency, 28 April, p. 22-7.

Finally, we have recommended that the effectiveness of the transmission and distribution pipeline's ring fencing be confirmed. This would require a report from an independent expert, perhaps an external auditor.

Assessment of current competitive activity

We are unable to undertake any meaningful assessment of the competitive activity of the gas industry based on the information we have available to us at this stage.

The only related information we have available to us is in relation to the number of wells drilled and the number of mining permits issued in 2005 (see Chapter 3), both of which have increased over recent years in response to the depletion of the Maui field and rising gas prices. These indicators confirm that the exploration and production companies are responding appropriately to price signals.

Competitive activity targets

It is relatively straightforward to set a target for the number of gross customer switches. In many jurisdictions, a healthy level of switching is considered to be between 5 and 20 per cent per year, which has been reached and sustained in the United Kingdom, New Zealand, Texas, and the Australian states of New South Wales and Victoria.¹²³ A target range of 5 to 20 per cent for New Zealand gas is reasonable too.

However, there are several reasons why we are not able to set reasonable targets for the other indicators. Many of the market systems and arrangements that will underpin the market over the next few years are not yet developed or implemented; For example, in relation to wholesale trading activity, the target level of wholesale trading that a new trading system will facilitate will depend on the features that trading system is designed to have. Other indicators need to be designed more precisely. The value of some indicators like customer satisfaction will depend in the design of the related customer survey. And there are some indicators, such as the number of exploration permits, for which the setting of targets is unrealistic.

There will be an appropriate time for the setting of a target, or target range, for most of the indicators as related work steams progress.

Information gathering

To facilitate future assessments, we recommend that the Gas Industry Company:

- liaises with the Ministry of Economic Development, the Commerce Commission, the EGCC and gas industry participants to arrange for the information necessary to determine the state and performance of the industry in the manner we have described (with guidelines where necessary); and
- starts to collect whatever information can be made available so that at least a partial competitive activity assessment can be provided in its 2007 and 2008 annual reports.

¹²³ Cody, E. & Grey, P. 2004, 'Just what marks success?', *Spark*, 1 December, pp. 3-7.

*Appendix A***Glossary of terms**

AQ	Authorised Quantity
bcm	billion cubic metres (1 bcm = 38 PJ ¹²⁴)
EGCC	Electricity and Gas Complaints Commission
CNG	compressed natural gas
GANZ	Gas Association of New Zealand
GIC	Gas Industry Company
GJ	gigajoule, a unit of energy (1 GJ = 10 ⁹ J)
ICA	interconnector agreement
ICP	installation control point, a unique identifier for a point of gas connection for reconciliation purposes
kWh	kilowatt-hour, a unit of energy (1000 kWh = 3.6 GJ)
LGN	liquefied natural gas
LPG	liquefied petroleum gas
MJ	megajoule, a unit of energy (1 MJ = 10 ⁶ J)
MDL	Maui Development Limited, the services company for the Maui Joint Venturers: Shell, Todd & OMV
MPOC	Maui Pipeline Operating Code
MRP	Mighty River Power
NEECS	National Energy Efficiency and Conservation Strategy
NZIER	New Zealand Institute for Economic Research
NZES	New Zealand Energy Strategy
NZPAC	New Zealand Pipeline Access Code
NZOG	New Zealand Oil and Gas
ODV	optimised deprival value
PJ	petajoule, a unit of energy (1 PJ = 10 ¹⁵ J)
ROFR	right of first refusal

¹²⁴ <http://www.energyinfonza.co.nz/home/IndustryOverview/EnergyFormulas/index.html>.

TJ	terajoule, a unit of energy (1 TJ = 10 ¹² J)
TSA	transmission services agreement
VT	Vector Transmission, also known as Natural Gas Company Transmission or NGCT
WP	welded party

Appendix B

Government Policy Statement on Gas Governance (2004 GPS)

Hon. Pete Hodgson
Minister of Energy
October 2004

Introduction

The gas sector has a critical role to play in achieving the Government's objective of a sustainable and efficient energy future and higher economic growth rates.

This statement sets out the Government's policy for gas industry objectives, governance and rules relating to the wholesaling, processing, transmission, distribution and retailing of gas.

Other related documents are the Sustainable Development Programme of Action¹²⁵, the National Energy Efficiency and Conservation Strategy¹²⁶, the Climate Change Work Programme¹²⁷ and the Government Policy Statement on Electricity Governance.

The Government's policies and procedures for gas exploration and development are set out in the Crown Minerals Act and the Minerals Programme for Petroleum. The Minerals Programme for Petroleum is currently being reviewed and will set out the Government's exploration and development policies moving forward.

The Government's gas safety regime is currently being progressed through an Energy Safe Review Bill. This Bill will set out obligations and enforcement provisions for safety of consumers and the public (including gas detection), gas quality, and measurement of gas supplied to consumers. Workplace safety is addressed through the Health and Safety in Employment Act."

This statement replaces the "Government Policy Statement: Development of New Zealand's Gas Industry" of March 2003.

Background

- 1 In March 2003 the Government released its policy for the development of New Zealand's gas industry, and its expectations for industry action. The Government invited the gas industry to establish a governance structure and a work programme to deliver on those expectations. The Government Policy Statement (GPS) stated that the Government favoured industry-led solutions where possible, but is prepared to use regulatory solutions where necessary.

¹²⁵ <http://www.mfe.govt.nz/publications/sus-dev/sus-dev-programme-of-action-jan03.html>

¹²⁶ <http://www.eeca.govt.nz/default2.asp>

¹²⁷ <http://www.climatechange.govt.nz/sp/consultation/confirmed-policy.htm>

2 The gas industry has advised the Government that it requires some form of regulatory backing to achieve the Government's objectives and outcomes for the gas sector.

3 The Government, in co-operation with the industry, intends to implement a coregulatory model of governance to ensure that the objectives of the Government are met.

Government's policy objective and outcomes for the gas industry

4 The Government's overall policy objective for the gas industry is:

"To ensure that gas is delivered to existing and new customers in a safe, efficient, fair, reliable, and environmentally sustainable manner."

5 Consistent with this overall objective, the Government is seeking the following specific outcomes:

- a) The facilitation and promotion of the ongoing supply of gas to meet New Zealand's energy needs, by providing access to essential infrastructure and competitive market arrangements;
- b) Energy and other resources are used efficiently;
- c) Barriers to competition in the gas industry are minimised to the long-term benefit of end-users;
- d) Incentives for investment in gas processing facilities, transmission and distribution, energy efficiency and demand-side management are maintained or enhanced;
- e) The full costs of producing and transporting gas are signalled to consumers;
- f) Delivered gas costs and prices are subject to sustained downward pressure;
- g) The quality of gas services and in particular trade-offs between quality and price, as far as possible, reflect customers' preferences;
- h) Risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties;
- i) Consistency with the Government's gas safety regime is maintained; and
- j) The gas sector contributes to achieving the Government's climate change objectives by minimising gas losses and promoting demand-side management and energy efficiency.

Governance

- 6 To meet the policy objective and outcomes the Government invites the industry to establish an industry body in a co-regulatory governance setting. If an industry body is not established or if the industry body does not deliver the expected industry outcomes, the government will establish a Crown regulatory authority.
- 7 The recently amended Gas Act 1992 allows the Minister of Energy to recommend the approval of an industry body to recommend regulations and rules in the areas of wholesaling, processing, transmission and distribution of gas. For an industry body to be approved it must:
 - a) be broadly inclusive of industry participants (membership is not compulsory);
 - b) have a governance board with a majority of independent members including an independent Chair;
 - c) satisfy the Minister that it is capable of delivering outcomes that meet the Government's objectives for the gas industry;
 - d) have governing rules with objectives consistent with the Government's objectives for the industry body's recommendations on the wholesaling, processing, transmission, distribution and retailing of gas; and
 - e) allow all industry participants, except service providers appointed under any gas governance regulation, to become members of the industry body.
- 8 The Government invites the gas industry to form an industry body that meets the above criteria, and submit it to the Minister for approval no later than 31 October 2004.

Industry - led solutions

- 9 The Government expects the industry body to develop and submit to the Minister of Energy for approval proposed arrangements, including regulations and rules where appropriate, providing for effective industry arrangements in the following areas.

Wholesale Markets and Processing

- The development of protocols and standards applying to wholesale gas trading, including quality standards, balancing and reconciliation.
- The development of a secondary market for the trading of excess and shortfall quantities of gas.
- The development of capacity trading arrangements.
- Protocols that set reasonable terms and conditions for access to gas processing facilities.

Transmission and Distribution Networks

- The establishment of an open access regime across transmission pipelines so gas market participants can access transmission pipelines on reasonable terms conditions.
- The establishment of consistent standards and protocols across distribution pipelines so that gas market participants can access distribution pipelines on reasonable terms and conditions.
- The establishment of gas flow measurement arrangements to enable effective control and management of gas.

Retail and Consumer Arrangements

- 10 The recently amended Gas Act allows the Government to directly regulate for and consumer issues, to ensure effective outcomes for consumers.
- 11 The Minister of Energy invites the industry body to recommend arrangements, including regulations and rules where appropriate, in the following areas:
 - The standardisation and upgrading of protocols relating to customer switching, so that barriers to customer switching are minimised.
 - The development of efficient and effective arrangements for the proper handling of consumer complaints.
 - The development of model contract terms and conditions between consumers and retailers.

Government oversight

- 12 The Government will monitor the progress of the industry body in developing the arrangements, including regulations and rules where appropriate, outlined under industry - led solutions above. The industry body should develop a comprehensive process and timeline for progressing and finalising these arrangements and report the Minister of Energy each quarter on progress.
- 13 Proposed arrangements, including regulations and rules where appropriate, covering the following are to be submitted for approval by 31 March 2005:
 - The establishment of an open access regime across transmission pipelines that gas market participants can access transmission pipelines on reasonable terms and conditions.
 - The development of protocols and standards applying to wholesale gas trading, including quality standards, balancing and reconciliation.
- 14 Proposed arrangements, including regulations and rules where appropriate, covering the following are to be submitted for approval by 31 August 2005:
 - The standardisation and upgrading of protocols relating to customer switching, so that barriers to customer switching are minimised.
 - The development of efficient and effective arrangements for the proper handling of consumer complaints.

- The development of model contract terms and conditions between consumers and retailers.
- 15 All other arrangements listed under "Industry-led solutions" should be submitted for approval by December 2005".

Appendix C

Profiles of the major New Zealand gas industry companies

C.1 Contact Energy

Contact Energy is a major electricity generator, retailer of gas and electricity and gas wholesaler.

Contact energy is listed on the New Zealand and Australian stock exchange; its major shareholder is the Australian energy company Origin Energy, which has a 51.4% stake. Contacts reported results for 2005 include:¹²⁸

- Total Revenue – \$1,003 million
- Net Profit after tax - \$138 million
- Total assets – \$4,374 million
- Net assets - \$3,034 million

Contact as a gas producer

In the 9 months to June 2005, Contact used and sold to third parties 42.5 PJ of natural gas¹²⁹. In a bid to secure long-term gas supplies Contact acquired an exploration permit in the Taranaki basin in June 2004. After conducting seismic studies and exploratory drilling it decided in September 2006 to relinquish this permit. At this time, it appears Contact has no further upstream gas operations.

Contact as a generator

Contact Energy generates 7,970 GWh per year¹³⁰ from its ten power stations, around 27% of New Zealand's energy.¹³¹ As well as being the largest geo thermal generator with three geothermal plants at Wairakei, Ohaaki and Poihipi Road, Contacts generation portfolio includes, two hydro power stations at Clyde and Roxburgh, and natural gas power stations at New Plymouth, Otahuhu, Taranaki, and Te Rapa.

Contact as an energy retailer

As of June 2005 Contact had 598,000 retail customers, 85,000 gas customers and 513,000 electricity customers. Its sales of electricity accounted for 5,180GWh.¹³² As well as operating under its **Contact Energy Brand** it also owns **Empower Ltd**, which retails electricity to the North Island and Christchurch. Contacts gas wholesale operations are managed by its subsidiary **Energy Gas Contracts Ltd**.

¹²⁸ IBIS World Company Profile Report Contact Energy.

¹²⁹ Contact Energy 2005, *Annual Report*, p. 13.

¹³⁰ Contact Energy 2005, *Annual Report*, p. 2.

¹³¹ www.contact-energy.co.nz.

¹³² Contact Energy 2005, *Annual Report*, p. 2.

C.2 E-gas

No corporate information appears to be available.

C.3 Genesis Energy

Genesis Energy is a multi utility with interests in gas production, electricity generation, gas wholesaling as well as the retailing of both gas and electricity.

Genesis is a state run entity wholly owned by the New Zealand Government. Its most recent accounts indicate its financial position for 2004-5 as¹³³:

Total revenue – \$1,495 million

Net profit after tax – \$70 million

Total assets - \$1,867 million

Net assets - \$1,369 million

Genesis as a gas producer

To secure future gas supplies Genesis has become involved in several production ventures. It now holds:

- a 31% interest in the joint venture developing the Kupe gas field that is expected to flow gas from December 2007 - Genesis also has a contract for 96% of Kupe gas¹³⁴; and
- a 40% interest and rights to 100% of the gas from the Cardiff deep gas project, a field of approximately 160 PJ and 12.8 million barrels of associated condensate¹³⁵.

Genesis as a generator

Genesis Power has 1,640MW¹³⁶ of electricity generation, including New Zealand's largest thermal power station at Huntly, a high efficiency 48MW open gas cycle turbine at Huntly, hydro stations at Tongariro and Lake Waikaremoana, the Hau Nui Wind Farm in the Wairarapa and co-generation facilities at large industrial sites at Te Awamutu and Kinleith. It has proposed to build a further wind farm near Auckland.¹³⁷

Genesis as an energy retailer

Genesis has two retail businesses – Genesis Energy and Energy online. Since Genesis began retailing in 1999, it has expanded to become New Zealand's largest retailer, with approximately 685,000 gas and electricity customers.¹³⁸

¹³³ IBIS world company profile report, Genesis Power Ltd.

¹³⁴ Genesis Energy 2005, *Annual Report*, p. 57.

¹³⁵ Genesis Energy 2005, *Annual Report*, p. 15.

¹³⁶ We realise that this figure of 1,640 MW is different to the *Energy data file* information in Table 4.7. We cannot explain this difference.

¹³⁷ <http://www.genesisenergy.co.nz/genesis/about-us/about-us.cfm>.

¹³⁸ www.genesisenergy.co.nz.

C.4 Methanex

Methanex is the world's largest producer and marketer of methanol.

Based in Vancouver, it is listed on the NASDAQ and Toronto stock exchange; it has methanol plants in New Zealand, Chile and Trinidad.

In 2004, Methanex closed the largest of its New Zealand methanol plants at Motunui. The remaining Waitara plant is run as a flexible asset and its operation is dependent on the price of methanol. In 2005 it produced 343,000 tonnes of Methanol approximately 65% of its potential capacity.¹³⁹ Methanex has been one of the parties to purchase the Crown entitlement under the Maui gas contract. Under the revised 2004 Maui gas contract Methanex has secured an additional 40 PJ of supply from the Maui field.

In August 2006 it announced that it would be restarting its Waitara plant as an increase in customer demand and low inventories were expected to create tight supply conditions over the next year.¹⁴⁰ It has enough contracted gas to produce approximately 230,000 tonnes in 2006, but notes there can be no assurances it will be able to source more gas on commercially acceptable terms in the future.¹⁴¹

C.5 Mighty River Power

Mighty River Power is an integrated energy generation, trading, retailing and metering business. It is a state owned enterprise, wholly owned by the New Zealand government. In 2005 it reported:

Total Revenue - \$684 million

Net profit after tax - \$121 million

Total assets – \$2,668 million

Net assets - \$2,033 million

Mighty River as a generator

Mighty River Power's generation assets collectively account for up 22% of New Zealand's peak energy demand.¹⁴² These include 9 hydro stations across New Zealand and 2 geothermal power stations at Rotakawa and Mokai. In addition to these, it operates three methane generators at landfill sites and one cogeneration site.

Mighty River as an energy retailer

Mercury Energy is the retail brand of Mighty River Power acquired by Mighty river in 1999, it provides electricity throughout New Zealand; it currently has around 300,000 energy customers, predominately in the North Island.¹⁴³

¹³⁹ Methanex 2005. *Annual Report*, p. 33.

¹⁴⁰ Methanex media notice, 16 August 2006.

¹⁴¹ Methanex 2005, *Annual Report*, p. 46.

¹⁴² www.mightyriverpower.co.nz/generation.

¹⁴³ www.mercury.co.nz.

Mighty River metering services

Mighty River also owns Metrix a company that operates meters in the greater Auckland region and provides metering equipment throughout New Zealand.

C.6 OMV New Zealand

OMV is an Austrian production company with interests in several large oil and gas fields.

OMV New Zealand was incorporated in 2001, it is a subsidiary of the OMV group based in Austria. The parent company had worldwide sales of 15.8 billion Euros and EBIT of 1.96 billion in 2005.

Its New Zealand interests include:

- 10% interesting the offshore Maui field including the Maui pipeline;
- 69% interest in the Maari oil field, where production is expected from 2008;
- 26% interest in Pohokura gas field;
- 50% share in the venture exploring the Northland Basin offshore field.

C.7 Shell New Zealand

Shell New Zealand is a subsidiary of the multi national energy group Royal Dutch Shell.

Shell as a gas producer

Shell is a major production and exploration company, through its subsidiaries it has interests in a range of joint ventures these include an:

- 84% interest in the Maui field and pipeline;
- 50% interest in the Kapuni field; and
- 26% interest in the Pohokura field.

Shell controls its ventures through a range of affiliate companies, these subsidiaries include:

- Shell Exploration NZ Ltd;
- Energy Petroleum Investments Ltd;
- Shell (Petroleum Mining) Company Ltd; and
- Taranaki Offshore Petroleum Company Ltd.

C.8 STOS

STOS operates exploration and production fields on behalf of a number of separate joint ventures.

A 50/50 joint venture between Todd and Shell New Zealand, STOS is responsible for producing 85% of New Zealand's gas.¹⁴⁴ It is involved in the appraisal, development, and production of oil and gas fields. STOS is responsible for production operations at Maui, Kapuni, and Pohokura.

C.9 Swift Energy

Swift Energy is a US based oil and natural gas production active as a exploration and production company in the Taranaki region.

Swift had a global turnover of \$423 million (US) in 2005 and a net income of \$115 million (US). Its total global assets represented \$1,204 million (US) and its Net assets was \$607 million (US)¹⁴⁵ Its New Zealand operations represented approximately 15% of its proven reserves.

Swift's 2005 production in New Zealand was 0.45 bcm , an increase of 2% from the previous year. Its operations are focused on the TAWN fields and Rimu/Kauri area of the Taranaki basin in which it owns a 100% interest. It has 45 wells drilled in New Zealand and proven reserves of 3.34 bcm, with 2.54 bcm of that developed.

C.10 Todd

Todd is a major oil and gas producer with a significant portfolio of electricity generation assets as well as being a wholesale and retail trader of gas and electricity

Todd as a gas producer

Todd Energy holds the following gas production assets:

- 50% interest in the Kapuni field;
- 6.24% interest in the Maui field;
- 100% interest in the McKee and Mangahewa fields;
- 26% interest in the Pohokura field; and
- Gas production from landfill sites around Wellington and Auckland.

Todd as a retailer and wholesaler of gas

Nova Gas, is the reticulated gas retail and wholesale arm of Todd, it retails to industrial and commercial clients throughout the North Island. Nova gas has constructed a number of bypass distribution networks across the North Island; it uses these networks solely for the supply of its own customers.

Todd also owns the **Auckland Gas Company**, which is a gas retailer in Auckland.

¹⁴⁴ www.stos.co.nz.

¹⁴⁵ Swift Energy 2005, Financial report, p. 26.

Todd's other retail companies are **Hulme Gas** and **Otago Citigas**, suppliers of bottled and bulk liquefied petroleum gas (LPG) for residential and commercial customers to the North and South Island respectively. **Todd LPG** also supplies bulk LPG by rail and tanker.

Todd as an electricity retailer

In the electricity sector, Todd owns 2 companies:

- **Bay of Plenty Electricity** that generates and retails electricity, in the Bay of Plenty; and
- **King Country Energy**, a generator and retailer of electricity in the Waitomo, King Country and Ruapehu Districts.

C.11 Vector

Vector is a major energy business, with interests as both a gas and electricity network business and a wholesaler and retailer of gas.

Vector is listed on the New Zealand stock exchange and has a major shareholding in:

- Auckland Energy Consumers Trust – 75.10%

In its 2005 annual report it reported its financial position as:

- Total revenue - \$870.9 million
- Net profit after of tax - \$40.7 million
- Total assets - \$4,851 million
- Net assets - \$1,045 million

Vector as a gas processor

Vector owns and operates gas processing facilities at Kapuni in South Taranaki. The plant processes raw gas from local fields to produce specification gas for the reticulated market.

Vector as a gas transmission and distribution company

Vector owns the longest network of high-pressure transportation pipelines and lower pressure distribution networks in New Zealand.

Vector as a electricity distribution company

Vector operates a distribution network serving 35% of the countries electricity connections, under the brands Vector Electricity and United Networks.

Vector as a retailer and wholesaler of gas

Through its sales arm **Ongas**, Vector contracts with over 500 major industrial and commercial gas users each consuming over 10 TJ per year. Vector's total sales account for approximately 17 PJ per annum. Most of its customers are in the forestry, dairy, food processing and manufacturing industries.

Through its **Liquigas Limited subsidiary**, Vector is involved in handling over 200,000 tonnes of LPG annually. In Auckland, gas is promoted under the **Pure Energy** brand and in other parts of the North Island is promoted under the **Gas** brand.

Vector as a energy metering company

Through its metering businesses, **NGC metering** and **Stream information** vector provides gas metering to 64,000 customer in New Zealand, electricity metering services to 800,000 customer and energy data management to a further 14,000 customers in Australia and New Zealand.

Vector as a telecommunications business

Vector's telecommunication business, **Vector communication**, owns a fibre-optic telecommunications network covering Auckland and Wellington.

Services

The Vector business, **Utilitech**, offers training for people involved in maintaining gas and electricity networks.

Vegetation management

Vector has a 50% stake in **Treescape**, one of Australasia's largest tree and vegetation management companies, responsible for controlling vegetation around electricity lines.

C.12 Wanganui Gas

Wanganui Gas retails gas and electricity, and distributes gas in the Wanganui region.

Wanganui District Council Holding Ltd owns 100% of Wanganui Gas. Its latest financial results indicate:

Total revenue – \$27.8 million

Total profit after tax – \$1.4 million

Total assets – \$24 million

Net assets – \$13 million

Wanganui Gas as a retailer

Gas is sold both under **Wanganui Gas** brand, using its own distribution network and through the **Directenz** brand in other distributors regions. The company has wholesale gas contracts for the supply of its gas with Natural Gas Corporation, a subsidiary of Vector.

Distribution assets

GasNet is the division of Wanganui Gas that owns and operates the gas distribution business in the Wanganui region.

Appendix D

Current and planned drilling activity for 2006

Table D.1

CURRENT AND PLANNED DRILLING ACTIVITY FOR 2006

CURRENT ACTIVITY					
Maui ADI (Maui A platform, D sand - Ihi)	STOS	PML 381012 (Maui)	Development Sidetrack. Drilled from the Maui A platform (first well drilled from this installation since 1979). On stream target end July 2006. To be completed with 7 5/8" tubing. Status: Awaiting Completion.	Kicked off at aprox. 479m - TD (MD-RKB) 5603m. Made 5124m	Taranaki - Offshore
Maui EOI (East of Ihi)	STOS	PML 381012 (Maui)	Development Sidetrack. The second of two development side tracks to be drilled from the Maui A platform during 2006. Primary objective Maui 'D' sands (Eocene Kaimiro formation - Kapuni Group) On stream target end July. To be completed with 5.5" tubing. Status: Awaiting Completion	Kicked off at aprox. 1860m - TD 4114m (MD-RKB). Made 2254m	Taranaki Offshore
POW-03 Pohokura Production Well	STOS	PMP 38154 (Pohokura)	Development well. Last of three wells to be drilled from an onshore location to penetrate offshore targets (Eocene Mangahewa Formation - Kapuni Group). Spudded 23rd January 2006 - TD 30th March 2006. Status: Completed gas/condensate producer. Note: This well attained the longest measured depth of any well drilled in NZ to date.	7409m (MD-RKB)	Taranaki - Onshore
Arakamu-1 (formally Eltham-1)	TAG Oil	PEP 38757	Exploration well, Miocene targets. Although good quality oil and gas shows were recorded in the well bore, no significant reservoir zones were encountered. Spudded 8th January - TD 20th January. Status: P & A.	2387m	Taranaki - Onshore
Heaphy-1	Austral Pacific	PEP 38746	Exploration well targeting (Miocene) Mount Messenger sands. The well was drilled to a depth of 1450m and encountered good reservoir quality sandstones at the predicted target levels. Given the absence of any significant hydrocarbon indications the decision was made to plug and abandon the well. Spudded 30th January - TD 5th February. Status: P & A.	1450m	Taranaki - Onshore
Kauri-E11	Swift Energy	PMP 38155 (Kauri)	Development well. Targeting (Early Miocene) Kauri sands and (Oligocene) Tariki sands. Spudded 5th February - TD 13th March. Status: Completed for production testing.	Not disclosed	Taranaki - Onshore
Kauri-E12	Swift Energy	PMP 38155 (Kauri)	Development well. Targeting (Early Miocene) Kauri sands and (Oligocene) Tariki sands. Spudded 23rd March - TD Not Disclosed. Status: Not Disclosed.	Not disclosed	Taranaki - Onshore
Kauri-E12A	Swift Energy	PMP 38155 (Kauri)	Development Sidetrack. Targeting (Early Miocene) Kauri sands and (Oligocene) Tariki sands. Kicked off from Kauri-E12 well bore in late April - TD date and depth Not Disclosed. Status: Not Disclosed.	Not disclosed	Taranaki - Onshore

Goss-A1 ST#1	Swift Energy	PML 38140 (Waihapa)	Exploration Sidetrack, kicked off from the Goss-A1 well bore. Targeting (Eocene) Kapuni Group sands. Goss-A1 was spudded on 20th November 2005. Goss-A1 ST#1 was kicked off (from the Goss-A1 well bore) on the 23rd of February 2006 - TD date and depth Not Disclosed. Status: Plugged back for sidetracking operations (Goss-A1 ST#2).	Plugged back for sidetracking operations.	Taranaki - Onshore
Goss-A1 ST#2	Swift Energy	PML 38140 (Waihapa)	Exploration Sidetrack, kicked off from the Goss-A1 ST#1 well bore. Targeting (Eocene) Kapuni Group sands. Goss-A1 was spudded on 20th November 2005. Status: Not Disclosed.	Not disclosed	Taranaki - Onshore
Pohutukawa-A1	Swift Energy	PMP 38151 (Rimu)	Exploration well. Targeting (Late Miocene) Manutahi and Urenui Formation sands. Spudded 16th January - TD 27th January. Status: P & A dry.	Not disclosed	Taranaki - Onshore
Sharp Ridge-1	L & M Petroleum	38226	Exploration Well. Targeting (Late Cretaceous) Morley and (Middle-Late Eocene) Beaumont coal measure sands. Spudded 6th February 2006 - TD Date 16th February 2006. Status: P & A with oil and gas shows in the Beaumont Formation.	518m	Western Southland - Onshore
Kaimiro-7 ST#1	Greymouth Petroleum	PML 38091 (Kaimiro)	Development Sidetrack. Targeting (Miocene) Mount Messenger Formation. Kicked off from Kaimiro-7 well bore (development well drilled in 1995 - TD 2171m). Kicked 17th May - TD 30th May. Status: Completed for testing.	Not disclosed	Taranaki - Onshore
Goldie-2 ST#1	Greymouth Petroleum	PMP 38148 (Ngatoro)	Development Sidetrack. Targeting (Miocene) Mount Messenger Formation. Kicked off from Goldie-2 well bore (drilled in 2003 - TD 1733m). Kick off date 3rd April 2006 - TD date 9th April 2006. Status: Completed for production testing	Kicked off from approx. 792m - TD 1822m (MD RKB). Made 1030m	Taranaki - Onshore
Waihapa-H1	Swift Energy	PML 38140 (Waihapa)	Exploration / Appraisal Well. Targeting (Oligocene) Tikorangi Limestone. Spudded 26th June - TD 21st July. TD and Status Not Disclosed.	Not disclosed	Exploration
PLANNED ACTIVITY					
POB-A	Shell Exploration NZ	PMP 38154 (Pohokura)	Offshore Development Well. Targeting (Eocene) Kapuni Group reservoirs in the northern part of the Pohokura field. This well is the first of six planned deviated production wells to be drilled by the Ensco 56 jack-up rig during the offshore Pohokura field development. Proposed TD: >4500m (MD).	> 4500m (MD)	Taranaki - Offshore
POB-G	Shell Exploration NZ	PMP 38154 (Pohokura)	Offshore Development Well. Targeting (Eocene) Kapuni Group reservoirs in the northern part of the Pohokura field. This well is the second of six planned deviated production wells to be drilled by the Ensco 56 jack-up rig during the offshore Pohokura field development. Proposed TD: >4500m (MD).	> 4500m (MD)	Taranaki - Offshore
Cutter-1	Tap Oil	PEP 38259	Exploration Well. Targeting the (Late Cretaceous) Shag Point Formation. Anticipated spud date: end 3rd Q 2006. Proposed TD: 3000m. Cutter-1 will be the first well to be drilled in the highly prospective Canterbury Basin since the Galleon-1 gas / condensate discovery in 1985. Operator estimated pre-drill size of target accumulation is 50-80mmbbls oil. This will be the first of potentially 9 wells to be drilled by the 'Ocean Patriot' during its extended drilling campaign in New Zealand waters.	3000m	Canterbury Offshore

Hector-1	AWE	PEP 38483	Exploration Well. Targeting the (Eocene) Kapuni Group 'C' sand (Mangahewa Formation - where the bulk of the Maui field reserves were discovered). Anticipated spud date: late 3rd Q-4th Q 2006. Proposed TD: 3760m. Hector-1 will be the first exploration well to be drilled in the offshore Taranaki Basin since the 'Ocean Bounty' finished its highly successful 2004 campaign. During the 2004 campaign 5 wells were drilled (notwithstanding Pateke-1 which was abandoned at shallow depth) resulting in 2 commercial oil discoveries. Operator estimated pre-drill size of target accumulation for Hector-1 is >100 mmbbls oil. This will be the second of at least 5 exploration and 4 development wells to be drilled by the 'Ocean Patriot' during its extended drilling campaign in New Zealand waters.	3760m	Taranaki Offshore
Radnor-1A	TAG Oil	PMP 38157 (Radnor)	Appraisal / Development sidetrack. Targeting the (Eocene) McKee Formation. Anticipate to commence sidetrack operations during late July 2006. Proposed TD: TBC	TBC	Taranaki - Onshore
Mangaming i-1	TAG Oil	PEP 38758	Exploration well targeting the (Late Miocene - Early Pliocene) Matemateaonga Formation. Anticipated spud date: 20 June. Proposed TD: 1500m	1500m	Taranaki - Onshore
TBC	TAG Oil	PEP 38757	Exploration well. Targeting the (Miocene) Mount Messenger Formation. Anticipated spud date: 10 July 2006. Proposed TD: 1800m	1800m	Taranaki - Onshore
Kate-1	Green Gate (being transferred to TAG Oil)	PEP 38260	Exploration Well. Targeting the (Late Cretaceous) Broken River Formation. Anticipated spud date: 15th October 2006. Proposed TD: 1800m	1800m	Canterbury Onshore
Karo-1	TAG Oil	PEP 38767	Exploration Well. Kapuni Group targets. Anticipated spud date: 1st October 2006. Proposed TD 4200m	4200m	Taranaki - Onshore
Te Kiri-2	Todd Exploration Ltd.	PEP 38749	Exploration well. Targeting (Eocene) Kapuni Group and (Miocene) Moki Formation. Proposed TD: 4000m. Te Kiri-1 was drilled in 1986 (TD 4710m) and was abandoned with oil and gas shows registered in the Moki Formation and Kapuni Group sands. The current field operator acquired approximately 90 sq-km of 3D seismic data over PEP 38749 during 2005.	4000m	Taranaki - Onshore
Ratanui-1	Austral Pacific	PEP 38741	Exploration well. Targeting (Miocene) Mount Messenger Formation. The Ratanui-1 exploration well will be drilled along trend from the Supplejack-1 well. Anticipated spud date: 3rd Q 2006. Proposed TD: TBC	TBC	Taranaki - Onshore
Cheal B-1	Austral Pacific	PMP 38156	Appraisal / Development well. Targeting (Miocene) Urenui and Mount Messenger Formations. December 2005 Cheal field reserves update (Sproule), following extended production testing, assigned a gross reserve of 1.59mmbbls oil of 'Proven Developed & Undeveloped' reserves to the Cheal field. Anticipated spud date: 3rd Q 2006. Proposed TD: TBC	TBC	Taranaki - Onshore
Cheal B-2	Austral Pacific	PMP 38156	Appraisal / Development well. Targeting (Miocene) Urenui and Mount Messenger Formations. Anticipated Spud Date: 3rd Q 2006. Proposed TD: TBC	TBC	Taranaki - Onshore
Kowhai-1	Swift Energy	PEP 38742	Exploration well. Targeting (Eocene) Kapuni Group Mangahewa Formation (Maui C sand equivalent). Spud date: 22nd of July. Proposed TD: 5000m	5000m	Taranaki - Onshore
Kaimiro-1 ST#1	Greymouth Petroleum	PML 38091 (Kaimiro)	Exploration Sidetrack. Targeting (Eocene) Kapuni Group. Anticipated kick off date: TBC. Proposed TD: TBC. The Kaimiro field was discovered in 1982 by Kaimiro-1 (TD 4999m). The primary target for the well was the Kapuni Group. Good oil shows were registered in the (Miocene) Moki and Mount Messenger Formations	TBC	Taranaki - Onshore
Ngatoro-1 ST#1	Greymouth Petroleum	PMP 38148 (Ngatoro)	Exploration Sidetrack. Targeting (Eocene) Kapuni Group. Anticipated kick off date: TBC. Proposed TD: TBC.	TBC	Taranaki - Onshore
Ngatoro-5 ST#1	Greymouth Petroleum	PMP 38148	Development sidetrack. Targeting (Miocene) Mount Messenger Formation. Anticipated kick off date: TBC.	TBC	Taranaki - Onshore

		(Ngatoro)	Proposed TD: TBC.		
Ngatoro-12 ST#1	Greymouth Petroleum	PMP 38148 (Ngatoro)	Well currently under test - review. Pending results of testing the field operator has indicated a development sidetrack could be drilled.	Unknown	Taranaki - Onshore
Moturoa-5	Greymouth Petroleum	PEP 38464	Development / Exploration Well. Targeting the Blenheim Sandstone (optional Mount Messenger target). Anticipated spud date: TBC. Proposed TD: TBC	TBC	Taranaki - Onshore

Source: Ministry of Economic Development 2006, Crown Minerals data - Petroleum,
<http://www.crownminerals.govt.nz/petroleum/facts/well-details.html>, accessed 20 September 2006.
