

Discussion Paper

Wholesale Market Design

September 2006

The Gas Industry Co was formed to be the co-regulator under the Gas Act. As such, its role is to:

- recommend arrangements, including rules and regulations where appropriate, which improve:
 - o the operation of gas markets;
 - o access to key infrastructure; and
 - o consumer outcomes;
- administer, oversee compliance with, and review such arrangements; and
- report regularly to the Minister of Energy on the performance and present state of the New Zealand gas industry, and the achievement of Government's policy objectives for the gas sector.

Authorship

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We are also grateful to Brent Layton of NZIER and Geoff Swier of Farrier-Swier Consulting for their input into, and comments on, the document during its preparation.

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1 Executive Summary

- 1.1 This Discussion Paper forms part of the Gas Industry Co's work programme to review wholesale gas market arrangements in New Zealand. In particular, this paper examines options to facilitate the transactional efficiency of wholesale gas trading and sets out Gas Industry Co's views on the options.
- 1.2 The paper looks at wholesale gas trading in the context of two broad time horizons: longer term trading using contracts with a duration of a year of more; and shorter term trading covering all other trades (except balancing trades¹). A range of options are examined for each time horizon.
- 1.3 For completeness, it should be noted this paper does not seek to form any view on whether participants in the wholesale gas market can exercise market power. Nor does this paper make any recommendations to address market power, should it exist. However, in considering possible improvements, Gas Industry Co has sought to ensure that the changes proposed will not confer or strengthen market power. Indeed, by facilitating gas trading and/or price transparency, Gas Industry Co would expect that the changes proposed in this paper are likely to facilitate competition and help to mitigate any market power concerns.

Longer term trading

- 1.4 As discussed in Section 4, the trading of gas on longer term contracts has been primarily driven by the desire of sellers and/or buyers to manage risks associated with large investments in gas producing or consuming assets. For this reason, the contracts are negotiated infrequently and are highly tailored to specific circumstances.
- 1.5 There does not appear to be any benefit in terms of transactional efficiency from seeking to organise the trading of gas on these contracts. Indeed, seeking to formalise this trade would almost certainly be counterproductive in relation to certain GPS deliverables in particular, by making it harder for parties to formulate arrangements that appropriately underpin new investment.
- 1.6 Accordingly, based on present information, Gas Industry Co does not propose to make any recommendation to formalise arrangements for the trading of gas on longer term contracts.

Shorter term trading

1.7 A market for short term trading already exists, albeit an informal one. Gas Industry Co is concerned to identify means of improving such a market so as to better meet objectives in the Gas Act and the GPS by improving transactional efficiency in that market.

¹ See Appendix J for a description.

- 1.8 Unlike longer term gas trading, the trading of gas for shorter terms does exhibit some degree of commonality, and there may be benefit from facilitating trade particularly as gas arrangements become more inflexible in the transition from Maui gas to multiple sources. The main potential areas of benefit include:
 - price efficiency fewer mutually beneficial trading opportunities should be foregone by buyers and sellers if gas prices are more transparent and responsive to shorter term influences;
 - search and transaction costs improved trading arrangements can reduce the resources devoted to finding and executing trading opportunities;
 - productive efficiency enhanced trading ability should help to ensure that demand is met by the least cost sources of gas available to the market at any point in time; and
 - improved curtailment management improved trading arrangements should help to ensure that gas flows to the highest value uses during any curtailment, and that parties have appropriate incentives to manage security risks.
- 1.9 To determine whether an improvement is worthwhile, these potential benefits need to be weighed against the estimated costs of implementing a modification to the current market.
- 1.10 This paper examines a number of possible options to facilitate shorter term trading, and seeks to estimate their incremental costs and benefits. While such estimates can only be indicative at this stage, they nonetheless provide useful guidance as to the direction of further work. A fuller description of the cost-benefit assessment framework is set out in Appendix D.
- 1.11 Gas Industry Co has identified two potential, reasonably practicable options for increasing efficiency in the short term wholesale market:
 - provision of a standard contract; and
 - a standard contract linked to an IT platform.

Standard short term contract

- 1.12 The simplest measure to facilitate shorter term trading is to provide a standard form of contract that parties can utilise on a voluntary basis. This step could reduce the contracting costs for parties by providing a ready 'template' for trading that has broad acceptance in the industry. In response to earlier assistance and feedback from stakeholders, Gas Industry Co has prepared a draft agreement and a copy is appended to this Discussion Paper.
- 1.13 The incremental costs of finalising this draft are expected to be very modest. Gas Industry Co intends to update the draft to incorporate feedback received in this consultation process and then make the contract available for use by parties.

1.14 Further improvements may be realised by periodically reviewing the standard contract and updating it in the light of trading experience and feedback from the users.

Platform development options

- 1.15 In respect of the possible development of a platform to support shorter term trading, there are two broad alternatives:
 - **Matching Platform** development of a relatively simple platform that facilitates the matching of buyers and sellers, but leaves participants to make the arrangements necessary to execute and support a trade; and
 - **Trading Platform** development of a more sophisticated platform that both facilitates matching of buyers and sellers and automates the essential processes to execute and support a trade.

Each approach has differing implications for expected levels of costs and benefits.

Simple matching platform

- 1.16 A relatively simple matching platform appears capable of development at modest cost. However, it would not be able to facilitate trading very close to, or in, real time because participants would still be reliant on manual interfaces for nomination and renomination processes. This may constrain the benefits available from such a platform.
- 1.17 Indicative estimates of the benefits and costs from such a platform have been developed and these are set out below (for detail see Appendix H).

PV (\$m)	Low	Medium	High
Pricing efficiency	0.17	0.34	0.51
Reduced search cost	-	-	-
Production efficiency	0.38	0.76	1.15
Total	0.55	1.10	1.65

Table 1 – Estimated benefits

Table 2 – Estimated incremental costs

PV (\$m)	Low	Medium	High
Planning and consultation	0.03	0.05	0.08
Government processes	-	-	-
IT Development	0.06	0.13	0.19
Participant cost	0.09	0.19	0.28
Total	0.18	0.37	0.55

Table 3 – Estimated net benefits

NPV (\$m)	Low benefits	Medium benefits	High benefits
Low costs	0.37	0.92	1.47
Medium costs	0.19	0.74	1.29
High costs	0.01	0.56	1.11

Estimated Net Benefits - Matching Platform



1.18 In essence, provided it can be confirmed that the costs are low, a matching platform only needs to generate relatively modest benefits to be a worthwhile step.

More sophisticated trading platform

- 1.19 The alternative approach of developing a more sophisticated platform to allow trading close to real time should be capable of delivering significantly greater benefits. However, it would be a larger undertaking with correspondingly higher costs and involve a longer development timeframe.
- 1.20 Indicative estimates of the costs and benefits of this approach have been developed and these are set out below (see Appendix I for more detail).

PV (\$m)	Low	Medium	High
Pricing efficiency	1.1	2.1	3.2
Productive efficiency	2.5	7.5	12.4
Curtailment management	0.5	2.6	10.5
Better capacity utilisation	-	-	-
Reduced search costs	-	-	-
Total	4.1	12.2	26.1

Table 4 - Estimated benefits

Table 5 – Estimated incremental costs

PV (\$m)	Low	Medium	High
Planning and consultation	0.3	0.5	0.8
Government processes	0.1	0.1	0.2
IT development	3.0	6.0	8.9
Participant cost	1.5	3.0	4.5
Total	4.8	9.6	14.3

Table 6 – Estimated net benefits

NPV (\$m)	Low benefits	Medium benefits	High benefits
Low costs	- 0.7	7.4	21.3
Medium costs	- 5.5	2.6	16.5
High costs	- 10.3	- 2.1	11.7

Estimated Net Benefits - Trading Platform



1.21 As shown in the chart, there is fairly wide uncertainty about the costs and benefits, in both relative and absolute terms. This produces a broad spread of possible outcomes from such a development. Put another way, while the potential upside is higher, there is also a greater downside risk.

Proposed path forward for platform development options

1.22 In respect of the more sophisticated trading platform, Gas Industry Co considers that:

- providing a mechanism to trade gas close to or in real time could yield significant benefits, especially in the post-Maui era. However, there is insufficient certainty around costs and benefits to support a decision to proceed at this point;
- effort should instead be directed at reducing uncertainty around estimated benefits and costs. This could focus on reviewing balancing arrangements to determine whether an evolution to more dynamic pricing could be achieved at reasonable cost whilst still meeting the objectives of efficient pipeline management;
- there is still a significant degree of uncertainty in the industry as to how the current arrangements work whilst legacy gas continues to be available²; and
- the preferred route for undertaking this analysis is to work collaboratively with the system operator and other stakeholders over the next twelve months to assess how the balancing arrangements might evolve.
- 1.23 In the meantime, Gas Industry Co proposes to continue work on a simple matching platform. This will entail development of a functional specification, and seeking firm proposals from potential developers/operators, prior to making any final decision to proceed.
- 1.24 It is judged worthwhile to continue the work on a matching platform because:
 - analysis indicates a reasonable likelihood that such a development could be progressed swiftly and deliver positive net benefits;
 - there is no certainty that a more sophisticated trading platform would evolve in the near term;
 - the payback period is less than two years and, therefore, there is a good chance that the project will cover its costs in cash terms, should it become redundant for any reason; and
 - even if a trading platform were subsequently developed, and displaced the need for a matching platform before it fully recovered its costs, the 'worst case' outcome is capped at a fairly modest level because the initial development commitment is not large.
- 1.25 Gas Industry Co will evaluate these tentative conclusions in light of feedback on this Discussion Paper, and make decisions about its preferred path forward.

² The issue of legacy gas is discussed in section 3 of the discussion paper titled "Gas Transmission Access Issues Review" on the Gas Industry Co website www.gasindustry.co.nz.

2 Background

Purpose

- 2.1 Gas Industry Co is reviewing wholesale gas market arrangements in New Zealand to assess the extent to which they meet the objectives of the Gas Act and Gas Policy Statement (see Appendix B).
- 2.2 This Discussion Paper forms part of that review. Its focus is on the transactional efficiency of wholesale gas trading. The paper summarises the work carried out to date, identifies key issues and choices relevant to the future development of trading arrangements, and sets out preliminary conclusions on directions for future work. Stakeholder feedback is sought on these matters.
- 2.3 Although this Discussion Paper builds on earlier working reports that have been released by Gas Industry Co, it has been written as a stand alone paper. This approach has been adopted to:
 - facilitate feedback from interested stakeholders who are less familiar with the detail of the issues, as well as those who are expert on these matters; and
 - recognise that wholesale market issues are affected by a number of work streams being progressed by Gas Industry Co, and not all stakeholders will have time to read all the various papers – hence this document brings together the key issues in one place.
- 2.4 For readers unfamiliar with this material, and the New Zealand gas market in particular, Appendix 3 of the earlier discussion paper "Concept Design for Wholesale Gas Market" is recommended reading. That paper can be found in the "previously consulted on" section of the Gas Industry Co's website.

Structure of this paper

Section		Key Points	
1	Executive summary	 Sets out an overview of the paper and its conclusions. 	
2	Background	 Outlines the purpose of the paper and how it fits with the Gas Industry Co's overall work programme. 	
3	Objectives and assessment framework	• Sets out the wholesale gas market objectives that Gas Industry Co is seeking to meet, and the framework (both qualitative and quantitative) used to assess options.	
4	Longer term trading	 Sets out the issues associated with longer term gas contracting and the recommended path forward. 	

2.5 This paper is structured as follows:

5	Shorter term trading options	 Describes the broad options for trading gas on a shorter term basis, and identifies a sub-set for more detailed analysis and assessment.
6	Shorter term trading - standard contract	 Reviews the key features of a draft standard contract prepared by Gas Industry Co.
7	Shorter term trading - standard contract & simple matching platform	 Describes how a simple platform might be developed to facilitate matching between buyers and sellers of gas, and sets out an indicative assessment of costs and benefits.
8	Shorter term trading - standard contract & sophisticated trading platform	 Outlines how a more sophisticated platform might be developed to enable gas trading closer to real time, and sets out an indicative assessment of costs and benefits.
9	Policy instruments	 Discusses the issues to be considered when assessing the means of implementing the preferred option.
10	Conclusions	Sets out the proposed path forward.

Process to date and linkage with other work streams

- 2.6 Earlier this year, Gas Industry Co released a report that set out, at a conceptual level, possible options for development of a wholesale market for gas. Gas Industry Co is also undertaking a development programme across several other work streams³ that have implications for the wholesale gas market. In particular, it has recently released papers on pipeline access, reconciliation issues, and gas contingency planning.
- 2.7 Whilst each of these work streams covers distinct groups of related issues, there are cross-over points. For example, work is currently underway on pipeline open access arrangements and reconciliation issues, and both have implications for the effectiveness of wholesale trading arrangements, as illustrated in the chart below.

³ Described in the Gas Industry Co Strategic Plan for 2007-2009.



- 2.8 While this paper is focussed on wholesale gas market issues, it cross references and summarises the work being pursued in some other key related work streams⁴ where relevant.
- 2.9 In addition to these work streams, the Gas Act requires the Gas Industry Co to report on the performance of the gas industry. To assist in meeting this requirement, the Gas Industry Co has commenced a review of the baseline performance of the industry (as set out in the current Strategic Plan). This baseline review will help shape the direction of existing work streams and any new work streams.

Gas Industry Co approach

- 2.10 Gas Industry Co's general approach is to identify reasonably practicable options to achieve the GPS objectives, to analyse their relative merits and to select a preferred option for consultation.
- 2.11 The wholesale market work stream is being developed as a series of modules and, therefore, the approach is being applied in a modular fashion.

⁴ For more detail, refer to the consultation paper Gas Transmission Access Issues Review (June 2006) and the discussion paper Options for Amending Allocation and Reconciliation Arrangements in the New Zealand Gas Industry (June 2006), both available on the Gas Industry Co's website.

- 2.12 This paper sets out Gas Industry Co's preliminary conclusions in respect of measures to improve the transactional efficiency of a wholesale market for gas.
- 2.13 Gas Industry Co invites parties to comment on whether these conclusions are appropriate and, if not, what alternative solution or solutions should be considered.
- 2.14 All alternative solutions put forward in written submissions (as well as any additional options identified internally) will be reviewed to decide, firstly, whether they are feasible and, secondly, whether they are preferable to the preliminary conclusions in this paper.
- 2.15 From this we will identify and describe the preferred option. Again, we will publish our options analysis and findings.

Form of advice to the Minister of Energy

- 2.16 Gas Industry Co's advice to the Minister of Energy will consist of a description of the issues arising in the wholesale market area and the preferred options for resolving them. Gas Industry Co is aiming to provide a progress report to the Minister in December. This will be followed by a further report in mid 2007.
- 2.17 Whilst not wishing to pre-empt or constrain what this advice may contain, Gas Industry Co expects that recommendations would fall into one or more of the following forms:
 - existing arrangements are adequate to meet GPS objectives in some areas (i.e. no change is required); and/or
 - Gas Industry Co initiates work streams to further investigate and report on particular matters in specified timescales; and/or
 - Gas Industry Co proposes arrangements or mechanisms, including the promulgation of regulations or rules, to complement, govern or supersede specified aspects of existing arrangements.

Wholesale Markets Working Group

- 2.18 Gas Industry Co's deliberations have been assisted by the work of the Wholesale Markets Working Group ("Working Group"). Gas Industry Co wishes to thank the Working Group members for their time and valuable input.
- 2.19 While this Discussion Paper builds on the work carried out in, or reviewed by, the Working Group, the paper reflects the views of Gas Industry Co, and should not be construed as necessarily representing the views of the Working Group or any of its individual members.

Submission requirements

2.20 Submissions must be received by 5pm on Friday, 3 November 2006. Please note that submissions received after this date will not be able to be considered due to

the requirement on the Gas Industry Co to report to the Minister of Energy in December 2006. A template form for submissions is attached as Appendix A. Our preference is to receive one hard copy and one electronic copy (in Microsoft Word or Adobe acrobat format).

2.21 The electronic version should be emailed to submissions@gasindustry.co.nz with the phrase "Submission on Wholesale Market – September discussion paper" in the subject header. The hard copy should be posted to:

Ian Dempster Senior Adviser Gas Industry Co Level 9, State Insurance Tower 1 Willis Street PO Box 10-646 Wellington New Zealand

2.22 We will acknowledge receipt of all submissions electronically. Please contact lan Dempster on (04) 494 2467 if you do not receive electronic acknowledgement of your submission within two business days.

3 Objectives and Assessment Framework

3.1 This section sets out the objectives that the Gas Industry Co is seeking to achieve in the wholesale market context, the specific regulatory objective being pursued in this work stream, and the framework being used to assess the alternative options.

Gas Act, GPS and Strategic Plan objectives

- 3.2 The Gas Act sets out the objectives of the Gas Industry Co in recommending gas governance regulations for the wholesale market, as follows:
 - The principal objective is to ensure that gas is delivered to existing and new customers in a safe, efficient and reliable manner⁵;
 - The other objectives are:
 - 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;
 - o Barriers to competition in the gas industry are minimised;
 - Incentives for investment in gas processing facilities, transmission, and distribution are maintained or enhanced;
 - Delivered gas costs and prices are subject to sustained downward pressure;
 - Risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties; and
 - Consistency with the Government's gas safety regime is maintained⁶.
- 3.3 The current Government Policy Statement (GPS)⁷ repeats and expands these objectives, and then sets out the areas where the Minister is expecting recommendations on proposed arrangements from the Gas Industry Co. In the wholesale market context, it states these will include recommendations on:
 - "The development of protocols and standards applying to wholesale gas trading, including quality standards, balancing and reconciliation.

⁵ GPS equivalent is: "To ensure that gas is delivered to existing and new customers in a safe, efficient, fair, reliable, and environmentally sustainable manner."

⁶ The GPS adds: "energy and other resources are used efficiently", "the full costs of producing and transporting gas are signalled to consumers", "the quality of gas services and in particular trade-offs between quality and price, as far as possible, reflect customers' preferences", and "the gas sector contributes to achieving the Government's climate change objectives by minimising gas losses and promoting demand-side management and energy efficiency".

⁷ Government Policy Statement on Gas Governance, dated October 2004; see text at Appendix B.

- The development of a secondary market for the trading of excess and shortfall quantities of gas."
- 3.4 The Gas Industry Co's current Strategic Plan also sets out a number of milestones that are relevant. In particular, the Gas Industry Co will release a discussion paper on the preferred approach to wholesale trading arrangements by September 2006, with more detail due in March 2007, followed by recommendations to the Minister in June 2007 (see Appendix C for more detail).

Regulatory objective for wholesale market work stream

- 3.5 While the Gas Act and GPS set out objectives for the sector, it is necessary to be more specific and define the regulatory objective for this work stream to assist in the development and review process. It is also necessary to keep in mind the existing wholesale market arrangements (both short and long term) and the modular design and progressive development approach that is being used by Gas Industry Co.
- 3.6 This paper proceeds on the basis that the regulatory objective for this component of the wholesale market work stream is to ensure there are transactionally efficient arrangements for the trading of gas⁸.
- 3.7 This regulatory objective is expected to contribute to the attainment of Gas Act and GPS objectives, in particular:
 - Barriers to competition in the gas industry are minimised to the long-term benefit of end users;
 - Incentives for investment in gas processing facilities, transmission and distribution, energy efficiency and demand-side management are maintained or enhanced;
 - Delivered gas costs and prices are subject to sustained downward pressure; and
 - Risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties.⁹

• assisting more efficient use of gas in the electricity market (for example by providing opportunities to use gas when gas spot prices are low and electricity prices are high);

⁸ This objective is consistent with the Gas Industry Co Strategic Plan work stream objective ("Efficient wholesale market arrangements"), and the objective set out in the paper on the Conceptual Design for Wholesale Gas Market issued in March 2006.

⁹ This interpretation is also consistent with the ACIL report published in October 2001, on which many of the GPS requirements were based. That report stated "some form of gas spot market involving trading at a logical hub in the system that is appropriate for New Zealand's circumstances is likely to have significant economic efficiency benefits. These benefits include:

assisting all participants in managing their contract portfolios and making more efficient production and consumption decisions;

[•] supporting entry by new gas producers, who would have alternative options for marketing gas;

- 3.8 The existence of a well-functioning wholesale market would also be expected to have positive effects for a number of the other outcomes that the Government is seeking from the GPS. For example, the trade-offs between quality and price for consumers are better achieved when prices are formed in an efficient manner. Similarly, the promotion of energy efficiency and demand-side management are likely to be facilitated when information on wholesale pricing is transparent.
- 3.9 Appendix K provides an assessment of the recommendations in the paper against the Gas Act and GPS objectives and outcomes.
- **Q1:** Do you agree with the regulatory objective for this component of the wholesale market work stream? If not, what regulatory objective should the Gas Industry Co be considering?

Framework for considering options

- 3.10 Before making a recommendation to the Minister to regulate or make rules, section 43N of the Gas Act requires the Gas Industry Co to (among other things):
 - seek to identify all reasonably practicable options for achieving the objective of a regulation or rule;
 - assess those options by considering:
 - o the benefits and costs of each option; and
 - the extent to which the objective would be promoted or achieved by each option; and
 - o any other matters that the Gas Industry Co considers relevant; and
 - ensure that the objective of the regulation or rule is unlikely to be satisfactorily achieved by any reasonably practicable means other than the making of the regulation or rule (for example, by education, information, or voluntary compliance).
- 3.11 While the Gas Act does not prescribe the process that must be followed if a preferred option can be implemented without rules or regulations, Gas Industry Co prefers to use the same process for assessing all available options.
- 3.12 Accordingly, Gas Industry Co's stance to date has been to proceed in accordance with the requirements of section 43N of the Gas Act. This approach ensures that policy development is soundly based irrespective of the means by which that policy is delivered.

[•] assisting in managing increased complexity of the scheduling process as the number of gas fields increases;

[•] supporting the development of financial hedging and trading instruments."

Assessment of options

- 3.13 This paper presents qualitative assessments of a range of trading options against the regulatory objective set out above. Options that appear attractive have been analysed in more detail using a quantitative framework to estimate benefits and costs. The key features of this framework are that it:
 - seeks to assess costs and benefits from a national economic perspective i.e. it excludes any benefits/costs which are simply a transfer among classes of economic participant (e.g. between gas buyers and sellers);
 - seeks to measure the costs and benefits on an incremental basis establishment of a baseline is, therefore, important; and
 - estimates incremental costs and benefits over a ten year period, and derives net present values based on discounted cashflows.
- 3.14 It should be stressed that deriving robust estimates for future costs and benefits of market development options is inherently difficult. Estimates have been compiled based on a mixture of observed data, judgements and first principles analysis. Comparisons have also been made with other relevant New Zealand and overseas experience where possible.
- 3.15 In particular, this paper uses a framework similar to that used by McLennan Magasanik Associates (MMA) on the development of improved gas trading arrangements in Australia for the Australian Gas Market Leaders Group¹⁰. A full description of the framework used in this paper is set out in Appendix D.
- 3.16 While the quantitative assessments are intended to assist decision-making, the underlying data uncertainties mean that they cannot yield definitive conclusions. Rather, they are included to provide guidance as to possible outcomes, and need to be considered alongside first principles analysis and informed judgement.
- 3.17 Moreover, not all of the Gas Act and GPS objectives lend themselves to quantitative analysis. Appendix K provides a qualitative assessment of the conclusions in the paper.
- **Q2:** Do you agree with the general approach to assessing the different options using both quantitative and qualitative criteria? If not, what alternative approach, that also complies with the Gas Act, would you suggest?

Time horizons for gas trading

3.18 In considering how the wholesale market objective can best be met, it is useful to consider gas trading in two broad categories, distinguished primarily by the length of the commitment.

¹⁰ McLennan Magasanik Associates Pty Ltd, Gas Market Options Cost Benefit Analysis, prepared for Gas Market Leaders Group, Australian Ministerial Council on Energy

- 3.19 The first category is 'longer term' trading, characterised by infrequent bilateral trades, sizeable volumes, contract lengths set in years, and is limited to a small group of parties.
- 3.20 The second category is 'shorter term' trading. These have a more limited duration, are entered into more frequently, and tend to cover lower volumes with, potentially, greater variability in prices.
- 3.21 The distinction between longer and shorter term contracts is a matter of judgment, and there is no unambiguous 'bright line'. Nonetheless, the distinction is useful, and the balance of this paper uses a cut-off of one year's duration.
- 3.22 For completeness, it should also be noted that balancing arrangements, which are primarily intended to ensure the physical integrity of pipeline operation, can provide a mechanism for 'on the day' gas trades¹¹. This paper does not comment on current balancing arrangements other than to note that evolving such arrangements may well provide the least cost mechanism to allow trades close to real time, and that this should form part of the future work programme.
- 3.23 The following sections of this paper use the timeframe categories defined above to look at the trading arrangements for each time horizon.
- **Q3:** Are there other time horizons that should be considered for the trading of gas? If so, what are those time horizons?

¹¹ Balancing mechanisms in this context means pipeline balancing to address situations where aggregate gas injections or takes differ from the level that was planned (i.e. the level reflected in aggregate nominations). If the imbalance approaches linepack operational limits, the pipeline operator will need to take action, which could include obtaining or disposing of gas to mitigate that imbalance. When such action occurs, a trade in effect takes place between the party or parties causing the imbalance, and the party who is providing balancing gas service. The trade will occur via the system operator of the pipeline, but nonetheless the elements of a purchase and sale are present.

4 Longer Term Trading

Background

- 4.1 As noted above, longer term contracts in this context refer to arrangements entered into at least one year in advance of when the gas is required to be delivered. Before considering the options under which such trades can be arranged, it is useful to consider the underlying characteristics and reasons for such trades.
- 4.2 Historical experience indicates that longer term contracting in New Zealand has been associated primarily with the desire by gas producers and/or users to underpin highly specialised investments, for example the development of the Maui, Pohokura and Kupe gas fields, and the Taranaki Combined Cycle station. Such contracts typically:
 - have durations of five years or more to provide a reasonable period of revenue or cost certainty;
 - come to market infrequently, reflecting the lumpy nature of many of these investments relative to the scale of the New Zealand gas sector;
 - cover sizeable volumes of gas to meet the relevant asset's requirements; and
 - contain terms that are tailored to the specific situation, covering matters such as gas priority, price escalation linkages, allocation of reserves risk, force majeure, etc.

Broad alternatives for longer term trading¹²

- 4.3 From a first principles perspective, the possible options for arranging longer term trades¹³ appear to be:
 - formalised auctions or tenders¹⁴ while there are many different forms, the key ingredients are that sellers would determine terms within some framework, and then buyers bid against each other, with the winner(s) becoming the successful counterparty(ies);

¹² This section draws extensively on Sections 7-10 of the consultation paper on Concept Design for Wholesale Gas Market, March 2006. Readers wanting a fuller description of the issues should refer to that paper on the Gas Industry Co website at www.gasindustry.co.nz.

¹³ It is also possible that vertical integration may increase as an alternative mechanism to managing the risks associated with significant upstream/downstream investments in the gas sector. This trend is evident in Australian gas markets, and there are early signs of similar developments in New Zealand.

¹⁴ Auctions and tenders are essentially the same from an economic perspective, although there may be differences from a legal standpoint.

- **posted prices** this could be achieved via a billboard or similar platform, and parties could accept or not accept the proposed terms. Sellers could then modify terms if there is insufficient buyer interest;
- **formalised negotiations** where buyers and sellers interact within some framework to conclude terms; and
- **voluntary contracting** parties choose a preferred approach by mutual consent, for example a tender followed by bilateral negotiations.
- **Q4:** Are there any other reasonably practicable alternatives for longer term trading of gas that should be considered and, if so, what are they?

Evaluation of options

- 4.4 Section 3 of the discussion paper on wholesale market design released in March 2006 set out the evaluation criteria. These criteria have been used in the table below to identify which option best meets the objective of high transactional efficiency for the trading of gas over the longer term horizon.
- 4.5 The evaluation also incorporates stakeholder feedback on the concept design for the wholesale market issued earlier this year (Appendix E provides a summary of stakeholder submissions).

	Formalised auction/tender	Posted prices	Formalised negotiation	Voluntary contracting
Facilitate ongoing gas supply	Neutral – provided participation is voluntary, there should not be a material affect	Neutral- similar issues to auction	Neutral - similar issues to auction	Positive - should allow full range of possible approaches, facilitating investment
Minimise competitive barriers	Neutral – provided participation is voluntary, there should not be a barrier	Neutral- similar issues to auction	Neutral - similar issues to auction	Neutral - should not create any barriers per se (note relative bargaining power may be an issue, but is a separate matter)
Incentives to invest maintained/ enhanced	Neutral – provided participation is voluntary, there should not be a material effect	Neutral- similar issues to auction	Neutral - similar issues to auction	Neutral - should allow full range of possible approaches, facilitating investment
Costs and prices subject to downward pressure	Negative - contracts not able to be standardised to permit cost- effective trading	Negative - similar issues to auction	Negative - similar issues to auction	Positive - parties best able to find terms that are appropriate to situation and optimise cost

Table 7 – Long Term Options – Assessment against Gas Act Objectives

	Formalised auction/tender	Posted prices	Formalised negotiation	Voluntary contracting
Security risks managed appropriately	Neutral – provided participation is voluntary, there should not be a material effect	Neutral - similar issues to auction	Neutral - similar issues to auction	Neutral/Positive - should allow full range of possible approaches, facilitating security
Ensure gas safety	Neutral – not expected to have any specific impact	Neutral – similar to auction	Neutral – similar to auction	Neutral – similar to auction

Q5: Are you satisfied with this evaluation of options for longer term trading of gas, and if not, what aspects would you alter and why?

Other cost-benefit evidence

- 4.6 Other evidence supports the view that voluntary contracting on a bilateral basis is the preferred approach for longer term gas trades. In particular:
 - international experience Gas Industry Co is not aware of any other jurisdictions that have adopted formalised arrangements for longer term gas trading (beyond general competition laws); and
 - related markets in New Zealand other markets with similar characteristics (e.g. electricity) have not adopted any formalised arrangements for trading longer term physical contracts.

Recommended approach

- 4.7 It is proposed that Gas Industry Co concludes there is no case for introducing any formalised arrangements for longer term (i.e. greater than one year) trading of gas to improve transactional efficiency.
- **Q6:** Do you agree that there is no case for formalising arrangements for longer term trading of gas to improve transactional efficiency? If not, what alternative do you prefer and why?

5 Shorter Term Trading Options

Background

- 5.1 As noted in section 3, shorter term trading refers to gas purchases/sales that occur within a one year timeframe of the intended gas flow date, but excludes 'trades' that occur through balancing mechanisms.
- 5.2 Historical experience provides some guidance as to the type of activity that might fall into this category. It includes situations such as:
 - a producer might wish to sell commissioning gas from a new field development and. due to the uncertain nature of the initial production profile, it is not able to sell the gas as part of a long term contract;
 - an electricity generator might wish to sell or acquire gas to reflect a change in its generation plans, arising due to revised station maintenance timing or hydrology conditions (affecting thermal generation requirements);
 - a retailer might wish to acquire/sell gas to reflect changes in the size/composition of its customer portfolio; and
 - an industrial user might want to alter its gas portfolio to reflect changes in processing or maintenance plans.
- 5.3 Not all of these situations will give rise to a need to trade. Indeed, under current arrangements, parties are often able to manage such situations through their own resources (i.e. their own longer term contracts provide sufficient flexibility to avoid a need to trade with another party). However, this is expected to change over the next 2-3 years due to:
 - the transition from the Maui legacy era, dominated by single field supply, to a new environment characterised by supply from a wider range of smaller sources – which requires interactions among a greater number of parties;
 - the move to relatively inflexible supply contracts meaning that downstream parties will need to find other ways to manage their varying gas takes, including trading their 'unders' and 'overs';
 - the possible increase in the variability of physical gas demand from gas-fired power stations as penetration of wind generation and other 'must run' generation expands; and
 - competition in the retail gas market which tends to increase the variability of individual gas retailer's needs.

Broad alternatives for shorter term trading¹⁵

- 5.4 From a first principles perspective, the main ways to arrange shorter term trades¹⁶ are:
 - net pool where buyers and sellers inform a market operator of their bids and offers for a given period. The operator derives demand and supply curves, and informs participants of the trades that have cleared and the clearing price.
 Buyers pay into the pool, and sellers are paid by the pool;
 - **gross pool** this is identical to a net pool, except all gas traded must be transacted through the pool, including that sold under longer term contracts;
 - **clearing house** where buyers and sellers contract with a clearing house rather than directly with each other. The clearing house determines the selling price, after taking into account the offers of sellers;
 - platform bilateral parties can view offers and/or bids on an electronic platform, and accept those deals that are deemed attractive. Accepting a deal on the platform would form a bilateral contract between buyer and seller. This means that the terms of trade (other than price) need to be standardised to a large extent; and
 - **direct bilateral** this is the form of trading used currently. In essence, parties enter into trades on the basis of voluntary contracting, using whatever contractual form and search process they deem most appropriate.
- 5.5 The first three of the above list lend themselves to trading at a common location, i.e. a hub. By contrast, the bilateral options allow for greater flexibility for parties to trade at unique locations. However, there are clear trade-offs between flexibility of trading location and the ability to generate trading statistics.
- 5.6 All of the above mechanisms can be voluntary, except for the gross pool where parties must trade through that arrangement (though they can also enter into longer term contracts in order to achieve greater certainty regarding gas prices).
- **Q7:** Are there any other options that should be considered for shorter term gas trading, and if so, what are the options?

¹⁵ This section draws extensively on Sections 11-17 of the discussion paper on the Conceptual Design for Wholesale Gas Market, March 2006. Readers wanting a fuller description of the issues should refer to that paper which is on the Gas Industry Co website.

¹⁶ These options have been assessed on the assumption that they entail physical trades. It would also be possible for trading to be based on financial contracts. Physical contracts have been assumed because the usual progression for markets is for physical trading to develop first. For example, the Australian gas markets have been based on physical trading (bilateral, or through the spot balancing mechanism in Victoria) with interest now emerging around development of financial contracts settled against the physical price.

Qualitative evaluation of options

- 5.7 Section 3 sets out the objective and assessment framework. This has been used to assess each of the possible alternatives to identify which of these best meet the objective of increasing transactional efficiency for the trading of gas over the shorter term horizon.
- 5.8 This evaluation also incorporates stakeholder feedback on the conceptual design for the wholesale market issued earlier this year (Appendix E provides a summary of stakeholder submissions).
- 5.9 The evaluation is summarised in the table below.

	Net Pool	Gross Pool	Clearing house	Platform bilateral	Direct bilateral
Facilitate ongoing gas supply	Positive/ neutral – net pool allows choice	Negative/ neutral – forcing all trade through pool may not suit all situations – may create a barrier	Positive/ neutral - similar issues to net pool	Positive/ neutral - similar issues to net pool	Neutral/ negative – lack of transparency may pose a barrier
Minimise competitive barriers	Positive/ neutral – net pool allows choice – unlikely to materially raise or lower barriers – transparency may enhance competition	Negative/ neutral – forcing all trade through pool may not suit all situations – may create a barrier	Positive/ neutral - similar issues to net pool	Positive/ neutral - similar issues to net pool	Neutral/ negative – lack of transparency may pose a barrier
Incentives to invest maintained/ enhanced	Neutral - net pool allows choice – unlikely to materially alter investment incentives	Negative/ neutral – forcing all trade through standard pool likely to retard some investment	Neutral – similar issues to net pool	Neutral – similar issues to net pool	Neutral – similar issues to net pool
Costs and prices subject to downward pressure	Negative – likely to be costly as there would be complex interfaces required with existing systems, especially balancing arrangements	Negative – similar issues to net pool	Negative – similar issues to net pool	Neutral/ positive - similar issues to net pool but should be a lower cost due to less complexity	Neutral/ positive – no facilitation benefit, but least cost

Table 8 – Shorter Term Options – Assessment against Gas Act Outcomes

	Net Pool	Gross Pool	Clearing house	Platform bilateral	Direct bilateral
Security risks managed appropriately	Neutral/ positive – increased transparency could help provide incentives for security – but design of balancing arrangement probably more important	Neutral/ positive - similar issues to net pool	Neutral/ positive - similar issues to net pool	Neutral/ positive – may be similar to net pool but depends on design	Neutral
Ensure gas safety	Neutral – not expected to have any specific impact	Neutral – similar to net pool	Neutral – similar to net pool	Neutral – similar to net pool	Neutral – similar to net pool

- 5.10 In summary, for shorter term trading, the pool and clearing house options do not appear worthy of further consideration at this stage of the gas sector's development, because their expected benefits are unlikely to exceed their costs, due to the relatively complex nature of these options.
- 5.11 The options which should be considered further are platform bilateral and direct bilateral (i.e. the status quo).
- **Q8:** Are you satisfied with the qualitative assessment of shorter term trading options? If not, what aspects would you change and why?

Options considered further

5.12 To analyse the 'platform bilateral' option in more detail, it is useful to consider the main sub-processes involved in completing a trade, and what initiatives Gas Industry Co might propose for each of them. This is summarised in the diagram below.

Bilateral trading – key sub-processes



- 5.13 Stage 1 is to define what is being bought and sold in generic terms. Some terms are highly specific (e.g. price, date, quantity) but other terms are likely to vary little between trades. A de facto 'standard' is likely to emerge to facilitate shorter term trades indeed there are signs that this is already starting to occur. Gas Industry Co could accelerate this process by developing a contract form that largely standardises the terms.
- 5.14 Stage 2 involves matching buyers and sellers based on the prices they ascribe. This process could be manual, or automated through a simple platform – referred to as a 'matching platform' in the remainder of this paper.
- 5.15 Stage 3 is the execution and settlement of each trade. Once again, the process could be handled by existing processes (essentially manual interfaces to other automated systems) or could be automated from end-to-end with a sophisticated platform referred to as a 'trading platform' for the remainder of this paper.
- 5.16 While automating Step 2 could be relatively simple, automating Step 3 is likely to be more complex because of the significant number of interfaces involved.
- 5.17 The scope of trades that could be handled may also vary with the level of automation. In particular, if the balancing period is relatively short and there are multiple sources of balancing gas (i.e. not a single major source of flexibility such as the historic Maui arrangements), it may be necessary to automate Stage 3 to allow trades to occur close to real time.
- 5.18 This is because without such automation and integration, there is unlikely to be sufficient time to do all of the following:
 - analyse and assimilate the information flows that suggest a need to make adjustments (e.g. address an imbalance);

- find other parties to trade with, and compare alternatives;
- execute the trade; and
- communicate the outcome to the operator and confirm acceptance.
- 5.19 These processes are likely to be more challenging when the system is under stress (e.g. due to a gas processing plant outage), but that may be when trading will produce the greatest benefits.
- 5.20 For these reasons, there is likely to be a trade-off between the cost and functionality of the various options as indicated in the following stylised diagram.



Short term trades – potential building blocks

5.21 The nature of these trade-offs will influence decisions as to whether it is worthwhile proceeding with any of these options. These issues are explored in more detail in the following sections.
6 Shorter Term Trading - Standard Contract

Design approach

- 6.1 Stakeholder feedback has indicated an interest in development of a standard contract that parties could voluntarily use to facilitate shorter term gas trades, whether or not a platform is developed. In response to this, Gas Industry Co has facilitated development of such a contract with assistance from industry participants, principally the Working Group.
- 6.2 Consistent with stakeholder feedback, the Gas Industry Co's design approach has been to:
 - keep the contract simple and balanced this reflects the relatively straightforward nature of the shorter term trades it is expected to support;
 - ensure the contract can interface with other industry arrangements (notably transmission and nominations regimes) in a flexible way, i.e. trading contracts should not impede the evolution of those arrangements;
 - draft the contract in a form that can be used with or without a platform; and
 - build on New Zealand¹⁷ and international precedents where possible to save time and cost.
- 6.3 An initial draft form of contract has been prepared and is attached as Appendix F. The draft is similar to the short term contracts which are currently being traded and therefore includes a number of terms which have been retained in the interests of transparency. However, the Gas Industry Co believes that it may be possible to simplify some aspects further bearing in mind the proposed duration of the contracts.
- 6.4 In the process of drafting the Gas Industry Co identified a number of key areas of choice which are discussed briefly below.

Volume definition

- 6.5 Contracts could specify a fixed quantity, or a maximum quantity with the actual amount determined through the nomination process.
- 6.6 A fixed volume approach significantly simplifies the contract and should be sufficient to cover most of the short term situations that are amenable to trading on a standardised contract. However, the latter accords with the practice in the main short term contract currently being traded¹⁸.

¹⁷ Particularly as there appear to be workable existing models to use as a foundation.

¹⁸ The so-called 'Maui spot ROFR' contract.

Q9: Do you agree that the standard contract should allow for both types of approaches? If not, what would you prefer and why?

Taxes and charges

- 6.7 Although it is understood that many existing contracts provide for price adjustments for taxes and government charges, it is recommended that this not feature in a standard contract. It would add a degree of complexity and uncertainty that does not appear warranted in a short term context.
- **Q10:** Do you agree that the standard contract should not provide for price adjustments for taxes and government charges? If not, what changes would you prefer and why?

Ministerial consent requirement

6.8 A specific issue that has been identified is the effect of section 41(2) of the Crown Minerals Act. Under the Act, no permit holder or any other person may enter into an agreement which:

"imposes any obligation on the permit holder which relates to or affects the production of minerals from the land to which the permit relates or the proceeds of such production".

- 6.9 Although a simple buy/sell arrangement of very short term duration, e.g. days through weeks, may not be caught by this section, there is much greater uncertainty over other forms of short term agreements.
- 6.10 On the basis that section 41(2) applies to a standard contract (where the seller is a permit holder), each standard contract must be entered into subject to the consent of the Minister of Energy and an application for such consent must be made within three months of entering each contract. This does not fit well with a short term market.
- 6.11 The prime purpose of section 41 appears to be to limit permit holders' abilities to enter into gas sales arrangements that erode the Crown revenue base (e.g. through entering a contract with a related party at an artificially depressed price, and hence reducing the royalty obligations of the permit holder).
- 6.12 The trading of standard contracts (especially if this is through a blind market¹⁹) should not give rise to any such concern. Accordingly, there would appear to be reasonable prospects of obtaining some form of class exemption (which will require legislation) for an organised trading arrangement. Indeed, without this, the arrangement will be somewhat limited in its usefulness.

¹⁹ In other words, participants will not know the identity of the party making an offer or bid unless, and until, they accept the proposed trade and form a contract with that party.

- 6.13 The Ministry of Economic Development recently published a draft practice statement on the application and effect of section 41. The Gas Industry Co does not consider that the practice statement resolves the issue noted above.
- 6.14 Accordingly, Gas Industry Co is discussing this issue with the Ministry of Economic Development and expects to undertake further work to clarify the situation.
- **Q11:** Are you satisfied with the proposed approach for addressing s.41 of the Crown Minerals Act in the standard contract? If not, what alternative would you prefer and why?

Conditions precedent

- 6.15 Apart from section 41 consent (see above), it is proposed that the contract undertakings become effective upon execution, and that no conditions precedent apply. This reflects the short term focus of the contract and the desire to provide a high level of certainty as to the performance obligations.
- **Q12:** Do you agree that the standard contract should not provide for any conditions precedent? If not, what alternative would you prefer and why?

Gas specification

- 6.16 As discussed in other contexts²⁰, it is judged inappropriate for shippers to carry liability for gas specification. Instead, this should rest with the welded parties who physically control the injection of gas into the system. Accordingly the contract would not make the seller liable on this issue.
- **Q13:** Do you agree that the standard contract should not make seller liable for gas specification? If not, what alternative would you prefer and why?

Gas priority

- 6.17 It is proposed that the contract would not provide for any priority rights. This appears consistent with the short term focus of such trades, and would in effect mean that buyers' rights will be determined by the relevant provisions of the pipeline codes and curtailment arrangements.
- **Q14:** Do you agree that the standard contract should not provide for any priority rights? If not, what alternative would you prefer and why?

Transport interface

6.18 Consistent with the desire to keep the contract simple, the approach taken has been to record that the buyer and seller are each responsible for making the

²⁰ See for example section 6 of the consultation paper Gas Transmission Access Issues Review (June 2006) available on the Gas Industry Co's website.

necessary transport arrangements to support a trade. Any failure by one or other party to make the necessary arrangements (e.g. nominations) would be a breach of the contract.

- 6.19 While there appears to be general support for the broad principles behind this approach, there is an open issue as to how specific the contract should be in defining the obligations on buyer and seller.
- 6.20 One approach is to be generic in defining the obligations, and therefore allow more flexibility for evolving arrangements, and use across different pipelines (assuming there are no other barriers that impede trade).
- 6.21 On the other hand, a general approach may not provide sufficient clarity for parties to have confidence about the obligations/rights being created by the contract.
- 6.22 At present, the contract is drafted based on a broad description of transport rights and obligations, and this will be reassessed in light of participant feedback.
- **Q15:** Do you agree that the standard contract should set out a broad description of the transport obligations/rights on buyer and seller? If not, what alternative would you prefer and why?

Liability provisions

- 6.23 Given the short term nature of the trades covered by this contract, there is a desire to adopt relatively simple liability provisions. However, it is also important to ensure that the provisions do not create an incentive for parties to resile from their obligations in certain circumstances, for example by capping liability at unrealistically low levels.
- 6.24 The proposed starting point is that the contract will exclude indirect losses for seller and buyer and that, except for where there is wilful default, the liability for non-performance will be capped in \$/GJ at the price of the mismatch/imbalance gas during the period when non-performance occurred.
- 6.25 This arrangement should ensure that parties do not treat the contract as containing an implicit option to resell or repurchase gas.
- **Q16:** Do you agree that the standard contract should have liability provisions that exclude indirect losses, and that direct losses (in equivalent \$/GJ terms) would be capped at the pipeline mismatch/imbalance price? If not, what alternative would you prefer and why?

Force majeure provisions

6.26 Force majeure (FM) raises similar issues to liability provisions, in that it effectively determines when liability will be suspended.

- 6.27 As a general principle, it is reasonable that unmanageable risks should not be imposed on parties²¹. However, it is also important to ensure that 'unmanageable' is tightly defined to ensure contracts cannot be frustrated.
- 6.28 Setting a relatively high bar for FM should ensure that buyers and sellers act responsibly to manage their risks.
- 6.29 As a starting point, the contract could exclude buyer FM, on the basis that contracts are short term in nature and, at worst, parties would dispose of surplus gas by re-contracting and, failing that, through the balancing arrangements.
- 6.30 Taking a similar approach with sellers, the 'must be unmanageable' principle would suggest that, for very short term trades, FM cannot be invoked unless the balancing mechanism has been suspended. In other words, the seller would be liable for any difference between the contract price and the balancing price during the period it could not supply gas under the shorter term contract. It is only if there is a system wide problem (and hence normal balancing is suspended) that FM could be invoked. However, it is probably appropriate to limit the time period for which this would apply, which could be stipulated in the GSA.
- **Q17:** Do you agree that the standard contract should have FM provisions based on the principle that for very short term trades FM cannot be invoked unless balancing has been suspended i.e. curtailment is occurring? If not, what alternative would you prefer and why?

Dispute resolution

- 6.31 There are two types of disputes which may arise under the standard contract for which dispute resolution processes have been suggested. These are invoice disputes and disputes regarding the terms of the agreement.
- 6.32 Invoice disputes are generally limited to disputes regarding errors on the face of the invoice such as the calculation of charges or amounts of gas taken. Given the nature of invoice disputes, unless they can be resolved by the parties themselves they are commonly resolved using a short form process such as independent expert determination.
- 6.33 The advantages of having an independent expert resolve invoice disputes are the ability to nominate someone who has the correct technical expertise and who can resolve the dispute in a quick and cost effective manner. The independent expert could be agreed upon by the parties, nominated by the Gas Industry Co or could be a person with a role in a compliance regime set up under the Gas Act (such as the proposed Draft Gas (Compliance) Regulations).
- 6.34 Other more complex disputes may require different mechanisms. It is common for the initial step to be an escalation of the dispute to senior management to resolve

²¹ See for example the discussion in the discussion paper *Review of Gas Emergency Arrangements* (July 2006), available on the Gas Industry Co's website.

the dispute within a limited timeframe, followed by a process which will ultimately resolve a dispute between the parties in a way which is binding on them.

- 6.35 There are really only three options for this being: arbitration, the Courts, or some form of industry rulings body such as the Rulings Panel in the Gas Act:
 - (a) Arbitration has, in the past, appealed because of the degree of control the parties have over choosing the arbitrator and the process. However, arbitration is now regarded as being just as costly as the Courts, and the process can often be frustrated by the parties. Arbitral awards are also usually confidential to the parties resulting in their generating little guidance with respect to how the terms of the contract should be applied and interpreted.
 - (b) The Courts have the advantage of being a mechanism that is well understood by participants. However, court processes tend to be lengthy and expensive, with the parties having little or no control over timing. Also, disputes will be determined by judges who may not be familiar with the operation of the gas industry. Court decisions do, however, have high precedent value.
 - (c) There are a number of advantages to an industry rulings body such as a Rulings Panel under the Gas Act. The Rulings Panel's processes are likely to be quicker and more cost effective than the other options as they are specifically designed to deal with gas industry disputes. The person appointed is also likely to be more familiar with the operation of the gas industry, especially over time. Decisions are public and, therefore, of high precedent value.
- 6.36 At this stage a Rulings Panel is contemplated to be constituted at the same time as the Switching and Registry rules are brought into effect. Accordingly, there would be little incremental cost in extending the Rulings Panel's jurisdiction and expertise to matters concerning the wholesale gas market. However, because implementation of the Switching and Registry rules needs to await an amendment to the Gas Act, it is likely that there would also be some additional cost, in NPV terms, of constituting the Rulings Panel at the same time as commencement of the wholesale gas market.
- 6.37 Looking at the relative merits of the three options, and consistent with the objective of this work stream for increased transactional efficiency, the Gas Industry Co considers that the Rulings Panel option is the preferred option.

Q18: Do you agree with the proposed dispute resolution provisions for the standard contract? If not, what alternative would you prefer and why?

Assignment provisions

6.38 Given the short term nature of many of the contracts, assignment is unlikely to be an issue for most in the timeframes contemplated. However, for contracts of a longer term (e.g. 6 months) a general ability to assign (with consent) may still be required. While it may be possible for back to back trades to cover some assignment situations, such an arrangement does not deal sufficiently with all the issues that may arise.

Q19: Do you agree that the standard contract should provide a standard assignment provision? If not, what alternative would you prefer and why?

Future evolution of contract

- 6.39 The form of the contract will need to evolve over time. As a stand-alone contract, it would appear sensible to provide for a review within a year or so of the contract being released for use. This would provide an opportunity to assess its performance and, if necessary, address any areas that have emerged as requiring attention.
- 6.40 Given that the use of the contract is voluntary to parties, it does not appear that the evolution mechanism necessarily requires a high degree of formality. It is proposed that the Gas Industry Co monitor the use of the contract and undertake a review twelve months after its release.
- 6.41 Were the decision made to proceed with an IT platform, further development would be required to make the contract more akin to one used for a short term, commodity-based trading environment.

Indicative costs and benefits of issuing stand-alone contract

- 6.42 A formal analysis of the costs and benefits of issuing the contract has not been carried out because of the practical difficulties of estimating the benefits from such a step.
- 6.43 However, it appears highly likely that the issuing of the contract would have net benefits. This view is based on the following factors:
 - the incremental costs of finalising and issuing the contract are expected to be very modest – indeed, it is likely that it would cost more to carry out a formal cost benefit assessment than it would to issue the contract;
 - the recent survey of gas market participants carried out by the NZIER suggests significant legal costs are being incurred in documenting short term trades (~\$50k/yr per respondent). A standardised contract could, therefore, produce significant benefits;
 - because use of the contract is voluntary, it appears extremely unlikely that issuing the contract will impose any indirect costs on stakeholders; and
 - there has been broad stakeholder support for preparing a standard contract. Given that stakeholders are likely to act in their self-interest, this provides circumstantial support for the view that there are likely to be net benefits from issuing the contract.

Recommended approach

- 6.44 It is proposed that Gas Industry Co:
 - finalise the work on the draft standard terms for a shorter term gas contract, incorporating feedback received on the existing draft contained in Appendix F and feedback from a workshop of stakeholders' legal advisers;
 - following further development, issue the contract on its website for use by stakeholders on a voluntary basis; and
 - review the use of the contract twelve months after it has been issued to consider whether any refinement is indicated.

Q20: Do you agree that the Gas Industry Co should make the standard contract available for use (once the feedback from this discussion paper and a legal advisers' workshop has been considered and incorporated)? If not, what alternative path forward would you prefer and why?

7 Shorter Term Trading - Standard Contract & Simple Matching Platform

Scope of platform

- 7.1 A matching platform would operate as set out below:
 - Participants would enter onto the platform a price at which they are prepared to sell or buy a parcel of gas. They would also enter the volume, delivery date and location of the offer. All other contractual terms would be as defined in the standard contract.
 - The platform would display participants' offers/bids to parties with appropriate authority to use the platform.
 - Participants would be able to electronically accept an offer/bid, or make a counter bid/offer, which will be visible to all participants. Offers/bids that are accepted would form a binding contract between the parties. The platform would record the match, advise both parties of the matched trade, and the matched offer/bid would be removed from the list available for acceptance.
 - The platform would allow participants to update or delete offers/bids that have not been accepted.
 - The platform would display information to participants on 'live' offers/bids and counter bids/offers, as well as providing aggregated information on matched trades. This aggregated information would also be made available in some public form.
- 7.2 Once a trade has been matched by the platform, it would be over to the two parties to make the necessary arrangements to effect, verify and settle the trade. Such arrangements would be made through normal mechanisms i.e. as they are at present.

Matching platform - interfaces



- 7.3 This approach means that the platform can be relatively simple. In particular, the key IT interface would be between the platform and participants, and there would be no *automated* interfaces between the platform and the pipeline nominations systems, reconciliations or financial systems etc.
- 7.4 There would need to be some platform "rules", but these are expected to be very limited in their scope. They would cover:
 - the process for admitting participants to use the platform (likely to be extremely simple if the 'whitelist' prudential option set out below is adopted);
 - processes for revoking usage rights if required (e.g. for non-payment of any usage fees);
 - trading hours; and
 - the methodology for calculating aggregated information.
- 7.5 The platform will not handle any financial flows, and accordingly the back office function is expected to be very simple essentially advising traders of matched deals so they can make the arrangements to execute them.

Governance

- 7.6 As shown above, a platform would need to be covered by some form of governance regime. This would provide the:
 - framework for defining how platform rules are made;

- arrangements for enforcing those rules;
- process for amending the terms of the standard contract over time; and
- arrangements for recovering the cost of providing the platform and associated arrangements.
- 7.7 The form of the governance arrangements will depend in part on whether a platform is put in place via rules/regulations under the Gas Act, or via alternative mechanisms. If the former route is used, the arrangements set out in the Gas Act would apply. If no rules/regulations are required, there is scope to develop an industry arrangement that is specific to a platform.
- 7.8 However, given the relatively simple nature of the platform, the governance requirements should be fairly straightforward in both cases. Given this, and given that any governance regime will require accompanying compliance arrangements, there would be merit in taking advantage of any existing compliance arrangements as far possible.
- 7.9 The detail of these issues should be considered further if a decision is made to proceed with a platform.

Compliance

- 7.10 There are two aspects to a compliance regime that require consideration: enforcement of bilateral trades; and enforcement of the platform governance "rules". The former are likely to give rise to disputes/conflicts from time to time, but the enforcement mechanism would be defined by the provisions of the contracts themselves (see section 6).
- 7.11 In respect of the platform rules themselves, the main items that might require enforcement are payment of any service fees, and ensuring compliance with any trading rules. The relatively simple nature of these rules means they are unlikely to be a major source of dispute.
- 7.12 Given these factors, it appears preferable to avoid the cost of a separate one-off compliance regime to address any disputes. Accordingly, it is proposed that to the extent any compliance regime is required, it should be provided by way of the broader compliance framework²² currently being developed by Gas Industry Co and modified as necessary.
- **Q21:** Do you agree that, in order to keep costs to a minimum, a platform should extend the compliance regime being developed by the Gas Industry Co? If not, what alternative would you prefer and why?

²² Statement of Proposal – Switching Arrangements for the New Zealand Gas Industry -Compliance and Enforcement Arrangements, 31 August 2006 – see www.gasindustry.co.nz.

Prudential requirements

- 7.13 The use of a platform for matching allows trading to be carried out in a way that keeps confidential the identity of participants prior to concluding a trade. So-called blind trading has the advantage that parties can offer and bid anonymously, and so it is harder to exclude new entrants or particular parties from deals and to enforce collusive arrangements. Moreover, anonymity allows participants to mask to some extent their actual risk positions, and hence reduces the chances of opportunistic behaviour by others to take advantage of their exposure.
- 7.14 The key disadvantage of blind trading is that it is harder to assess the risk of default associated with each trade before entering into a transaction because the identity of the counterparty is unknown. This means that alternative arrangements will be needed to address default risk.
- 7.15 On the basis that anonymous participation is valuable, three possible ways have been identified to address prudential issues.
 - **Minimum prudential standards** the conventional approach of defining a minimum standard (e.g. credit ratings) before participation is permitted, and/or monitoring ongoing compliance with that standard.
 - **Frosted glass** participants post information about their credit worthiness, and other participants choose whether to accept offers based on that information.
 - White-list participants define who they are prepared to buy and sell from the platform will display all offers (anonymously) but will only allow matches between parties that are valid as regards pre-selected prudential criteria. Such criteria could be relatively simple (e.g. blanket yes or no) or more selective (e.g. party X up to a pre-defined volume/value limits). Because parties can see all offers, but only conclude matches with valid parties, they in effect get information to help them assess the cost of their selection criteria.
- 7.16 For the reasons set out in Appendix G, the preferred approach is the white-list. It appears likely to provide a reasonable basis to address default risk, while creating incentives to encourage broad participation. It should also be relatively easy to implement without creating significant development or ongoing costs.
- 7.17 There would need to be a balance between the ability of participants to alter their individual white-lists to manage their prudential positions whilst not allowing changes to the white-lists so frequently as to allow identification of the "owners" of particular bids/offers.
- **Q22:** Do you agree that the preferred approach to prudential management is the whitelist? If not, what alternative would you prefer and why?

Location of trades

7.18 As discussed in section 6, under the standard contract, sellers would nominate a point on the gas transmission system where gas will be delivered to the buyer.

The contract would place the obligation on sellers and buyers respectively to ensure they have appropriate arrangements in place to deliver gas to, and uplift gas from, that point.

- Accordingly, the platform could provide flexibility²³ to allow participants to specify 7.19 the point at which each trade is to take place. The only reason to limit choice would be to reduce the degree of complexity required in the platform, and associated cost.
- 7.20 Allowing locational choice may complicate the process of compiling aggregated information, because some adjustment is likely to be required to account for location. This appears to be relatively straightforward for the existing pricing structure on the Maui pipeline, but less so for most of the Vector transmission system.
- 7.21 As a basic working assumption, it would be preferable to allow participants to specify the point of trade. However, if a decision in principle is made to proceed, the issue should be reassessed later in the process when the development cost implications are better understood.
- Do you agree that the platform should allow participants to nominate their Q23: preferred location for making offers or bids (provided this does not add undue cost to a platform development)? If not, what alternative would you prefer and why?

Ability of matching platform to evolve

- 7.22 A key issue with any information technology development is the ability to evolve over time to meet changing needs, and interface with new systems. This is highly relevant in the gas sector given the rapid evolution that is occurring, and the relative plasticity of current business rules.
- 7.23 Because a matching platform will be largely self-contained (i.e. not have interfaces with other industry systems or be designed around particular business rules), it should have a relatively low risk of requiring heavy redevelopment expenditure or becoming stranded by new development elsewhere in the industry²⁴.

Counterfactual

- 7.24 To assess the incremental costs and benefits of developing a matching platform, a counterfactual must be defined that set outs the baseline for evaluation purposes. Possible counterfactuals in the present context include:
 - status quo no platform is developed by any other party and participants • operate using existing arrangements and practices;

²³ Allowing choice over location may also, in effect, provide participants with the ability to 'trade' their transportation rights. ²⁴ Of course a matching platform will always face the risk of stranding due to introduction of a more

sophisticated platform.

- alternative platform developed by industry it is possible that an industry
 participant or participants might develop a platform, as has occurred in some
 overseas jurisdictions. At this point, no such proposal has been announced.
 Moreover, while a participant-sponsored platform might trade gas for its
 sponsors, it would not necessarily become an open forum. As a result, it is
 unlikely to meet some of the GPS objectives; and
- alternative platform developed by non-industry player it is possible that a non-industry participant or participants might develop a platform. While such an initiative is more likely to meet the GPS objectives (than an industryparticipant sponsored platform), no such proposals have been announced. Nor is there any obvious party who might bring forward such an initiative.
- 7.25 Based on the above, the status quo appears to be the most appropriate counterfactual for evaluation purposes.

Indicative cost ranges

- 7.26 The incremental costs of planning/consultation processes are expected to be relatively modest, because most the work has been required to be carried out already and/or will be needed to meet GPS requirements, whether or not a decision is taken to proceed with a matching platform.
- 7.27 Similarly, the incremental cost to the government is expected to be very low, as activity will occur whether or not a platform is developed. The only exception would be if development of a platform were to give rise to a need for a Commerce Act authorisation or clearance process. Such a process could entail significant cost. If such a risk were identified then it can be eliminated by introducing the platform by way of rules or regulations. Accordingly, for the purposes of analysis the incremental costs have been estimated as zero.
- 7.28 The incremental cost of building the IT platform has been estimated based on the cost of developing similar 'simple' platforms designed to be used with an internet interface as well as indicative estimates from a range of potential platform providers. It is important to emphasise the level of cost is expected to be much lower than for a full trading platform, because the system only provides a basic level of functionality. If significant functionality is added (e.g. linkages to billing systems), this will increase complexity and cost. The central case assumes only a basic level of functionality.
- 7.29 Participants will incur some direct costs associated with the development and consultation process. These have been modelled as a one-off cost of \$60,000 plus a modest ongoing cost of \$2,000 per participant per annum that represents payment for operation and maintenance costs. The modest ongoing costs reflect the simple nature of the platform.
- 7.30 These estimates have been summed to form the 'medium cost' scenario for total incremental costs, and a sensitivity range of -50% to +50% has been applied. Further detail on the calculation of each of the indicative cost elements is set out in Appendix H.

7.31 The estimated incremental costs of developing a simple matching platform are summarised in the table below.

PV (\$m)	Low	Medium	High
Planning and consultation	0.03	0.05	0.08
Government processes	-	-	-
IT development	0.06	0.13	0.19
Participant cost	0.09	0.19	0.28
Total	0.18	0.37	0.55

Table 9 – Estimated incremental costs

Q24: Do you consider the indicative cost ranges for the matching platform to be reasonable? If not, what amendments would you propose and why?

Indicative benefit ranges

- 7.32 A platform should promote more efficient pricing through a combination of increased transparency and increased ease of trade. An estimate of the potential benefit has been derived based on assumptions on the volume of gas traded through a platform, the elasticities of demand and supply, and the degree to which trading is enhanced (assuming that this is represented by a small improvement in the accuracy of pricing so that the actual price moves closer to the optimal price).
- 7.33 An estimate of the reduced deadweight loss arising from a matching platform (which reduces the quantity of foregone trades) is \$53k per annum or \$340k in present value terms, calculated by assuming an improvement in pricing accuracy of \$0.04/GJ. While it is impossible to verify whether this present value estimate is accurate, it does not appear unduly optimistic when compared to the equivalent estimated present value benefit for the (much larger) Australian gas market of A\$1.1m from the introduction of a Bulletin Board service, with a similar voluntary matching facility²⁵. Further details are provided in Appendix H.
- 7.34 Participants currently make use of telephone, email or face to face communication to arrange a gas trade. A platform may be able to lower search costs by reducing the time taken to communicate between parties, providing a degree of anonymity, and 'concentrating' information in a virtual 'location'.

²⁵ However, it should be noted that all of the benefit in the Australian bulletin board proposal is attributed to the improved information base provided for participants, with MMA noting a near unanimous stakeholder view that the voluntary buy-sell facility offered on the bulletin board will not attract interest. It is impossible to discern whether this stakeholder view reflects a desire to preserve current arrangements for commercial reasons, or is based on a genuine view that direct contact between buyers and sellers is necessary to optimise trades. Despite the stakeholder views in Australia, the buy-sell facility appears to have been retained as part of the final form of the bulletin board proposal recommended to Ministers.

- 7.35 Furthermore, the number of possible trading pairs increases at a faster rate than the number of participants. As a result, even with a relatively small number of participants, there can be a significant number of possible trading pairs. For example, in a market with nine participants (the number of parties that indicated they were active traders in the NZIER survey), there are 36 possible bilateral trading combinations. Overall, it appears likely that a platform will lower search costs, but it is difficult to quantify and no specific estimate has been made in this study.
- 7.36 Improved trading arrangements should help to ensure that gas demand is met by the least cost sources available at any point in time. A mid-point estimate of \$0.02/GJ across 5% of gas volumes has been assumed as a central case. This appears relatively modest, given that it equates to less than 0.5% of the wholesale gas price.
- 7.37 The level of benefits should be further examined in light of the results of the survey in Appendix L. That survey showed very little trading in the 0-1 month timeframe. It would seem likely that the low volumes may be due to the high transaction costs involved. Whilst a standard contract would go some way to reducing transaction costs, should an automated market be introduced it could be expected that trading volumes in the one- to four-week timeframe may increase and, thereby, yield even greater benefits.
- 7.38 The table below summarises the estimated benefits from the above calculations.

PV (\$m)	Low	Medium	High
Pricing efficiency	0.17	0.34	0.51
Reduced search costs	-	-	-
Productive efficiency	0.38	0.76	1.15
Total	0.55	1.10	1.65

Table 10 – Estimated benefits

Q25: Do you consider the indicative benefit ranges for the matching platform to be reasonable? If not, what amendments would you propose and why?

Indicative net benefit ranges

7.39 Cost and benefit scenarios are independent, meaning there are nine possible combinations of outcomes. These are summarised below.

NPV (\$m)	Low benefits	Medium Benefits	High benefits
Low costs	0.37	0.92	1.47
Medium costs	0.19	0.74	1.29
High costs	0.01	0.56	1.11

Table 11 – Estimated net benefits

Estimated Net Benefits - Matching Platform



- 7.40 Based on the indicative estimates, even in the worst case outcomes, there are net benefits (albeit modest). For this reason, it does not appear unreasonable to believe that a development could be worthwhile, provided it can be confirmed that development costs are modest (and ideally toward the lower end of the range).
- 7.41 The contrary view would be that the benefits are insufficiently certain to warrant a platform development, even if the cost is modest. However, while the uncertainty around net benefits must be acknowledged, consideration should be given to the possible regulatory/policy action in the event that no platform proceeds. The GPS states the government's expectation that the Gas Industry Co will develop arrangements for a market for the trading of excess and shortfall quantities of gas.
- 7.42 In short, provided it can be confirmed that a matching platform can be established at a relatively modest cost, it would appear reasonable to proceed with a development.

Policy instrument

- 7.43 Analysis to date indicates that the rules required to implement a matching platform could be relatively straightforward. In particular, the voluntary nature of platform participation means that it might be possible to implement the arrangement through a combination of participation deeds between Gas Industry Co and users, together with the terms of the standard bilateral trading contract itself. Alternatively, Gas Industry Co has the ability to recommend to the Minister of Energy that rules or regulations under the Gas Act be put in place.
- 7.44 This issue is discussed in more detail in section 9 and will be reviewed further once a decision is made on whether to proceed with a development.

Recommended approach

- 7.45 It is proposed that Gas Industry Co:
 - prepare a functional specification for a matching platform, incorporating feedback on this Discussion Paper and further input from the Working Group;
 - obtain better data on cost estimates by seeking formal proposals on a contestable basis from platform developers/operators to develop and/or operate a matching platform based on the functional specification;
 - review the sources and quanta of benefits potentially available from a facilitated market in particular the potential for increased trading as a result of lower transaction costs; and
 - review the cost benefit assessment once firmer cost data is available, and decide whether to recommend proceeding with development of a matching platform.

Q26: Do you support the conclusion that it would be reasonable to proceed with development of a matching platform, provided it can be progressed at modest cost? If not, what path forward would you propose and why?

8 Shorter Term Trading - Standard Contract & Sophisticated Trading Platform

Scope of platform

8.1 A trading platform would operate in a similar manner to a matching platform, with one important difference. Rather than leaving participants to make the necessary arrangements to support a matched trade, a trading platform would automate these arrangements (at least to some extent) as shown below.



Trading platform - interfaces

8.2 Other aspects of the platform (governance, enforcement etc) would be similar in nature to a matching platform, although they could potentially be more complex. The discussion below focuses on the key areas of difference and their implications, rather than on governance and enforcement issues, which are not likely to have the same level of significance in terms of incremental costs.

Extent of automation

8.3 A trading platform will allow buyers and sellers to form contracts at the press of a key. While the matching process would certainly be automated, choices would be required about the extent to which other interfaces are automated. These include the areas set out in the table below.

Potential interface	Broad description of activity
Transport*	Confirm or arrange transport capacity to support a trade
Nominations/ renominations*	Advise pipeline operator of planned injections/withdrawals associated with a trade, and integrate with confirmation process
Balancing*	Adjust planned trades if necessary in light of system operator instructions to maintain linepack within acceptable limits
Reconciliation	Compare planned actions with actual actions to determine who owes what to whom
Payment	Advise buyers what is owed to whom
Settlement	Compare payments with liabilities

Table 12 – Trading Platform Interfaces

- 8.4 The key advantage of a trading system over a matching system is that it could facilitate trading very close to, or in, real time. This benefit could be significant if participants' need to trade arises close to real time and balancing periods are relatively short (e.g. one day). Overseas experience indicates that this is often the case²⁶. While such a need has not historically been evident in New Zealand due to the flexibility of the Maui contracts, this may change in the future.
- 8.5 The key activities that would need to be automated to support trading close to or in real time are marked with a "*" in the table above. From a high level perspective, there are two broad paths by which automation of this nature could be achieved.
- 8.6 One approach would be to build a bespoke trading system with the interfaces to the transport, nominations and balancing systems etc. This is likely to be a significant task, due to the relatively complex nature of the system interfaces, and the need to ensure the platform can integrate with each participant's individual IT system. Moreover, all these systems are still evolving quite rapidly as the sector transitions to a post-Maui environment. It would be important to ensure that the various systems evolve in a compatible manner.
- 8.7 The alternative approach would be to evolve the existing systems to facilitate short term trading. A possible path would be to allow pricing in the balancing arrangements to be more responsive to short term influences. For example, this could be achieved by allowing participants to ascribe a value to each of their

²⁶ For the example, the emergence of formalised wholesale gas markets in the UK and Victoria has been focussed on very short term trading. The recent initiatives in New South Wales and South Australia are headed in the same direction; see the work of the Gas Market Leaders Group available at www.mce.gov.au.

injection/withdrawal nominations. This would provide information to enable the system operator to 'stack' planned injections and withdrawals in priority order. This is the approach that is being proposed for the South Australian and New South Wales gas markets, albeit based on balancing at a node (city gate) rather than transmission system balancing (see Appendix J for more detail on balancing arrangements).

Counterfactual

- 8.8 To assess the incremental costs and benefits of developing a trading platform, a counterfactual must be defined that set outs the baseline for evaluation purposes. Possible counterfactuals in the present context include:
 - status quo no platform is developed by any other party and participants operate using existing arrangements and practices. However, it should be noted that this does not mean that the flexibility afforded by the legacy Maui gas continues on an indefinite basis. If that were assumed, there would probably be little benefit in developing trading arrangements (as has been the case for much of the last 30 years in New Zealand). It is not clear what degree of flexibility should be assumed in the post Maui period. This analysis takes a relatively conservative approach of assuming that the Maui flexibility is not easily replaced by a similar source. The results will be sensitive to assumptions in this area (and Appendix J proposes further work to analyse this issue);
 - simple matching platform implemented by Gas Industry Co;
 - alternative platform developed by industry it is possible that an industry
 participant or participants might develop a platform. In this case, the only party
 that could realistically undertake such a development would be the pipeline
 operator. At this point, no such proposal has been announced. Moreover, a
 participant-sponsored platform may have difficulty meeting some of the GPS
 objectives; and
 - alternative platform developed by non-industry player it is possible that a non-industry participant or participants might develop a platform. While such an initiative is more likely to meet the GPS objectives (than an industryparticipant sponsored platform), no such proposals have been announced. Nor, given the high costs and risks in a non-industry party undertaking this kind of venture, is there any obvious party who might bring forward such an initiative.
- 8.9 Based on the above, the status quo appears to be the most appropriate counterfactual for evaluation purposes. Note that the use of the status quo as the counterfactual is not substantially different from using the simple matching platform, because the difference between those two options is not large.

Indicative cost ranges

- 8.10 A trading platform will be more complex than a matching platform, and the band of cost uncertainty is expected to be commensurately greater. Furthermore, as noted above, a trading mechanism could be developed as a bespoke platform, or by evolving existing arrangements. In principle, the latter should be capable of delivering a lower cost outcome if existing systems have been designed to accommodate trading²⁷.
- 8.11 The table below sets out indicative estimates of the incremental costs of developing a trading platform.

PV (\$m)	Low	Medium	High
Planning and consultation	0.3	0.5	0.8
Government processes	0.1	0.1	0.2
IT development	3.0	6.0	8.9
Participant cost	1.5	3.0	4.5
Total	4.8	9.6	14.3

Table 13 – Estimated incremental costs

- 8.12 Planning and consultation processes are expected to be relatively intense because decisions will be required on a significant number of issues. It is also likely that the government/regulatory bodies will take a close interest in the development, and allowance has been made for this.
- 8.13 The IT development itself is difficult to cost ex ante, because much depends on the system functionality, and the form of development. A core cost of \$6m has been used as a mid-point estimate. This is the same as the cost estimate for system operation and governance development for the short term trading markets being developed for South Australia and New South Wales.
- 8.14 Participants will also incur some direct costs to alter their systems to use the platform, both for initial integration and ongoing use. It is difficult to estimate the incremental costs, especially as some costs are likely to be incurred whether or not a trading mechanism is established. A mid-point estimate of \$3m has been used for this item. It is largely based on the estimates for the development of the Australian systems, scaled back to reflect a smaller number of participants.
- 8.15 These estimates have been summed to form the 'medium cost' scenario for total incremental costs, and a sensitivity range of -50% to +50% has been applied. Further detail on the calculation of indicative cost elements is set out in Appendix I.

²⁷ Based on discussions with industry participants, Gas Industry Co understands that OATIS has been developed with this potential in mind. However, this issue has not been explored in any detail.

Q27: Do you consider the indicative cost ranges for the trading platform to be reasonable? If not, what amendments would you propose and why?

Indicative benefit ranges

8.16 The estimated range for benefits from development of a trading platform is set out in the table below.

PV (\$m)	Low	Medium	High
Pricing efficiency	1.1	2.1	3.2
Productive efficiency	2.5	7.5	12.4
Curtailment management	0.5	2.6	10.5
Better capacity utilisation	-	-	-
Reduced search costs	-	-	-
Total	4.1	12.2	26.1

Table 14 – Estimated benefits

- 8.17 The potential incremental improvement in pricing efficiency has been derived using the same methodology as for a matching platform. However, different parameters have been used in a number of areas to reflect the greater functionality of a trading platform as set out in Appendix I.
- 8.18 An estimate of the potential level of improvement in pricing efficiency was obtained by analysing historical gas netbacks from electricity generation. These vary each day, and the chart below depicts the average difference between netbacks calculated on a daily basis, and those calculated over a variety of longer time intervals.



Difference between daily netback and netback over longer intervals

- 8.19 Based on this analysis, an estimate of existing price inaccuracy of \$0.50/GJ (7.7 percent of the average price) in the "medium" benefit scenario appears to be conservative.
- 8.20 This yields a mid-point estimate of \$2.1m in present value terms for pricing efficiency benefits. The analogous estimate for the South Australian and New South Wales market is \$4.8m (A\$4m).
- 8.21 This estimate for New Zealand appears to be conservative when compared with South Australia and New South Wales, given that:
 - the existing New Zealand gas market is less developed than the existing equivalents in NSW and SA. Accordingly, there may be a greater inherent level of potential benefit available; and
 - while the New Zealand gas market uses approximately 120 PJ per annum compared with 210 PJ per annum for SA and NSW combined, gas prices in New Zealand are approximately double those prevailing in Australia. Accordingly, the New Zealand market is actually larger in value terms than the combined SA/NSW market, and efficiency benefit is driven by value rather than volume.
- 8.22 The second principle area of benefit is greater productive efficiency. As noted earlier, trading can help to ensure that the lowest cost sources of gas are used to meet demand at any point in time. An average efficiency improvement equivalent to 1.5% of gas purchase price has been assumed as a mid-point estimate. This produces a benefit of \$7.5 m in present value terms. The equivalent estimated benefit for SA and NSW combined was \$17.8m (A\$15m).
- 8.23 This reflects the fact that while the New Zealand wholesale gas market is a similar size in value terms to the combined SA and NSW markets, those markets obtain gas from a wider selection of physical sources. This higher diversity is likely to create increased potential for cost savings through trading, and hence a lower estimate for New Zealand appears appropriate.
- 8.24 The other source of benefit for which an indicative estimate has been made is the potential improvement in management of any gas curtailment. As noted in Appendix D, curtailments can be managed through administrative or market based arrangements. At present, curtailment is largely administratively based, with no real scope for participants to signal the value they place on continued gas supply during an event. Nor is there currently an effective means for participants to signal value ex ante, but close to real time. As a result, it is possible that curtailment will result in more valuable users of gas being curtailed ahead of less valuable users.²⁸

²⁸ For example, in February 2003, gas supply from the Maui platform was interrupted for a period. In response, gas usage at combined cycle power plant was reduced. Electricity spot prices rose, and some gas-fired co-generation plants not subject to curtailment increased output. Given that cogeneration plants generally have lower electrical conversion efficiencies than CCGT plant, it is possible that some of the available gas did not flow to its most valuable uses during the Maui contingency.

- 8.25 As discussed in Appendix D, a trading mechanism can provide the system operator with information that should help to ensure that curtailment decisions better reflect the relative valuation of gas by different parties in real time.
- 8.26 An estimate of the potential benefit has been derived based on assumptions about the likelihood, magnitude and duration of outages. These assumptions have in turn been based on the analysis carried out by McLennan Magasanik Associates.
- 8.27 The mid-point estimate for better curtailment management is \$2.6m, which compares to McLennan Magasanik's estimate of \$3.6m (A\$3m) for the SA and NSW markets. A similar sized value is thought reasonable for New Zealand because:
 - the value of gas traded through the two markets is comparable;
 - there does not appear to be any structural reason why it should be much easier or less costly to manage outages in New Zealand; and
 - there is no clear reason to believe the New Zealand system is less likely to
 experience curtailments indeed the dependence on a smaller number of
 physical supply sources and lower redundancy in the pipeline network (NSW
 and SA demand is now served by two major transmission lines rather than one
 as in New Zealand) could arguably increase the likelihood of such events in
 New Zealand.
- 8.28 There are also some other potential sources of benefit that have not been quantified. These include:
 - better capacity utilisation as discussed in Appendix D, improved trading arrangements might facilitate better capacity utilisation. A benefit of \$31m (A\$26m) was estimated from the introduction of short term trading markets in SA and NSW. No allowance has been made for this factor in New Zealand as there is insufficient information to suggest that there would be incremental benefits in an economic sense (although there may be benefits to some parties at the expense of others);
 - improved investment incentives by providing clearer short term price signals, a trading mechanism should improve investment decisions associated with flexibility enhancements. This includes issues such as pipeline compression capacity or flexibility in gas production and processing facilities; and
 - reduced search costs as noted in Appendix D, an organised market should reduce search costs for participants wishing to trade. These have not been formally estimated.
- 8.29 These estimates are significantly higher than for a matching platform. This reflects a view that a matching platform will have difficulty satisfying demand for very near term trade because of the absence of integrated IT interfaces.
- 8.30 An alternative view would be that there is little incremental gain between a matching platform and trading platform. This might occur, for example, if physical

and commercial arrangements meant that a relatively flexible balancing regime applied, and parties could balance their requirements without great difficulty.

- 8.31 It is difficult to form a definitive view on this issue at this point, because it requires an understanding of a range of future physical and commercial issues. For this indicative analysis, a sizeable difference has been assumed. This is based mainly on the experience in other markets as they transition from a single dominant source of supply. However, the uncertainty is real, and it is one of the reasons further work on this issue is proposed (see section conclusion).
- **Q28:** Do you consider the indicative benefit ranges for the trading platform to be reasonable? If not, what amendments would you propose and why?

Net benefit assessment

8.32 The previous sections set out three possible scenarios for costs and for benefits. The cost and benefit scenarios are independent of each other - i.e. all combinations are possible. The table and graph below show the estimated net benefits for each combination.

Table 15 – Estimated net benefits

NPV (\$m)	Low benefits	Medium benefits	High benefits
Low costs	- 0.7	7.4	21.3
Medium costs	- 5.5	2.6	16.5
High costs	- 10.3	- 2.1	11.7



Estimated Net Benefits - Trading Platform

8.33 As shown above, there is a wide variability in the estimated net benefit outcomes, though many indicate significant net benefits. On an unweighted basis, the expected average across all outcomes is a net benefit of \$4.6m in NPV terms.

Recommended approach

- 8.34 Based on the information above, the following *tentative* conclusions can be drawn:
 - the wide range of uncertainty around possible outcomes, and potential to incur significant net costs, indicates that it would be risky to proceed with development of a full trading platform at this point;
 - however, the significant potential net benefits available under many combinations indicates a good case for exploring further the development of a short term trading platform; and
 - effort should be directed at narrowing the range of estimated benefits and costs, and particularly the latter as they should be more subject to control. In particular, it would be useful to explore the costs and benefits involved in making the pipeline imbalance pricing mechanisms more responsive and dynamic.
- **Q29:** Do you support the conclusion that it would be risky to proceed with development of a trading platform due to uncertainty over net benefits, but that it would be worthwhile to seek to narrow the uncertainties, and in particular to examine the costs and benefits of making the pipeline imbalance pricing mechanisms more responsive and dynamic? If not, what conclusion would you draw and why?

9 Policy Instruments

- 9.1 As noted earlier, it is intended that trading on the matching platform will be voluntary. However, there will be a need for certainty around the platform arrangements. Gas Industry Co considers that there are three possible mechanisms for delivering a matching platform to facilitate short term trading of gas in New Zealand, the options are a platform set up:
 - under the auspices of a Pan-Industry Agreement to which participants voluntarily sign up; or
 - by the Gas Industry Co or an independent supplier which participants join by signing a Participation Agreement with the supplier of the platform which includes a governance regime with which participants voluntarily agree to comply; or
 - through rules or regulations which include a mandatory governance regime with which participants must comply.
- 9.2 Gas Industry Co has not yet formed a view as to whether it is more appropriate to establish the platform through rules or regulations, or an industry arrangement such as a Pan-Industry Agreement or Participation Agreement.
- 9.3 However, for the platform to operate properly it will be important to ensure that governance rules are complied with and, if they are not, for compliance to be enforced. Given the difficulties with reaching consensus on the terms of a Pan-Industry Agreement identified with respect to Gas Emergency Arrangements²⁹, the Gas Industry Co does not consider it reasonably practicable for a matching platform to be set up through such an arrangement.
- 9.4 At this stage it is envisaged that enforcement could be carried out via the compliance regime that the Gas Industry Co is establishing through the Switching and Registry work stream.

Analysis of Possible Mechanisms to Implement the Platform

Participation Agreement

- 9.5 A mandatory bi-lateral industry agreement would need to be drafted, negotiated, approved and then executed by parties who wish to participate on the matching platform. As set out at paragraph 9.5 above, Gas Industry Co has no power to make a Participation Agreement binding on parties.
- 9.6 As the Participation Agreement would likely contain provisions affecting, for example, price, prudential provisions, admission and disciplinary requirements, and other restrictions on participation, some Commerce Act issues may arise.

²⁹ See the Discussion Paper on Review of Gas Emergency Arrangements, July 2006 on the Gas Industry Co website

- 9.7 A Participation Agreement which included any of these arrangements would therefore require close examination to ensure that it did not have the effect of fixing prices, excluding competitors or otherwise lessening competition before it would be possible to conclude with any confidence that an authorisation from the Commerce Commission was not required.
- 9.8 It is likely, however, that any perceived impacts on competition will be mitigated by the voluntary nature of the platform. At this stage Gas Industry Co simply wishes to raise the possibility that these issues may need to be examined in more detail as the work stream progresses.
- 9.9 An industry arrangement will also require a governance regime which will deal with, for example, how changes to the Participation Agreement will be made, rules for participating on the matching platform, and enforcement of those rules.

Rules or Regulations

- 9.10 The risks associated with getting a divergent group of industry participants (often involving direct competitors) to agree to the content and drafting of any industry arrangement, including a Participation Agreement (albeit the risk may be lower than that for a Pan Industry Agreement), do not apply to rules or regulations. Rules or regulations made by the Minister of Energy pursuant to the powers granted under the Gas Act are binding, by operation of law, on all parties who choose to participate on the matching platform.
- 9.11 Any such rules or regulations would take precedence over any contractual or other non-regulatory arrangements (MPOC, TSAs etc) such that where there were any inconsistencies between the rules or regulations and those other arrangements (e.g. differing curtailment scheduling), the rules or regulations would prevail.
- 9.12 Section 43F(2) of the Gas Act directly contemplates rules or regulations as a mechanism to implement deliverables under the GPS for "the establishment and operation of wholesale markets for gas".
- 9.13 Therefore, rules or regulations can be made for a matching platform for short term trading of gas provided Gas Industry Co complies with the process under section 43 of the Gas Act in making a recommendation for any rules or regulations to the Minister of Energy.
- 9.14 This process involves:
 - making an assessment of the proposed regulation or rule against any reasonably practicable alternatives taking into account:
 - o the benefits and costs;
 - o the extent to which the objective would be promoted; and
 - o any other matters considered relevant;
 - preparing a statement of proposal containing specified matters and consulting with persons likely to be affected by the proposal; and

- considering submissions from those persons, before making a recommendation to the Minister.
- 9.15 The consultation requirements under the Gas Act (undertaken prior to Gas Industry Co recommending rules or regulations to the Minister of Energy for approval) provide an opportunity for stakeholders to express their views and have input on any proposed rules or regulations.
- 9.16 Rules or regulations do not suffer from the same risks that may be associated with voluntary arrangements or a Participation Agreement. Section 43ZZR of the Gas Act authorises various matters for the purpose of section 43 of the Commerce Act 1986, including anything done by Gas Industry Co or an industry participant in the course of, or for the purpose of, recommending any gas governance regulations or rules, or complying with, enforcing, or otherwise administering any such regulations or rules.
- 9.17 Rules or regulations provide certainty as to Gas Industry Co and the industry's ability to meet the deliverables agreed with the Minister of Energy under the Strategic Plan. As Gas Industry Co will be primarily responsible for drafting any such rules or regulations, it is within its control to manage timelines and include industry feedback received as part of the separate formal consultation process under the Gas Act.

Choice between Rules and Regulations

- 9.18 Section 43Q(1) of the Gas Act allows the Minister of Energy to make a rule for all or any of the purposes for which a gas governance regulation may be made.
- 9.19 Over time general practice has developed whereby rules are generally preferred where the subject matter is of a technical nature with limited application. Whereas regulations are generally preferred where they have wide impact, materially affecting the interests of individuals and the content or principles need to be entrenched.
- 9.20 Ultimately, it is the decision of the Minister of Energy as to whether to recommend rules or regulations to the Governor General for adoption. Under section 43Q(2) of the Gas Act, in deciding whether to make a recommendation for a rule, the Minister must *only* have regard to the following:
 - "(a) the importance of the rule, including whether the rule has a material effect on the rights and interests of individuals:
 - (b) the subject matter of the rule, including whether the rule contains detailed or technical matters rather than matters of general principle:
 - (c) the application of the rule, including-
 - (i) whether the rule applies principally to a particular group (e.g. industry participants) rather than the general public:
 - (ii) whether the benefits of publication in accordance with section 43R rather than the Acts and Regulations Publication Act 1989 outweigh the costs of publication by that method:

(d) the expertise and rule-making procedures of the recommending body.

9.21 Given that the matching platform provides a very simple mechanism for matching participants in the gas industry to facilitate short term trading of gas, and that participation in the market is voluntary, Gas Industry Co believes at this stage that the Minister of Energy may conclude that the matching platform should be implemented by rules not regulations.

10 Conclusion

10.1 This section summarises the discussion in earlier parts of this paper, and sets out the proposed path forward.

Longer term trading

- 10.2 As discussed in Section 4, the trading of gas on longer term contracts has been primarily driven by the desire of sellers and/or buyers to manage risks associated with large investments in gas producing or consuming assets. For this reason, the contracts are negotiated on an infrequent basis, and are highly tailored to specific circumstances.
- 10.3 There does not appear to be any benefit in seeking to organise the trading of gas on these contracts to improve transactional efficiency. Indeed, seeking to formalise this trade would almost certainly be counterproductive in relation the GPS deliverables – in particular by making it harder for parties to formulate arrangements that appropriately underpin new investment.
- 10.4 Accordingly, based on present information, Gas Industry Co does not propose to take any further action in this area to improve transactional efficiency.

Shorter term trading

- 10.5 Unlike longer term gas trading, the trading of gas on shorter terms does exhibit some degree of commonality, and there may be benefit from facilitating trade particularly as gas arrangements become more inflexible in the transition from Maui gas.
- 10.6 However, the New Zealand gas sector is small in international terms with relatively few players, which can limit the incremental benefits available from facilitation initiatives. This suggests a cautious approach is warranted.

Standard short term contract

- 10.7 Stakeholder feedback indicates support for preparing a standard form of contract that can be utilised on a voluntary basis by parties. Gas Industry Co has prepared a draft agreement, and a copy is appended to this Discussion Paper.
- 10.8 Gas Industry Co intends to update the draft to incorporate feedback received in this consultation process and from the Working Group, and then make the contract available for use by parties.

Platform development options

10.9 In respect of the possible development of a platform to support trading, there are two broad alternatives:

- **Matching Platform** development of a relatively simple platform that facilitates the matching of buyers and sellers, but leaves participants to make the arrangements necessary to execute and support a trade; and
- **Trading Platform** development of a more sophisticated platform that both facilitates matching of buyers and sellers, and automates the essential processes to execute and support a trade.
- 10.10 A matching platform appears capable of development at modest cost, but would not be able to facilitate trading very close to, or in, real time because participants would still be reliant on manual interfaces for nomination and renomination processes. This would constrain the benefits available from such a platform. Despite this, it appears likely that such a platform could produce sufficient benefits to cover its costs.
- 10.11 A trading platform should be capable of delivering significantly greater benefits, but development would be a larger undertaking with correspondingly higher costs and longer timeframe. Furthermore, the uncertainty about the costs and benefits, in both relative and absolute terms, means that there is a broad spread of possible outcomes from such a development. Put another way, while the potential upside is higher, there is also a greater downside risk.
- 10.12 In respect of a trading platform, Gas Industry Co considers that:
 - providing a mechanism to trade gas close to, or in, real time could produce significant benefits, especially in the post-Maui phase. However, there is insufficient certainty around costs and benefits to support a decision to proceed at this point;
 - effort should instead be directed at reducing uncertainty around estimated benefits and costs, in particular by reviewing arrangements to better assess future needs and whether an evolution to more dynamic pricing could be achieved at reasonable cost (as set out in Appendix J); and
 - the preferred route for undertaking this analysis is to work collaboratively with the system operator and other stakeholders over the next 12-18 months to assess how the balancing arrangements might evolve.
- 10.13 In the meantime, Gas Industry Co proposes to continue work on assessing a simple matching platform. This will entail developing a functional specification, and seeking firm proposals from potential developers/operators, prior to making any final decision to proceed.
- 10.14 It is judged worthwhile to continue this work on a matching platform because:
 - analysis indicates a reasonable likelihood that such a development could be progressed swiftly and deliver net benefits;
 - there is no certainty that a more sophisticated set of trading arrangements will evolve in the short term; and

- even if a trading platform were subsequently developed and displaced the need for a matching platform, the 'worst case' outcome is capped at a fairly modest level because the initial development commitment is not large.
- 10.15 Gas Industry Co will evaluate these tentative conclusions in light of feedback on this Discussion Paper and make decisions about its preferred path forward.
Appendix A: Recommended Format for Submissions

To assist the Gas Industry Co in the orderly and efficient consideration of stakeholders' responses, a suggested format for submissions has been prepared. This is drawn from the questions posed throughout the body of this consultation document.

Respondents are also free to include other material in their responses.

Submission from:

(company name and contact person)

Questions	Comments
Q1: Do you agree with regulatory objective for the component of the Wholesale Market work stream? If not, what objective should the Gas Industry Co be considering?	
Q2: Do you agree with the general approach to assessing the different options using both quantitative and qualitative criteria? If not, what alternative approach, that also complies with the Gas Act, would you suggest?	
Q3: Are there other time horizons that should be considered for the trading of gas? If so, what are those time horizons?	
Q4: Are there any other reasonably practicable alternatives for longer term trading of gas that should be considered and if so, what are they?	
Q5: Are you satisfied with this evaluation of options for longer term trading of gas, and if not, what aspects would you alter and why?	
Q6: Do you agree that there is no case for formalising arrangements for longer term trading of gas to improve transactional efficiency? If not, what alternative do you prefer and why?	

Questions	Comments
Q7: Are there any other options that should be considered for short term gas trading, and if so, what are the options?	
Q8: Are you satisfied with the qualitative assessment of short term trading options? If not, what aspects would you change and why?	
Q9: Do you agree that the standard contract should allow for both types of approaches? If not, what would you prefer and why?	
Q10: Do you agree that the standard contract should not provide for price adjustments for taxes and government charges? If not, what changes would you prefer and why?	
Q11: Are you satisfied with the proposed approach for addressing s.41 of the Crown Minerals Act in the standard contract? If not, what alternative would you prefer and why?	
Q12: Do you agree that the standard contract should not provide for any conditions precedent? If not, what alternative would you prefer and why?	
Q13: Do you agree that the standard contract should not make seller liable for gas specification? If not, what alternative would you prefer and why?	
Q14: Do you agree that the standard contract should not provide for any priority rights? If not, what alternative would you prefer and why?	
Q15: Do you agree that the standard contract should set out a broad description of the transport obligations/rights on buyer and seller? If not, what alternative would you prefer and why?	

Questions	Comments
Q16: Do you agree that the standard contract should have liability provisions that exclude indirect losses, and that direct losses (in equivalent \$/GJ terms) would be capped at the pipeline mismatch/imbalance price? If not, what alternative would you prefer and why?	
Q17: Do you agree that the standard contract should have FM provisions based on the principle that for very short term trades FM cannot be invoked unless balancing has been suspended – i.e. curtailment is occurring? If not, what alternative would you prefer and why?	
Q18: Do you agree with the proposed dispute resolution provisions for the standard contract? If not, what alternative would you prefer and why?	
Q19: Do you agree that the standard contract should provide a standard assignment provision? If not, what alternative would you prefer and why?	
Q20: Do you agree that the Gas Industry Co should make the standard contract available for use (once the feedback from this discussion paper has been considered and incorporated)? If not, what alternative path forward would you prefer and why?	
Q21: Do you agree that a platform should extend the compliance regime being developed by the Gas Industry Co in order to keep costs to a minimum? If not, what alternative would you prefer and why?	
Q22: Do you agree that the preferred approach to prudential management is the white-list? If not, what alternative would you prefer and why?	

Questions	Comments
Q23: Do you agree that the platform should allow participants to nominate their preferred location for making offers or bids (provided this does not add undue cost to a platform development)? If not, what alternative would you prefer and why?	
Q24: Do you consider the indicative cost ranges for the matching platform to be reasonable? If not, what amendments would you propose and why?	
Q25: Do you consider the indicative benefit ranges for the matching platform to be reasonable? If not, what amendments would you propose and why?	
Q26: Do you support the conclusion that it would be reasonable to proceed with development of a matching platform, provided it can be progressed at modest cost? If not, what path forward would you propose and why?	
Q27: Do you consider the indicative cost ranges for the trading platform to be reasonable? If not, what amendments would you propose and why?	
Q28: Do you consider the indicative benefit ranges for the trading platform to be reasonable? If not, what amendments would you propose and why?	
Q29: Do you support the conclusion that it would be risky to proceed with development of a trading platform due to uncertainty over net benefits, but that it would be worthwhile to seek to narrow the uncertainties, and in particular to examine the costs and benefits of making the pipeline imbalance pricing mechanisms more responsive and dynamic? If not, what conclusion would you draw and why?	

Questions	Comments
Q30: Do you consider the quantitative assessment methodology to be reasonable? If not, what amendments would you propose and why?	

A - 6

Appendix B: Government Policy Statement

Government Policy Statement on Gas Governance

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 Action³⁰, the National Energy Efficiency and Conservation Strategy³¹, the Climate Change Work Programme³² 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.

³⁰ http://www.mfe.govt.nz/publications/sus-dev/sus-dev-programme-of-action-jan03.html

³¹ http://www.eeca.govt.nz/default2.asp

³² 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
 - 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; and
- 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 that gas market participants can access transmission pipelines on reasonable terms and 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; and
- 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 retail 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; and
 - 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 to 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 so that gas market participants can access transmission pipelines on reasonable terms and conditions; and
 - 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; and

- 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".

(Original text from http://www.med.govt.nz/upload/12172/final-gps.pdf

Appendix C: Wholesale Market Milestones in Current Strategic Plan

The current Strategic Plan lists the following deliverables for the Wholesale Market work stream:

Activity	Milestone
Develop detailed wholesale market trading arrangements, including any changes to gas specification	Issue discussion paper on wholesale market arrangements by September 2006
Revise arrangements to take account of industry feedback	Issue discussion paper on revised wholesale market arrangements by December 2006. Report on outcome of consultation to Minister by December 2006
Development of trading platform and detailed arrangements	Issue proposal on platform design and detailed arrangements for consultation by March 2007
Prepare recommendation on wholesale market	Recommendation on wholesale market to the Minister by June 2007

Appendix D: Cost Benefit Assessment – Generic Framework

Overall framework

The paper sets out estimates of benefits and costs for a number of trading options. The paper examines these from a national economic perspective – i.e. it assesses benefits/costs to the economy, and excludes benefits/costs which are simply a transfer among classes of economic participant (e.g. between gas buyers and sellers).

Deriving robust estimates for future costs and benefits of market development initiatives is inherently difficult. Estimates have been derived based on a mixture of observed data, judgements and first principles analysis. Comparisons have also been made with other New Zealand and overseas experience where possible.

In particular, the study carried out by McLennan Magasanik Associates (MMA) on the development of improved gas trading arrangements in Australia for the Australian Gas Market Leaders Group has been a valuable source of comparison.

That study set out a framework for measuring costs and benefits from adopting a bulletin board arrangement for the national gas market, and developing short term trading markets for New South Wales and South Australian. It then applied the framework by developing estimates for the relevant input data. The report was issued in draft earlier this year, and the final report dated June 2006 has had the benefit of stakeholder feedback.

While the detail of the system and institutional arrangements differs between Australian states and New Zealand³³, a similar overall framework can be applied because the underlying potential sources of benefit and costs are largely the same, even if the magnitudes of individual components vary.

Furthermore, the scale of the wholesale gas market in each of South Australia and New South Wales is not dissimilar to New Zealand, as shown in the table below. Accordingly, the assessment work for these states is a useful point of comparison for New Zealand.

³³ In particular, the proposed short term market arrangements for SA and NSW will operate over large scale distribution systems, rather than transmission systems with gas flow that is predominantly in one direction.

Table 16

Gas markets	Vic	NSW	SA	NZ
Volume – PJ/annum				
Mass market	110	32	11	14
Large industrial	88	64	32	31
Generation	11	8	57	74
Total	209	104	100	119
Value				
Average mkt price NZ\$/GJ	3.57	3.57	3.5	6.50
Value of gas sales \$m/annum	746	371	357	774

Sources: MMA for Australian volumes, Ministry of Economic Development Energy Data File for New Zealand volumes, Concept Consulting Group for average gas values

The following sections set out the potential sources of economic benefit and cost, and describe the framework used to assess magnitudes.

Benefit 1 - Pricing efficiency

Whenever the gas price diverges from its 'true' value, there is likely to be economic detriment because users' and producers' decisions will not be based on the true gas value. This detriment is often referred to as a deadweight loss, and can be estimated from market data.

Trading can reduce such losses because it makes prices more transparent (enabling more parties to see changing gas values, and therefore react to such changes). Trading mechanisms can also enable prices to 'reset' more frequently, and therefore be more responsive to changing conditions.

An *indication* of gas pricing efficiency can be derived by examining how the value of gas netback³⁴ from electricity generation has changed over time. While it is not a perfect measure of the short run value of gas, the netback provides a good indication because:

- around 60% of New Zealand's gas demand is for use as a fuel in electricity generation plant;
- gas-fired plant will often be the marginal user of gas, in the sense that it can more easily make discretionary choices to increase or reduce its demand; and
- market data exists on the short run value of electricity.

³⁴ The gas netback is the value of electricity production from gas fired plant, less all non-fuel costs, expressed as \$/GJ. In effect, how much a gas-fired station can afford to pay for gas and still cover all its other costs. Note that gas *market value* may differ from the electricity *netback value* for a number of reasons – for example electricity supply might be tight due to a plant outage, but there is abundant gas available for use. Although the two measures differ, they are likely to be correlated for the reasons set out above.

Daily electricity price data between October 1996 and June 2006 was analysed to derive an implied daily gas netback value. Each daily gas netback value is assumed to be the gas market equilibrium price for that day. The deadweight loss in the market for that day that would arise if the market price was set at a different level is then calculated.

Suppose the daily gas netback value clears the gas market, and can be illustrated as P_0 in the following diagram.



Suppose that the market price is instead set at P_1 . The amount of gas demanded (used) will equal Q_1 rather than the efficient level of Q_0 . The efficiency loss in the market caused by the inaccurate pricing is illustrated by the deadweight loss triangle. The area of this triangle can be expressed as a formula that depends on P_0 , P_1 , Q_0 , and the elasticities of demand and supply "ed" and "es" respectively:

Deadweight loss = $\frac{1}{2} (Q_0/P_0)^* (P_1-P_0)^{2*} ed^{2*} (-1/ed+1/es)$

An average annual deadweight loss figure was calculated for the period from October 1996 to June 2006 under the assumption that the market price (P_1) was set, for each two day period, at the average daily gas netback value over those two days. This analysis was repeated for market prices calculated by averaging daily gas netback values over periods of one week, two weeks and four weeks.

The elasticity of demand was assumed to be -1 for the short-term trading market (which is assumed to be 5 percent of total gas used in the economy), and the elasticity of supply was assumed to be 0.5. The market quantity (Q_0) was assumed to be 119 PJ per annum.

These resulting average annual deadweight loss figures represent an estimate of the inefficiency that arises when gas trading cannot occur in real time (i.e. immediately prior to the gas day), but can only occur two days (or one, two or four weeks) prior to real time.

The benefits, in terms of reduced deadweight loss, from improving trading arrangements to facilitate trading closer to real time are shown in the following chart. While this analysis must be viewed as indicative in nature, it suggests there

would be benefit in facilitating shorter term trading, and that the benefits tend to increase the closer one is able to get to real time.



Indicative pricing efficiency gain based on gas netbacks

It is difficult to know what degree of price responsiveness current arrangements allow. In theory they could permit trades up to real time, but in practice this is unlikely because there would be insufficient time to identify a trade, document it, and make the necessary nominations.

It appears likely that participants could arrange trades four or more weeks ahead using existing processes without any real difficulty, and that it is likely to get progressively harder as the timeframe shortens. The recent NZIER survey for the Gas Industry Co provides some circumstantial support for this view, with around 8% of trade by volume being for contract durations (as distinct from lead times) of 4 weeks or less. However, there are other possible reasons for the relative scarcity of very short term trades, such as the absence of any significant benefit at this point.

Benefit 2 - Productive efficiency

Wholesale gas users will meet their gas demand using whatever sources they have available at any point in time. Participants will seek to manage their portfolios according to a 'merit order' using their lowest cost gas first, and working their way through increasingly valuable gas, with the most expensive source utilised last, and only if required.

If short term trading is not possible, participants must rely on the sources already available under long term contract and own production. In the absence of any short term trade, there are likely to be instances where parties could utilise less costly gas sources (by purchasing from another party) but are unable to do so. Such outcomes represent an economic cost, in that more expensive gas sources are being used ahead of less expensive sources – i.e. there is productive inefficiency³⁵.

The extent to which such outcomes occur in practice depends on a variety of matters including how difficult it is to trade, the number of participants, variability in their demand, and the extent to which cost varies across gas sources.

Benefit 3- Improved gas allocation during a contingency

Most small scale supply interruptions can be met by draw down of linepack or increasing supply from discretionary sources (for example, historically the Maui gas field provided this buffer). However, there are also contingency events when supply interruptions can be sufficiently severe to require some form of demand curtailment to ensure that linepack does not fall in an uncontrolled and potentially hazardous manner.

Curtailment can be managed through administrative or market based arrangements. Present arrangements are largely administratively based, in that the National Gas Outage Contingency Plan is based around a demand curtailment schedule for addressing different contingencies.

Experience in Australia suggests that administrative arrangements can be inefficient, because available supply is not necessarily utilised by those parties who place the highest value on it. In particular, the curtailment of industrial users following the Moomba fire in January 2004 has undergone significant scrutiny, and has been cited as evidence of this.

Following the Moomba fire, major industrial users in South Australia were required to reduce their gas offtakes. OneSteel estimated it suffered a loss of \$5m over 3 days of curtailment, equivalent to A\$128/GJ. However, during the same period gas-fired generators continued to operate even though the net back from generation was approximately A\$2.50-5.00/GJ and other generation sources were not fully utilised. The overall net economic cost of gas misallocation in that incident was estimated at A\$19 million³⁶.

While there have not been any recent supply outages of a scale akin to the Moomba incident in New Zealand, there are indications of similar allocation issues on a smaller scale during the Maui interruptions in early 2003.

Trading arrangements should be able to reduce such detriments, to the extent that they provide information about the relative value that parties ascribe to additional supply/reduced demand, i.e. bids and offers. This information can allow a system operator to curtail demand in a manner that corresponds with overall preferences. In this context, it is important to note that such bids or offers can be made before a contingency event occurs. In effect they are standing offers that very seldom are called upon.

Assessing the curtailment benefit attributable to trading requires judgements about the frequency of contingency events, and the incremental improvement in allocation versus the alternative. The MMA study for the NSW and SA markets

³⁵ To be complete, this assumes that participants' valuations of gas are broadly reflective of real resource costs.

³⁶ MMA, page 58

estimated that a daily market could have reduced the curtailment cost by around 50%, or A\$9.5 million. It also assumed an average return period of 15 years (based on the events at Longford and Moomba). This produced an expected value equivalent of A\$600,000/year.

It should also be noted that this excluded any benefit from improved incentives to manage risk. In particular, it noted that administrative arrangements can have the perverse impact of penalising risk minimisation behaviour, because parties who take steps to manage risk (e.g. by arranging alternative more expensive back-up fuel) may be more easily curtailed.

Benefit 4 - Better capacity utilisation

In the absence of any trading, wholesale buyers will need to contract for their full capacity requirements. Because buyers typically have different requirements, and in particular different peaks, there will be a difference between the sum of the individual wholesale buyers' peaks, and the coincident peak for the whole system. This can result in the system carrying excess capacity, with an associated economic cost.

It has been argued that a wholesale market more easily enables buyers to contract for less than their peak requirement, and therefore reduces the economic cost of over capacity. While there is anecdotal evidence to support the argument, it is extremely difficult to estimate the magnitude of these effects. Furthermore, even if all buyers fully contract for their peak requirements, this may not cause an economic cost. For example, a pipeline operator may build to meet the coincident peak demand, utilising the diversity of individual customer load, therefore avoiding an economic cost. Whether this 'saving' accrues to the pipeline owner or customers will depend on a range of issues, but in either case will not cause an economic loss.

Given the difficulties in quantifying this effect, the analysis in this paper does not ascribe any value to this source, though it is acknowledging that a wholesale market should promote rather than hinder more efficient capacity utilisation.

Benefit 5 - Improved investment incentives

By providing clearer price signals, a trading mechanism may help to improve investment decisions. However, it is important to recognise that this benefit will be largest for investments where the 'shape' of prices is important – i.e. how prices vary through time. Potential examples include pipeline investments in compressor capacity to increase peak flows, or de-bottlenecking gas processing capacity.

There is likely to be little or no benefit for investments that are largely driven by the outcome of average prices, such as investments in new field production.

Benefit 6 – Reduced search costs

Current arrangements are based on direct bilateral trading, occurring through telephone, email and meetings. In principle, an organised market can lower search costs by reducing the amount of resource required to interchange with participants. The larger the number of participants, the more likely it is that an organised market will be able to lower search costs. Indeed, the number of possible trading pair's increases at a faster rate than the number of participants, as shown in the chart below. As a result, even with a relatively small number of participants, there can be a significant number of possible trading pairs. For

example, in a market with 9 participants (the number of parties that indicated they were active traders in NZIER's survey on wholesale gas market issues), there are 36 possible bilateral trading combinations.



Possible Trading Pairs vs Participant Numbers

The other aspect of search costs that is relevant in this context is the value of anonymity. Participants who wish to buy or sell gas will often wish to keep this confidential until after a trade has occurred, because revealing their identity may increase the likelihood of opportunistic behaviour. Current arrangements make it difficult for participants to achieve any degree of anonymity, whereas organised mechanisms generally operate on a 'blind' basis. The value of anonymity is likely to be larger in concentrated markets with few players, where the scope for opportunistic behaviour is greater.

Cost 1 – Planning and consultation

Development of a formalised trading mechanism will entail planning and consultation with stakeholders. Because of the explicit requirements of the GPS in relation to wholesale gas markets, some of this activity is likely to be required whether or not a mechanism is developed. It is important to assess the incremental element of costs for the purpose of assessment. Estimates of such costs can be derived from analogous initiatives, and on a 'bottom-up' basis using data on time involved and cost per hour.

Cost 2 – Information technology development

Any organised trading mechanism is likely to require some underpinning from an information technology platform. Most of the cost of any development will be incremental, and should therefore be included in any assessment.

Estimates of these costs have been made from analogous initiatives supplemented by indicative estimates from potential providers.

Cost 3 – Participant costs

Participants will incur some direct costs to use an organised arrangement, e.g. training of staff. They may also need to make some changes to their systems.

These costs should be mitigated (to some extent) by reduced search costs when trading. Estimates of participant costs have been made based on analogous initiatives.

Cost 4 – Government & regulatory

The development of organised trading arrangements can have two different impacts on government and regulatory costs. On the one hand, the development process can attract close interest from government agencies, leading to an increase in such costs. The other effect is for such developments to reduce government and regulatory costs, because these agencies can be more satisfied that arrangements are operating in a robust manner.

The incremental costs for each option have been assessed based on judgements and previous experiences with market development processes.

Financial parameters and time horizon

Costs and benefits have been assessed using net present value analysis. Because the assessment is from a national economic perspective, and taxes are a transfer, cashflows have been discounted in their pre-tax form.

In common with other recent assessments carried out by the Gas Industry Co, a real discount rate of 9% has been applied. As the assessment is from a national economic perspective, the discount rate has been applied to real pre-tax cashflows.

For ease of computation, one-off costs are assumed to be incurred instantaneously at the outset of the project, and ongoing costs and benefits occur evenly through time starting at the end of year one. While this assumption is obviously a simplification, the level of uncertainty around the cashflows themselves means that there would be little to gain through adjusting cashflow profiles.

Cashflows have been discounted over ten years and no residual value has been assumed. Ten years was selected because:

- it was the period used for the equivalent analysis in Australia this makes comparisons and benchmarking between the two markets more meaningful; and
- a significant portion of the development cost is in formalising processes and arrangements, and these activities are expected to provide benefits of ten years or more (i.e. beyond the life of IT systems per se).

Q30: Do you consider the quantitative assessment methodology to be reasonable? If not, what amendments would you propose and why?

Appendix E: Summary of Stakeholder Feedback on Conceptual Design for Wholesale Market

Gas Industry Co released a document titled "Concept Design for Wholesale Gas Market" for consultation in March 2006. A significant number of submissions were received and the feedback was used to guide the next stage of development, culminating in the current Discussion Paper.

Set out below is a brief overview of the common themes in the submissions. However, as with any summary, this appendix is not a substitute for the original submissions, nor can it cover the wealth of material they provide. The original submissions are all posted in the consultation section of the Gas Industry Co website (www.gasindustry.co.nz).

The key messages from the submissions were:

- the objective for the work stream and the evaluation criteria were generally considered to be appropriate;
- although submitters agreed with the rejection of those options that were eliminated, they did not necessarily agree with further development of the remaining options;
- in the event that an automated market were to be introduced, there was general agreement that platform bilateral was the appropriate option;
- analysis of costs and benefits was required to supplement the analysis and guide the conclusions and, therefore, next steps;
- prudentials were regarded as a contentious issue and the proposal in the paper (to use net trading limits) was generally not supported;
- trading in this market should not be compulsory;
- most respondents emphasised the need for any platform to be low-cost concerns were expressed regarding keeping the development costs, operating costs and related transaction costs as low as possible; and
- that further work needed to be done to provide for a needs analysis and identify potential market size and, therefore, trading demand.

Submissions were received from Contact, Genesis, MEUG, MRP, Powerco, Vector and WGL. The key features from each of these submissions are summarised below.

Contact submission

Contact states it is in broad agreement with the Consultation Paper but emphasised that adaptability and flexibility were important criteria for evaluating market design. It was noted the small size of the market makes it relatively easy to gather information about trading opportunities before embarking on bilateral negotiations. Contact considers the current informal market has many of the characteristics of a platform bilateral market whilst the MPOC arrangements also give it some of the character of a net pool. A number of common themes in the Contact submission are listed below.

- Open access (particularly MPOC) arrangements, provide a useful foundation for establishing a more formal trading market and that should be fully exploited in more detailed design of the preferred option.
- Because MPOC transportation costs are transparent and simple to calculate, the selection of trading points for market trades is less important than suggested in the consultation document.
- Participation in the market should be voluntary as there will always be a need for parties to undertake specialised trades.
- Maui receipt points and NGC delivery points are considered natural trading points, whereas interconnection points are not. Restricting trading points to the Rotowaro and Frankley Road interconnection points is likely to significantly reduce the usefulness of the formal market and generate unnecessary transportation costs.
- A requirement for traders to meet a minimum credit rating standard is the best means of establishing credit worthiness.
- Phased development of a more formal trading market may be the best means of meeting industry and government requirements. That will avoid loading unsustainable costs on market participants to the detriment of market development.
- NGC open access arrangements stifle trade. The arrangements should be amended so that they are consistent with the MPOC, to encourage and support trade.

Genesis submission

Genesis' view is that the current arrangements for trading (by way of private bilateral arrangements) are sufficient to support current trading requirements. Nevertheless, Genesis recognises that:

- future trading requirements are likely to increase as volumes of flexible gas from the Maui field reduce and are replaced by flat profile take-or-pay supplies; and
- the GPS indicates that a more formal market needs to be developed and implemented.

Subject to a full analysis proving a market mechanism is required, Genesis Energy fully supports the conclusions set out in the consultation document. Specifically, Genesis believes that a bilateral trading platform is:

- sufficient to support the long-term requirements of the New Zealand wholesale gas market, satisfy the requirements of the GPS and industry requirements (including that any market mechanism introduced is low-cost, durable and fit for purpose); and
- the option which best, and most economically, accommodates the lack of depth and low liquidity of the New Zealand market.

MEUG submission

MEUG states a significant number of its members use reticulated natural gas at some stage of their production processes or in the co-generation of heat and power on their process sites. The ability or capacity to buy or sell quantities of gas has considerable appeal subject to a number of criteria:

- transmission should not act as a barrier to trading.
- the trading platform or mechanism must be simple, voluntary, and involve low transaction and compliance costs;
- there must be a high level of transparency and appropriate levels of pricing disclosure to enable buyers and sellers to be informed about market prices;
- all barriers to entry should be eliminated and prudential requirements kept to a minimum;
- the underlying objective of the trading mechanism is designed on a "fit for purpose basis" and tied to achieving "tradable gas at least cost/price"; and
- the market must guarantee pro-competitive outcomes.

MEUG concludes that its members support market solutions that ensure effective and efficient outcomes and which deliver benefits to end users. They express concern regarding the risk of market solutions conferring power on the supply side of the market.

MRP submission

Mighty River Power considered that Gas Industry Co's consultation paper was well written. It developed and analysed the options well and the Gas Industry Co appears to be considering all of the options with an open-mind.

MRP also agreed that it was premature to undertake a quantitative cost benefit analysis at this stage in the process. Furthermore, MRP agreed that "the comprehensive qualitative evaluation contained in this paper is adequate for the purpose of eliminating a number of options".

However, in common with other respondents, MRP consider a quantitative cost benefit analysis will form an important step in the policy development, not only for deciding whether there should be new wholesale market arrangements, but also for determining the detail of those arrangements.

MRP supports both the overall objective and the evaluation criteria that Gas Industry Co has used. MRP also agreed with Gas Industry Co's elimination of the gross pool and clearing house options.

Powerco submission

Powerco considered the discussion document provided a thorough analysis and it supports the recommendation to pursue further development of a platform bilateral model subject to:

- further work being done to define the potential market size and number of secondary/short term market participants;
- the market accommodating, where possible, the entry of end users with time of use metering;
- dealing with the interdependencies with other Gas Industry Co work streams such as allocation and reconciliation;
- preparation of a quantitative cost benefit analysis and analysis of the practicalities surrounding implementation; and
- investigating the possibilities for a hub to allow trading to take place for the lower North Island, e.g. at Kapuni.

Vector submission

In summary, Vector's views on the need for a wholesale gas market are as follows.

- given the existing primary and secondary wholesale gas markets in New Zealand, development of a formal market is not critical;
- there is scope for a simple, standardised market provided:
 - o additional cost is justified by additional flexibility; and
 - o the market focuses on resolving short-term surpluses and shortfalls;
- in a market with limited flexibility a platform may be useful for:
 - o parties to avoid or manage mismatch; and
 - pipeline owners to find a suitable supplier and price for balancing gas on a given day;
- due to the low frequency and volume of trades, Vector would support a simple, transparent trading mechanism; and
- of the options presented, Vector favours the platform bilateral.

WGL submission

On the basis of discussion with Gas Industry Co, WGL believes that the most cost effective option for the development of a wholesale gas market would be the platform bilateral model. In addition, WGL suggests the creation of an Aggregator role within the model to manage client shippers' mismatch positions within the market, initially among the Aggregator's clients and then clearing the net mismatch through the wholesale market.

Appendix F: Short Term Trading Contract



GAS SUPPLY AGREEMENT

(INCORPORATING WHOLESALE MARKET STANDARD TERMS: VERSION 2006-1C)

Date: _____

BETWEEN: The party named in the attached schedule as Seller (Seller)

AND: The party named in the attached schedule as Buyer (Buyer)

THE PARTIES AGREE AS FOLLOWS:

1. SUPPLY OF GAS

Seller will sell and deliver gas to Buyer and Buyer will purchase and take gas from Seller during the supply period commencing and ending as specified in the attached schedule.

2. TERMS AND CONDITIONS OF SUPPLY

The terms and conditions applying to the supply of gas will be:

- **2.1 Specific Terms:** the specific terms set out in this Gas Supply Agreement, including the attached schedule; and
- **2.2 Standard Terms incorporated:** the terms and conditions set out in the document titled "Wholesale Market Standard Terms: Version 2006-1C" as published by Gas Industry Company Limited on its website (www.gasindustry.co.nz)

SIGNED AS AN AGREEMENT

Signed for and on behalf of Seller	Signed for and on behalf of Buyer				
Signature	Signature				
Name	Name				
Title	Title				



1.	Seller			
		[Description: Full legal name of party that is selling the gas]		
2.	Buyer			
		[Description: Full legal name of party that is buying the gas]		
3.	Supply Commencement Date			
		[Description: Date on which gas will first be supplied (or made available to Buyer for nomination) under the contract]		
4.	Supply End Date			
		[Description: Last date on which gas will be supplied (or made available to Buyer for nomination) under the contract]		
5.	Supply Days	The Supply Days are:		
		all Days during the Supply Period; or		
		the following Days during the Supply Period		
		List of Supply Days		
		[Description: Tick applicable box. If only some days are supply days, complete description of those days]		
6.	Delivery Point			
		[Description: Specific physical point at which gas will be sold and delivered (eg. Upstream flange of the point of entry of the gas export pipeline of the [Seller's production station] to the Maui Pipeline at [location details]]		

7.	Fixed Quantity Agreement	Tick box if contract is to be a Fixed Quantity Agreement:						
			Supply Day (date)	Agreed Quantity (GJ)		Supply Day (date)	Agreed Quantity (GJ)	
					_			
					_			
					_			
8.	Nominated Quantity Agreement	Tick box if contract is to be to be a Nominated Quantity Agreement						
9.	Limits on Available Quantities	Specified Available Quantity: If Available Quantity is to be fixed, the Available Quantity for the relevant Supply Days are:						
			Supply Day (date)	Available Quantity (GJ)		Supply Day (date)	Available Quantity (GJ)	
								_
								_
								_
		Other Limits: (specify – eg. Minimum quantity to be made available per Supply Day)						
		[Description specified. described	on: Insert any limitatio If amount can vary,]	ons on Available Quantities. but is to be constrained (e	lf ∋g,	a fixed amount is to b by maximum and or	be made available for nomin minimum quantities), the co	ation this should be onstraints should be
10.	Minimum Nominated Quantity	The minimum Nominated Quantity able to be notified by Buyer will be:						
11.	Price		Tick box if contract	is to be a Single Price A	gre	ement:		
			Gas Price for each	GJ of Adjusted Agreed C	Qua	antity: \$		

		 Tick box if contract is to be a Mixed Price Agreement: Fixed Price for each GJ of Adjusted Available Quantity: \$			
12	Notices	Seller:			
		Physical Address:			
		Postal Address:			
		Facsimile No:			
		Email Address:			
		Person to whom notices should be addressed:			
		Buyer:			
		Physical Address:			
		Postal Address:			
		Facsimile No:			
		Email Address:			
		Person to whom notices should be addressed:			
13	Duration of Force Majeure Event	[] working days			



BACKGROUND

A. Pursuant to the Agreement Buyer and Seller have agreed that Seller will sell and deliver gas to Buyer and Buyer will purchase and take gas from Seller during the Supply Period.

B. These standard terms are incorporated into, and form part of, the Agreement, and together with the GSA set out the terms and conditions on which the gas will be sold and purchased.

TERMS AND CONDITIONS

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions: In the Agreement, unless the context indicates otherwise:

Adjusted Agreed Quantity means for a Supply Day, the Agreed Quantity for that Supply Day decreased by the amount of any part of a Agreed Quantity of Gas that is not delivered on that Day due to any reason other than default or breach of the Agreement by Buyer;

Adjusted Available Quantity means for a Supply Day, the Available Quantity for that Supply Day decreased by the amount of any part of a Agreed Quantity of Gas that is not delivered on that Day due to any reason other than default or breach of the Agreement by Buyer;

Affiliate means, in relation to any Party, any "related" entity of that Party;

Agreed Quantity means for any given Supply Day:

(1) where this Agreement is a Fixed Quantity Agreement, the quantity of Gas specified as the "Agreed Quantity" for that Supply Day in Item 7 of the Schedule; or

(2) where this Agreement is a Nominated Quantity Agreement, the quantity of Gas determined to be the "Agreed Quantity" for that Supply Day in accordance with clause 7;

Agreement means the binding legal agreement for the sale and purchase of Gas between Buyer and Seller, comprising the GSA and incorporating these Standard Terms (as may be varied from time to time by Buyer and Seller in accordance with clause 23);

Agreement Date means the date of the GSA;

Available Quantity means, for any given Supply Day where this Agreement is a Nominated Quantity Agreement, the quantity of Gas that Seller makes available to Buyer for purchase by Buyer in accordance with clause 7.2;

Buyer means the Party named as "Buyer" in Item 2 of the Schedule and includes its successors and permitted assigns;

Deliver means to make available at the Delivery Point and "**delivered**" has a corresponding meaning;

Delivery Point means the point at which Gas is delivered by Seller to Buyer, as specified in Item 6 of the Schedule;

Distribution Network has the same meaning as distribution system in Section 2(1) of the Gas Act 1992;

Fixed Price means a Fixed Price as specified in Item 11 of the Schedule;

Fixed Quantity Agreement means an Agreement where the quantity of Gas supplied on any given Supply Day is specified in Item 7 of the Schedule;

Force Majeure Event means an event or circumstance beyond the reasonable control of a Party, which results in or causes a failure by a Party in the performance of any obligations imposed on it by this Agreement or an inability of that Party to deliver Gas pursuant to this Agreement notwithstanding the exercise by such Party of reasonable care and subject to the foregoing shall include any such event or circumstance which may cause the Industry Contingency Plan to be invoked:

Gas Fee means the amount payable by Buyer to Seller, calculated in accordance with clause 11.1.1 or clause 11.1.2 as the case may be;

GSA means the "Gas Supply Agreement (incorporating Wholesale Market Standard Terms: Version 2006-1C)" executed by Buyer and Seller;

Mixed Price Agreement means an Agreement identified as a "Mixed Price Agreement" in Item 11 of the Schedule, where there are two components to pricing;

MPOC means the Maui Pipeline Operating Code as amended from time to time and available on www.mauipipeline.co.nz;

MPOC Approved Nomination means the Approved Nomination (as defined in the MPOC) for *[to be completed];*

Nominated Quantity means for any Supply Day the quantity of gas that Buyer nominates under clause 7.3 for delivery to Buyer at the Delivery Point in accordance with the Agreement;

Nominated Quantity Agreement means an Agreement where the quantity of Gas supplied on any given Supply Day is set by the nomination process provided for in clause 7;

Notify means to notify in writing in writing in accordance with clause 19;

Party means Buyer or Seller respectively and "**Parties**" means them collectively;

Schedule means the schedule attached to the GSA;

Seller means the Party named as "Seller" in Item 1 of the Schedule and includes its successors and permitted assigns;

Single Price Agreement means an Agreement identified as a "Single Price Agreement" in Item 11 of the Schedule, where there is only one component to pricing;

Supply Day means a Day during the Supply Period on which Seller is to supply and deliver Gas to Buyer (or to make Gas available to Buyer for nomination, in the case of a Nominated Quantity Agreement) as specified in Item 5 of the Schedule;

Supply Period means the period starting at 0000 hours on the Supply Commencement Date and ending at 2400 hours on the Supply End Date;

Supply Commencement Date means the date named as the "Supply Commencement Date" in Item 3 of the Schedule, being the first date on which gas will be supplied, or made available for nomination, under the Agreement;

Supply End Date means the date named as the "Supply End Date" in Item 4 of the Schedule, being the last date on which gas will be supplied, or made available for nomination, under the Agreement;

Transmission Network has the same meaning as Pipeline in the MPOC;

Variable Price means a Variable Price as specified in Item 11 of the Schedule;

*, where used in any formula, means "multiplied by";

And the following terms have the same meaning as they are defined in clause 1.1 of the MPOC:

- Bill Rate
- Day
- Gas
- Gas Specification
- GJ
- Industry Contingency Plan
- Maui Pipeline
- Month
- Week

1.2 Interpretation: In the Agreement unless the context indicates otherwise:

1.2.1 Defined Expressions: expressions defined in the main body of the Agreement have the defined meaning in the whole of the Agreement including the background;

1.2.2 Gender: words importing one gender include the other genders;

1.2.3 Headings: section, clause and other headings are for ease of reference only and will not affect the Agreement's interpretation;

1.2.4 Negative Obligations: any obligation not to do anything includes an obligation not to suffer, permit or cause that thing to be done;

1.2.5 Persons: references to persons include references to individuals, companies, corporations, partnerships, firms, joint ventures, associations, trusts, organisations, governmental or other regulatory bodies or authorities or other entities in each case whether or not having separate legal personality;



1.2.6 Plural and Singular: words importing the singular number include the plural and vice versa;

1.2.7 Sections, Clauses and Schedules: references to sections, clauses and a Schedule are references to the Agreement's sections, clauses and Schedule;

1.2.8 Statutes and Regulations: references to any statutory provision include any statutory provision which amends or replaces it, and any subordinate legislation made under it; and

1.2.9 Currency Rounding: All amounts invoiced pursuant to the Agreement are to be expressed in New Zealand dollars rounded to 2 decimal places.

2. SALE AND PURCHASE OF GAS

2.1 Sale and purchase: Throughout the Supply Period, Seller will sell and deliver Gas and Buyer will purchase and take delivery of Gas, upon the terms set out in the Agreement.

2.2 No restraint on use: For the avoidance of doubt, as between Buyer and Seller, Buyer's right to on-sell or otherwise deal with Gas is unrestricted.

3. CONDITION PRECEDENT

3.1 Ministerial Consent: Where the Agreement is one to which section 41(2) of the Crown Minerals Act applies:

3.1.1 Subject to Ministerial Consent: the Agreement is subject to such Ministerial Consent;

3.1.2 Application: Seller will make an application for Ministerial Consent as soon as is reasonably practicable after the Agreement Date, and both Parties will do such things as may be reasonably required to facilitate such application, and to obtain Ministerial Consent (subject to clause 3.1.3); and

3.1.3 Conditional Consent: if Ministerial Consent is proposed to be given subject to any conditions:

(a) each Party will, as soon as is practicable, notify the other whether such conditions are acceptable (insofar as they are relevant to that Party);

(b) neither Party shall be required to accept any condition, provided that the Parties shall act in good faith in determining whether any condition is acceptable; and

3.1.4 Consent not obtained: if Ministerial Consent has not been obtained (on conditions acceptable to the Parties) by the Supply Commencement Date, the Agreement will terminate (subject to any agreement to the contrary by the Parties) and clause 16 will apply accordingly.

4. TITLE AND RISK

4.1 Seller Warranty: Seller warrants in favour of Buyer that:

4.1.1 Right to sell: Seller has the right to sell the Gas to Buyer; and

4.1.2 Clear title: Gas will be supplied free and clear of all liens, encumbrances, charges or claims of any kind.

4.2 Passing of Title: Title to and every risk in relation to Gas delivered to Buyer will pass at the Delivery Point. For the purposes of the Agreement, sections 18-20 (inclusive) of the Sale of Goods Act 1908 (relating to appropriation of unascertained goods) do not apply to the sale and purchase of Gas.

5. SPECIFICATION

5.1 Delivery Point upstream of transmission network:

Where the Delivery Point is upstream of the Transmission Network, Seller must ensure that the Gas complies with the Gas Specification unless otherwise agreed by the parties.

5.2 Buyer acknowledgement: Where Gas purchased under the Agreement is transported on the Transmission Network and/or any Distribution Network (whether prior, or subsequent, to the Delivery Point), Buyer acknowledges that the specification of the Gas which is ultimately drawn by or on behalf of Buyer (or a subsequent purchaser from Buyer) from such network(s) will be determined by the specification of the gas in such network(s).

6. FIXED QUANTITY SUPPLY AGREEMENT

6.1 Application of clause 6: This clause 6 will only apply where Item 7 of the Schedule specifies that the Agreement is a Fixed Quantity Agreement.

6.2 Supply of Agreed Quantity: On each Supply Day during the Supply Period, Seller will deliver and Buyer will take the Agreed Quantity specified in respect of that Supply Day in the Schedule.

6.3 Variation of Agreed Quantity: Seller and Buyer may vary an Agreed Quantity at any time, by agreement in writing.

7. NOMINATED QUANTITY SUPPLY AGREEMENT

7.1 Application of clause 7: This clause 7 will only apply where Item 8 of the Schedule specifies that the Agreement is a Nominated Quantity Agreement.

7.2 Available Quantity: Not later than [(a) xxxx am/pm on the Day before a Supply Day / (b) xxxx am/pm on the last Working Day of each Week] Seller must notify Buyer of the Available Quantity for [(a) the following Supply Day / (b) each of the Supply Days of the following Week]. An Available Quantity must conform with any limits specified in Item 9 of the Schedule.

7.3 Buyer nomination: Not later than [*(a) xxxx am/pm on the Day before a Supply Day / (b) xxxx am/pm on the last Working Day of each Week*] Buyer must notify Buyer of the Nominated Quantity for [*(a) the following Supply Day / (b) each of the Supply Days of the following Week*]. A Nominated Quantity must

7.3.1 not exceed the Available Quantity for the relevant Supply Day; and

7.3.2 be equal to or greater than any minimum take obligation for the relevant day as specified in Item 10 of the Schedule.

7.4 Variations: Buyer has no right to vary nominations, except pursuant to any agreement between Buyer and Seller.

7.5 Agreed Quantity: Subject to [*clause* 7.6] each Nominated Quantity will be deemed to be the Agreed Quantity for the relevant Supply Day. Seller and Buyer may vary an Agreed Quantity at any time, by agreement in writing.

7.6 Reduction in Agreed Quantity for Transmission Network constraints: [If constraints on Maui Pipeline or Vector Network require reduction in quantity of gas that can be shipped (through no fault of Buyer or Seller) the Agreed Quantity will be reduced accordingly by reference to the MPOC Approved Nomination.]

8. DELIVERY

8.1 Seller Delivery Obligation: Subject to clause 11.4, during each Supply Day Seller will deliver to the Delivery Point a quantity of Gas equal to the Agreed Quantity for that Supply Day. Seller will deliver the Nominated Quantity across the course of that Supply Day within the peaking limit of the transmission network.

8.2 Buyer Take Obligation: During any Supply Day, but subject to Seller fulfilling its obligations under clause 8.1, Buyer must take delivery, at the Delivery Point, of a quantity of Gas equal to the Agreed Quantity for that Supply Day.

9. TRANSPORTATION

9.1 Seller responsibilities: Seller:

9.1.1 Responsibility: is responsible for the transportation of Gas to the Delivery Point; and

9.1.2 Obligation: will ensure that, for every Supply Day, it has in place all [*arrangements*] necessary (and complies with such [*arrangements*]) for the delivery of Gas to the Delivery Point.

9.2 Buyer responsibilities: Buyer:

9.2.1 Responsibility: is responsible for the transportation of Gas from the Delivery Point; and

9.2.2 Obligation: will ensure that, for every Supply Day, it has in place all [*arrangements*] necessary (and complies with such [*arrangements*]) for the uplifting of Gas to the Delivery Point.

9.3 Transmission Nominations: Without limiting either Party's obligations under clauses 9.1 or 9.2, where the Gas is to be transmitted across any part of the Transmission Network (either prior, or subsequent, to delivery), each Party will ensure that its relevant nominations in relation to that Transmission Network provide for the transport of the Gas across that Transmission Network.

9.4 Indemnity: Each Party indemnifies the other Party against any loss, damage, cost or expense suffered or incurred by the other Party under the access or use arrangements for any Transmission Network, as a result of the first Party's failure to meet its obligations under this clause 9.


10. MEASUREMENT

10.1 Measurement: The quantity of Gas supplied under the Agreement will be determined by:

10.1.1 MPOC: in accordance with MPOC where the Delivery Point is a [*point on the Maui Pipeline*]; and/or

10.1.2 Allocation arrangements: in accordance with the allocation arrangements in place from time to time at the Delivery Point.

10.2 Energy content: Gas supplied under the Agreement will be sold by energy content measured in GJ.

11. PRICE AND PAYMENT

11.1 Price: Buyer will pay Seller a fee (the "Gas Fee") in respect of each Supply Day calculated as follows:

11.1.1 Single price Agreement : For a Single Price Agreement:

Gas Fee = Gas Price*Adjusted Agreed Quantity

11.1.2 Mixed price Agreement: For a Mixed Price Agreement:

Gas Fee = (Fixed Price*Adjusted Available Quantity) + (Variable Price*Adjusted Agreed Quantity)

11.2 Monthly invoicing: Seller will send Buyer a Monthly invoice by the 10th Day of each Month stating:

11.2.1 the Gas Fee payable by Buyer for each Supply Day during the previous Month including details of calculation;

11.2.2 any GST payable by Buyer for the previous Month;

11.2.3 any other amount due and payable by Buyer or Seller pursuant to the Agreement; and

11.2.4 the total amount due under the invoice.

11.3 Payment: Buyer must pay Seller's invoices on or before the 20th Day of the Month in which the invoice is received, provided that if Seller's invoice is not given by the 10th Day of the Month then payment must be made within 10 Days of receipt of the invoice (in either case, the "**Due Date**"). Payment must be made without deduction or set-off and, unless agreed otherwise, be made by direct credit of immediately available funds to Seller's nominated bank account (as notified by Seller to Buyer from time to time).

11.4 Non-payment: If any amount payable by Buyer under the Agreement is not paid in accordance with clause 11.2 (time being of the essence), Seller may, in its sole discretion and without prejudice to any other rights or remedies it may have under the Agreement or otherwise, give not less than 3 Working Days notice of its intention to suspend delivery of Gas and upon expiry of the notice Seller may suspend delivery of Gas until the amount due is paid in full together with interest calculated in accordance with clause 11.7.

11.5 Disputed invoices: If Buyer disputes all or any part of any invoice, then Buyer must:

 $\ensuremath{\textbf{11.5.1}}$ pay, by the Due Date, the full amount of the disputed invoice; and

11.5.2 notify Seller of the dispute, including the grounds of dispute, with full supporting details; and

11.5.3 refer the dispute to a representative of each of Buyer and Seller for resolution, who are to meet at least once unless agreed otherwise. In the event that the dispute is unable to be resolved by the representatives within 10 Working Days, the dispute shall be referred to an independent expert for resolution. Failure to notify Seller within 120 Days of the date of any invoice will constitute an acceptance of invoice and Buyer will have no further right to dispute such invoice.

11.6 Default interest payable to Seller: Without prejudice to Seller's other rights and remedies, if any amount payable by Buyer under the Agreement is not paid by Buyer on or before the Due Date, Buyer shall pay interest on that amount from (but excluding) the Due Date to (and including) the date of actual payment (such payment to include all accrued interest). Interest shall accrue and be calculated Daily at the Bill Rate plus 3% per annum and be compounded Monthly. Buyer shall also pay Seller's reasonable costs (including solicitor/client costs) associated with collecting any money owed by Buyer to Seller.

11.7 Default interest payable to Buyer: Without prejudice to Buyer's other rights and remedies, if:

11.7.1 any amount payable by Seller under the Agreement is not paid by Seller on or before the Due Date plus any applicable remedy period; or

11.7.2 Buyer disputes an invoiced amount in accordance with clause 10.4 and it is agreed or determined that Buyer is due a refund; or

11.7.3 Seller draws down an amount under paragraph 7 of Schedule 3 and it is found that all or a part of such draw down exceeded the amount that was properly due and payable by Buyer;

then Buyer may require Seller to pay interest on the amount to be paid or refunded by Seller from (but excluding) the Due Date (and in respect of an amount referred to in clause 11.7.2 or 11.7.3 the Due Date shall be the date that Buyer overpaid or that Seller exceeded a draw down amount) to (and including) the date of actual payment (such payment to include all accrued interest). Interest shall accrue and be calculated Daily at the Bill Rate plus 6% per annum and be compounded Monthly. Seller shall also pay Buyer's reasonable costs (including solicitor/client costs) associated with collecting any money owed by Seller to Buyer.

11.8 Working Day: If any monies fall due for payment on a Day that is not a Working Day, the Due Date will be the preceding Working Day.

11.9 Maintenance of Records: Both Seller and Buyer must prepare and maintain for a period of not less than or 7 years, whichever is the shorter period, proper books, records and inventories of all matters pertaining to the Agreement.

12. TAXES

12.1 Goods and Services Tax: All dollar amounts provided for in the Agreement are before the addition of GST.

12.2 Other Taxes: Except as provided in clause 12.1 the Price for the Gas (as specified in Item 11 of the Schedule) is inclusive of all taxes, levies, imposts or duties imposed on Seller by any Authority.

13. LIABILITY AND INDEMNITY

13.1 No liability for indirect loss: Neither Party (in this clause, called the "defaulting Party") will be liable to the other Party for:

13.1.1 Indirect loss: any consequential, indirect or special loss or damage, loss of profits, loss of revenue, loss of business or anticipated savings suffered or incurred by that other Party as a result of or arising out of the Agreement, whether or not the loss or damage ought to have been known by the defaulting Party;

13.1.2 Third party claims: any claims by third parties which are payable by that other Party as a result of any default by the defaulting Party under or in connection with the Agreement, and any costs or expenses in connection therewith.

13.2 Maximum Liability: The maximum liability of either Party to the other Party under or in connection with the Agreement (whether in contract, tort (including negligence), breach of statutory duty, equity or otherwise) is:

13.2.1 Single Breach: in respect of any single event or breach (or any related series of events or breaches), an amount equal to:

[single event limit]

13.2.2 All breaches: in respect of all such events or breaches occurring during the Supply Period, an amount equal to

[Supply Period limit]

provided that these limits do not apply to any event or breach caused by the wilful default of either Party.

13.3 No Right to Gas: Buyer has no right to any Gas:

13.3.1 Not taken: delivered by Seller on a Day but not taken by Buyer on that Day; or

13.3.2 Not delivered: not delivered by Seller;

or for any compensation other than as specifically provided for in the Agreement.

14. FORCE MAJEURE

14.1 Application of clause: Clauses 14.2 and 14.3 shall only apply when:

14.1.1 The Industry Contingency Plan is invoked; or

 $\ensuremath{\textbf{14.1.2}}$ the time period stipulated in Item 13 of the Schedule has expired; whichever is the earlier.



14.2 Effect of Force Majeure Event: Subject to clauses 14.4 or 14.5, if as a result of a Force Majeure Event any Party fails to perform any of its obligations under the Agreement then the relevant Party will be relieved from liability under the Agreement to the extent that, on account of the Force Majeure Event, it cannot meet such obligations under the Agreement

14.3 Ongoing Force Majeure Event: If a Force Majeure Event continues for more than [20% of the Supply Days] after a Party first gives notice under clause 14.5.1, the other Party may at any time thereafter and for so long as notice has not been given under clause 14.5.4 terminate the Agreement by notice to Buyer.

14.4 Limitation on relief: A Party will not be relieved from liability to pay money due at the time of the Force Majeure Event or to give any notice which may be required to be given under the Agreement.

14.5 Claiming relief: If a Party seeks or intends to seek relief under clause 14.2 that Party must, upon the occurrence of a Force Majeure Event for which such Party seeks or intends to seek relief:

14.5.1 as soon as reasonably practicable, but in any event within 48 hours, give notice to the other Party of the Force Majeure Event and as soon as reasonably practicable thereafter provide the other Party with full particulars relating to the Force Majeure Event, its cause and an estimate of the period of time required to remedy it.

14.5.2 to the extent reasonably practicable, render to the other Party reasonable opportunity and assistance to examine and investigate the Force Majeure Event and the matters which caused or gave rise to it;

14.5.3 as soon as practicable, take all reasonable steps to rectify, remedy, shorten or mitigate the Force Majeure Event so as to minimise any loss, damage, expense or the effects of the suspension of the obligations suffered or incurred, or likely to be suffered or incurred by the other Party (provided that this shall not require a Party to settle a strike, lock-out or other labour dispute on terms that are not acceptable to it as being contrary to its commercial interests) and the other Party shall use all reasonable endeavours to assist, provided the other Party incurs no direct or indirect cost in doing so; and

14.5.4 give notice as soon as reasonably practicable but in any event within 48 hours, to the other Party upon termination of the Force Majeure Event.

15. ASSIGNMENT

15.1 Assignment to Third Parties: No Party may assign any part or the whole of its rights or interests under the Agreement unless it has obtained the prior written consent of the other Party.

16. TERMINATION

16.1 Termination: The Agreement may be terminated:

16.1.1 Non-payment: by Seller if Seller has given notice to Buyer under clause 11.4 and as a result is entitled to suspend delivery of Gas and Seller has given a further notice to Buyer notifying that the amount outstanding (or any part of it) has not been paid and within 3 Working Days of such further notification the amount (together with all interest payable under clause 11.7) has not been paid;

16.1.2 Non-delivery: by Buyer if Seller fails to supply the Agreed Quantity on at least [*10% of the Supply Days*] (other than by reason of a Force Majeure Event);

16.1.3 Assignment: by either Party if the other Party assigns, or attempts to assign, in breach of clause 15;

16.1.4 Breach: by either Party if the other Party defaults in the performance of any other obligation under the Agreement and, where that default is capable of remedy, fails to remedy that default to reasonable satisfaction within 10 Working Days of receipt of notice requiring remedy of default;

16.1.5 Financial failure: by either Party if a resolution is passed or any proceedings are commenced for the liquidation of other Party (except for the purposes of solvent reconstruction or amalgamation), the other Party is placed in liquidation, the other Party makes, enters into or endeavours to make or enter into any composition, assignment or other arrangement with or for the benefit of its creditors, or any event analogous to the events described above occurs to the other Party.

16.2 Effect of termination: Termination (for any reason) will not affect:

16.2.1 Payment: either Party's obligations to pay any charges, compensation, shortfall amounts, taxes or other amounts relating to the period prior to termination;

16.2.2 Liability: the liability of either Party for any breach of the Agreement; and

16.2.3 Other rights: any other rights and remedies available to either Party under the Agreement or at law.

16.3 No other right to terminate: Neither Party is entitled to terminate or cancel the Agreement, except as expressly provided in the Agreement, and section 7 of the Contractual Remedies Act 1979 will have effect subject to this clause.

16.4 Savings: If the Agreement is terminated, the provisions of clauses 11-14, 16-18, and 21-29 shall continue in force.

17. CONFIDENTIALITY

17.1 Obligation of confidentiality: Each Party shall keep confidential, and not directly or indirectly make or allow any disclosure or use to be made of, the Agreement, (excluding these Standard Terms) any provision of the Agreement, or any information directly or indirectly obtained from the other Party under or in connection with the Agreement, except as required by law or reasonably agreed by the Parties.

17.2 Announcements: None of the Parties shall make any announcement or disclosure as to the subject matter, or any of the terms, of the Agreement except in such form and manner, and at such time, as the Parties agree, unless the Party making the announcement considers in good faith and on reasonable grounds such announcement is required by law.

18. DISPUTE RESOLUTION

18.1 Dispute resolution process: If either party believes that there is a dispute between the parties concerning this agreement (other than disputes relating to invoices), that party will give written notice to the other party setting out details of the dispute. If a notice of dispute is given:

18.1.1 the parties will nominate and direct an appropriate person from within their organisation to use reasonable endeavours to resolve the dispute within 5 Working Days of the date of the notice;

18.1.2 if the dispute is not resolved under clause 18.1.1 above, the dispute to the *[Rulings Panel]*.

19. NOTICES

19.1 Notices: Every notice or other communication required to be given under, or in connection with, the Agreement shall be given in writing to the addresses specifies in Item 12 of the Schedule by:

19.1.1 Hand delivery: personal or courier delivery, and shall be deemed to be given at the time of delivery;

19.1.2 Facsimile: facsimile transmission, and shall be deemed to be given at the time specified on the facsimile transmission report that evidences full transmission, free of errors; or

19.1.3 Email: in relation to notices provided under clause 7 only, by email, and shall be deemed to be given at the time of sending, provided that the sender has not received a transmission error notification. Where email notification is given outside of working hours, such notice must also be given by telephone.

19.2 Notices provided outside of working hours: any notice given after 5:00pm or on a day which is not a Working Day, shall be deemed to be given at 9:00 am on the next Working Day.

19.3 Notice Agent: Any notice given by a Party that is more than one person must be signed by all persons comprising that Part, unless that Part has appointed an agent for the giving and receiving of notices and advised the other Party of such appointment. If ant such agent is appointed, the giving and receiving of notice will be as agreed between the Parties and the agent.

20. WARRANTIES

20.1 Warranties: Buyer and Seller each represents and warrants in favour of the other that:

20.1.1 Duly established: it is a duly established entity, existing under NZ law, and has power and right to carry on business;



20.1.3 Binding Agreement: the Agreement creates obligations that are legally binding on it and enforceable against it.

21. RELATIONSHIP BETWEEN THE PARTIES

Nothing in the Agreement shall create, constitute or evidence any partnership, joint venture or agency between the Seller and the Buyer, and neither the Seller or the Buyer shall make, or allow to be made, any representation that any such relationship exists between the Seller and the Buyer. Neither the Seller nor the Buyer shall have any authority to act for, or to incur any obligation on behalf of, the other, except as expressly provided in the Agreement.

22. ENTIRE AGREEMENT

The Agreement constitutes the entire agreement, understanding and arrangement (express and implied) between the Parties relating to the subject matter of the Agreement and supersedes and cancels any previous agreement, understanding, representation and arrangement relating thereto, whether written or oral. For the avoidance of doubt, nothing in the Agreement derogates from the Parties' rights, entitlements, powers, obligations and responsibilities under the Existing Agreement.

23. AMENDMENT

The Agreement may only be amended, supplemented or novated by instrument in writing signed by the Parties.

24. GOVERNING LAW AND JURISDICTION

The Agreement is governed by the laws of New Zealand and the Parties submit to the non-exclusive jurisdiction of the courts of New Zealand.

25. EXCLUSION OF IMPLIED TERMS

All terms and conditions (including warranties, guarantees and other assurances) relating to the Agreement and the Gas that are implied by law or custom are excluded to the maximum extent permitted by law.

26. WAIVER

Any delay, failure or forbearance by a Party to exercise (in whole or in part) any right, power or remedy under, or in connection with, the Agreement shall not operate as a waiver of such right, power or remedy. A waiver of any breach of any provision of the Agreement shall not be effective unless that waiver is in writing, signed by the Party by whom it is given. A waiver of any breach shall not be, or be deemed to be, a waiver of any other or subsequent breach.

27. SURVIVAL

The provisions of the Agreement and any act, matter or thing done in connection with the Agreement, or in connection with any other agreement, instrument, document, judgment or order of any court, or in connection with the expiry or earlier termination of the Agreement, shall not operate as a merger of any of the rights, powers or remedies of any of the Parties under, or in connection with, the Agreement or at law, and those rights, powers and remedies shall survive and continue in full force and effect to the extent that they are unfulfilled or are not exhausted.

28. SEVERABILITY

If any provision of the Agreement is, or becomes unenforceable, illegal or invalid for any reason it shall be deemed to be severed from the Agreement without affecting the validity of the remainder of the Agreement and shall not affect the enforceability, legality, validity or application of any other provision of the Agreement.

29. COUNTERPART EXECUTION

The GSA or any amendment of the Agreement may be executed in any number of counterparts (including facsimile copies) and provided that each party has executed a counterpart, the counterparts together shall constitute a binding and enforceable agreement between the Parties.



Appendix G: Options for Prudential Regimes



Prudential Arrangements

for Short-Term Wholesale Gas Market

Report to the Gas Industry Company

July 2006



Preface

NZIER is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice to clients in the public and private sectors, throughout New Zealand and Australia, and further afield.

NZIER is also known for its long-established *Quarterly Survey of Business Opinion* and *Quarterly Predictions*.

NZIER was established in 1958.

Authorship

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1. Introduction

1.1 Counterparty default

A key consideration of any party contemplating entering into a contract is the likelihood of the counterparty defaulting and failing to fulfil its obligations under the contract. Important questions in every contractual arrangement are: Who is the legal counterparty? and, What are the chances they will default on the agreement? The importance generally given to these questions results from how costly defaults can be to an organisation in both direct financial terms and in terms of requiring management's attention and focus to handle and thus deflecting them from running the business.

The importance of the potential for a default does not depend on whether the contract is entered into by direct bilateral negotiation between the parties or as a result of a transaction on an organised market for trading contracts. In the case of futures markets, the clearing house associated with the market is one of the contractual parties in every transaction, and so is the counterparty to every deal. This does not alter the interest of traders of futures in the prospect of default *per se*; it merely shifts their attention to the prospect of default by the clearing house and away from the risks of default by other traders.

1.2 New Zealand short-term gas market

It is envisaged that should a 'market' for wholesale gas contracts covering short-term transactions be established in New Zealand it will be voluntary and will be based on blind trading of bilateral contracts through the use of an organised electronic trading platform. There will be no clearing house providing assurance against default; the contracts will be bi-lateral between the buyers and the sellers.

In blind trading the counterparties do not know one another's identities until after the transaction has taken place. An advantage is that parties can offer and bid anonymously and so it is harder to exclude new entrants or particular parties from deals and to enforce collusive arrangements. Moreover, the anonymity allows participants to mask to some extent their actual risk positions and hence reduces the chances of opportunistic behaviour by others to take advantage of their exposure.

The key disadvantages of blind trading are that it can make 'gaming' the market through false offers, bids and trades easier and it makes it impossible to determine the risks of default before entering into a transaction, unless there are some other sources of this data. Parties are generally unwilling to trade if they are unable to assess the default risks associated with a trade. Voluntary blind markets which do not have some means to assure the parties of the prudential standing of potential counterparties, or otherwise guarantee their performance, do not survive.

1.3 Purpose of report

The Gas Industry Company (GIC) has asked NZIER to specify the possible broad approaches to prudential arrangements that would reassure potential users of the proposed wholesale gas market. NZIER is required to analyse the pros and cons of each of these approaches, and, after consultation with GIC, develop the preferred approach in more detail. This report contains the descriptions of the broad approaches and a discussion of their drawbacks and merits. Its purpose is to facilitate consultation on what is the preferred approach with GIC.

2. The requirements

2.1 Confidence counterparty will perform

As noted above, it is envisaged that should a 'market' for wholesale gas contracts covering short-term transactions be established in New Zealand, it will be:

- voluntary
- based on blind trading of bilateral contracts
- on an organised electronic trading platform
- without a clearing house to provide assurance against default

In this context it is clear that for the market to be successful it is essential that a sufficient proportion of potential participants are confident that the prudential arrangements ensure that the probability they will trade with a party with a risk of default they judge to be unacceptable is less than the maximum probability they will tolerate. Otherwise, potential participants will not use the market in order to avoid what they consider to be an unacceptable risk. They will be able to do this because the market is voluntary. Without a significant number and proportion of potential participants active in using it, the market will not succeed.

2.2 Confidentiality

On the other hand, if the advantages of a blind market are to be retained, it is also necessary that the information about counterparties provided prior to a transaction taking place is opaque, to some degree, to make it difficult for others to identify who is bidding or offering with confidence.

There is, therefore, a need to carefully design the prudential arrangements to satisfy these two requirements. Obviously, full disclosure of the identities of

parties would meet the first requirement, but not the second. On the other hand, a completely blind market, which conveys nothing about the credit standing of any offeror or bidder, would meet the second requirement, but not the first. What are required, however, are prudential arrangements to meet both requirements.

Below we present four possible options for prudential arrangements for short term bilateral gas trading in New Zealand. For each a brief outline of the arrangements is given, followed by an evaluation of the option and a discussion of how well it will meet the requirements identified in this section.

3. Options for prudential arrangements

3.1 Minimum prudential standard approach

3.1.1 Summary of option

This option involves the setting of a minimum credit rating before a party can offer or bid in the market. Participants looking to trade know that every offer and bid involves a counterparty with at least the minimum credit rating from a recognised external rating agency, such as, Standard & Poors (S & P) and Moody's Investor Services.

Parties that do not have a rating, or do not have a sufficiently high rating to offer and bid in their own name, would need to trade bi-laterally and offmarket. They may not be completely cut off from access to the market, however. They could still have indirect involvement by arranging for parties that satisfy the minimum requirements of the market to place bids and offers against their instructions in return for payment. The party placing the orders in the market would be the principal in any deals done on the market and would be guaranteeing performance to the counterparty in the market transaction. In essence, it would be accepting the default risk of the party not able to participate in the market directly.

This minimum credit rating approach could be supplemented by limits on net exposures of traders in the market that vary depending on their credit rating. So, for example, a party with a BBB long-term S&P rating might be able to trade provided the value of their net exposure at current prices is below some dollar limit. A party with a higher rating, such as an A+, would be able to trade up to a higher net exposure limit. A party with a lower credit rating, or possibly even a party with no rating, would be able to trade up to lower net exposure limits.

Under this arrangement, market participants know that every bid and offer involves a counterparty with less net exposure to the market than their credit rating based approval permits.

3.1.2 Evaluation of approach

One obvious issue with this approach is deciding on the minimum credit ratings and corresponding net exposure limits, if the latter are also used. Experience in trying to voluntarily agree credit rating based prudential arrangements in the electricity market has shown that the approach is very difficult in practice.

Established players with strong credit ratings want to have access to the market restricted and so tend to argue that the minimum credit rating should be high. New entrants and smaller players without strong ratings tend to argue the opposite. Agreement is difficult, and it is difficult to even get agreement on the principals or the statistics relating to probability of failure upon which any agreement might be reached.

A second issue with the approach is the difficulty of monitoring compliance. The credit ratings are relatively easy, although in the discussion over the model distribution agreement in the electricity market, what to do if a firm was placed on negative credit watch by a rating agency or two agencies ratings did not line up, proved to be contentious.

Only trades done 'on-market' are likely to be easily tracked and, since the market is voluntary, firms will still be able to do bi-lateral 'off-market' transactions. The recorded net exposure based on market transactions may be quite misleading as to the actual net exposure of a firm. Compulsory recording of all-transactions and effective auditing and checking to ensure this happens would seem to be a necessary aspect of this approach if it utilises exposure limits, and that would undermine the proposed voluntary nature of the market, and certainly add to costs.

A third issue is deciding what is a net exposure. Is it all the sales less all the purchases or is there a need to take into account the duration of various contracts and hence the period to which the exposures relate. Standard prudential practice for forward arrangements in futures markets do take into account the timing of the exposures and this practice has stood the test of time. However, to reach agreement in a voluntary market for bilateral contracts on how exactly to do this will be rife with further difficulties. In a futures market the clearing house that is taking the credit risk sets the rules of how exposures are to be offset against one another.

A fourth issue is agreeing what action should be taken if movements in current prices result in a party breaching its net exposure limit. If price movements are disregarded in calculating exposure limits and these are set effectively in physical terms then an important element of risk will not be capture by the prudential arrangements. On the other had, it is not obvious what the appropriate action should be if a party does move outside its limits as a result of price movements? It may not be practicable to require it to reduce its exposures and the taking of additional security does not appear appropriate when the market is merely a trading platform.

3.1.3 Assessment

The use of net exposure limits appears rife with practical difficulties of setting the limits and monitoring and ensuring compliance. An approach involving net exposure limits appears unlikely to be practical.

Unless the required credit ratings are set relatively high, some major players are likely to object and avoid using the market and stick to bi-lateral trading off-market. They are able to do this because the market is voluntary but it will undermine the markets viability.

On the other hand, if the ratings are set high then the range of potential participants is likely to be limited with few opportunities for new entrants to effectively participate. In this case, the advantage of having a trading platform appears limited – the few big players may prefer to deal with one another directly - and so the market is unlikely to be viable.

3.2 Frosted glass approach

3.2.1 Summary of option

This option involves participants disclosing limited information that is made available on the trading platform to other participants. Exactly what information is disclosed is decided by the participant. It might reveal information, such as, credit rating, net overall exposure, size of net tangible assets, recent profit performance, and debt:equity ratio.

Participants looking to trade observe the disclosed information on the platform for those who have posted bids and offers and could select the bid and offer which they deemed to be acceptable. For the arrangement to work there would need to be some mechanism by which parties indicate which parties they will trade with.

3.2.2 Evaluation of approach

The information to be disclosed is left to the parties to decide themselves, as are judgements about what parties are acceptable counterparties for them. Firms that are particularly concerned about public identification will tend to give less information. Those not concerned will reveal more.

Ensuring the integrity of the information given is a significant issue with this approach. Should it be the responsibility of the market operator? Should there be spot audits? Who should conduct them? What should be the consequences if breaches are found? Unless the information is assured by a third party then it is unlikely to be accepted at face value by most potential counterparties, but this assurance will also add to the costs of the market compared with an alternative such as direct bi-lateral contracting.

The more information that a party gives about itself, the more likely that it will be effectively identified by other participants. Moreover, once a party has done one trade with another party then, unless the party changes the range of information about itself available, its identity will be known to it. A party can hardly change the actual information and continue to provide accurate data. In effect, this arrangement could quite quickly stop there being a blind market and stop having the attractions of a blind market to potential participants.

3.2.3 Assessment

This approach effectively results in the market not being a blind market. If this characteristic is thought important, and those involved with developing a gas market have considered it to be, then this is a major drawback. Ensuring the integrity of the information is also an important issue with this approach. The involvement of a third party appears essential but will add considerably to costs.

3.3 White-list approach

3.3.1 Summary of option

This option allows participants to effectively nominate the parties who they are willing to trade with. Only valid matches will be consummated. The arrangement might be augmented by each party setting for each other acceptable party trading limits specifying the maximum net exposure that they will accept relative to this party. A party will only be able to trade bids or offers that do not violate the restrictions and any limits it has placed on counterparties and the restrictions and limits other market participants have place on it.

In the interest of transparency, participants will see all the bids and offers in the market, including those that it is unable to accept because of restrictions it has placed and those it is unable to accept because of restrictions relating to it placed by the offeror or bidder. From the perspective of each market participant, the five categories of bids and offers (orders) will be:

- orders placed by the participant itself
- orders the participant **can accept** because the counterparty is acceptable to them for this deal and it is acceptable to the counterparty for this deal
- orders the participant **cannot accept**:
 - because the counterparty is not acceptable to them for this deal even though it is acceptable to the counterparty for the deal

- even though the counterparty is acceptable to them for this deal it is not acceptable to the counterparty for the deal
- because the counterparty is not acceptable for this deal to them and it is not acceptable to the counterparty for this deal.

These different categories of bids and offers could be easily identified to each participant on the trading platform by either the use of colour or through formatting the page.

It should be noted that in this option the exposure limits relate to the level of net exposure one participant is willing to accept relative to another, and not the level of exposure of a participant to gas contracts on and off market.

3.3.2 Evaluation of approach

One significant advantage of this approach is that each market participant gets to specify the counterparties with which it is willing to trade and the level of exposure it is willing to take at each point in time to each participant. Participants cannot avoid the market on the grounds that they will be required to take on risks of default that they do not find acceptable.

A second advantage of the approach is that it will allow participants to see the nature of the deals its own risk limits are excluding it from participating in, and will also expose the kinds of deals that the risk limits placed by others are preventing it from accessing. This latter feature should facilitate detection and prevention of any schemes to exclude parties from transactions for anti-competitive purposes.

A third and very significant advantage flows from the likelihood that parties with high credit ratings will tend to be acceptable to most other counterparties. If the market is operated according to this approach it will effectively present parties with strong credit ratings with default risk arbitrage opportunities. These will occur if a party is able to accept two deals – one to buy and one to sell – with the offer price below the bid price, but otherwise identical. The simultaneous sale and purchase of the two contracts by the acceptable counterparty for both will leave this party with no gas exposure, just two default risk exposures and the spread between the bid and offer prices times the volume of gas as its compensation for taking on these risks.

In short, this approach creates not just a market for short-term gas contracts but also a market for 'credit risk'. Parties undertaking the credit arbitrage activities need have no involvement with or exposure to gas at all. What they need is a strong credit standing and expertise in assessing the credit risks of counterparties. This arrangement looks ideal for the participation of banks in the market in this role; banks are specialists in the assessment and management of 'credit risks' and are likely to have limits on most of the players in the gas market already. They also have strong credit ratings that are likely to be acceptable to all gas market participants. The resource commitment of banks to the trading platform to exploit these opportunities need not be great. Indeed, the execution of the 'pure' credit risk arbitrage trades could be largely automated like many other arbitrage transactions by banks on electronic markets are already.

The approach is likely to mean that those active in the market will be able to form hypotheses about who various offerors and bidders might be, but since firms will be defining their own white-list and setting exposure limits and they will be able to unilaterally change these, the market is unlikely to lose its blind characteristic more than marginally. Moreover, if banks become involved because of the 'pure' credit risk opportunities offered in the market, then it is not much of a step to them becoming the principal traders in the market on account of clients and effectively masking the identity of the gas industry participant behind each offer and bid.

3.3.3 Assessment

This approach has a lot to commend it. Participants effectively control who they are going to trade with but have to face up to the financial consequences of their decisions about what default risks they will bear. A 'pure' credit risk market is created along with the gas market and it should be possible to successfully market involvement in this to banking institutions. It is this feature that may well give that extra incentive to participants to become involved in a voluntary trading platform for shortterm gas contracts instead of sticking with off-market bi-lateral trading.

3.4 Augmented White-list approach

3.4.1 Summary of option

This option is very similar to the previous option. The difference is that there are more options available to participants for specifying the trades acceptable to them. In addition to being able to name entities on a white-list and (potentially) set credit limits for each entity, participants will be able to:

- specify that they are willing to trade with entities of various credit ratings and what maximum net exposure they will accept against a firm with a particular rating
- specify different lists of acceptable counterparties parties and limits for them for deals of different duration from the present day
- set overall exposure limits to related groups of entities

Other possible extensions to how to specify the white-list could also be considered.

3.4.2 Evaluation of approach

This approach has all the advantages of the white-list approach but will allow greater flexibility in credit limit setting. This should increase the opportunities for trades to occur and hence improve efficiency and will also tend to preserve the anonymity of those involved in the market. Complex limits cannot be managed in anything other than a computerised trading platform, but they can be easily handled in this environment. This approach exploits the advantages of electronic trading and so goes beyond using electronic means to replicate practices formerly done by people.

It also appears likely that this approach will make it more difficult to determine accurately the identity of the participant associated with every offer and bid, even if participants do not resort to using banking institutions to mask their identities.

3.4.3 Assessment

This approach has a great deal to commend it. Participants control who they are going to trade with and have considerable scope to determine how they will do this. However, participants also have to face up to the financial consequences of their decisions about what default risks they will bear. A 'pure' credit risk market is created along with the gas market and it should be possible to successfully market involvement in this to banking institutions. It is this feature that may well give that extra incentive to participants to become involved in a voluntary trading platform for shortterm gas contracts. The anonymity of participants is more protected than under the standard 'white-list approach above.

4. Evaluation against requirements

The two requirements for the prudential arrangements we identified in section 2 were:

- it must instil confidence in potential participants that the counterparty will not default
- it should not materially undermine the blind market character of the trading platform proposed.

The minimum prudential requirements approach will only meet the first requirement if the standard is set very high, but in that case it is very unlikely to meet the second requirement. If there are few players then identifying each should not be too difficult. Moreover, if the standard is set high the market is unlikely to survive.

For the frosted glass approach to instil confidence that counterparties will not default the integrity of the data provided by firms about themselves will need to be unimpeachable. The mechanics for achieving this are not straightforward. Moreover, the approach effectively results in the market no longer being a blind market.

The white-list approach leaves the decision as to who is acceptable as a counterparty to the participants individually. For this reason it meets the first requirement. The approach may also make it possible for regular participants to make guesses of the identities of the parties behind bids and offers, but the role banks may play in a market of this kind is likely to mask the identities quite effectively.

The augmented white-list approach performs relative to the requirements very similar to the white-list approach itself. However, the greater flexibility in setting limits should make it even more difficult than under the standard white-list approach for participants to identify who are the parties behind particular bids and offers.

5. General evaluation

In order to determine the suitability of various mechanisms for gas trading in New Zealand a number of evaluation criteria were developed in the Consultation Paper on *Concept Design of the Wholesale Gas Market* published in March 2006. How do the four approaches to prudential arrangements stack up against those criteria? The assessments are set out in the Appendix The white-list and augmented white-list approaches are clearly superior against these criteria when compared with the minimum prudential standard and frosted glass approaches.

Appendix A Assessment of approaches

Evaluation criteria	Minimum prudential standard	Frosted glass	White-list	Augmented white-list
Efficiency : Does the option distort the incentives faced by the parties to be efficient?	Large parties with high credit standing will try to have high standards set to block participation by others. This will inhibit efficiency and the development of a viable market. If low limits are set the market will collapse through major players not participating.	Will lead to market not being a blind market and this may impact on the efficiency of the outcome by making collusion and discrimination easier.	Helps efficiency by creating a market for 'pure' credit risk. Forces participants to face costs of their default risk standards.	Helps efficiency by creating a market for 'pure' credit risk. Forces participants to face costs of their default risk standards. Allows more flexibility to find trades than the standard approach and so probably will lead to more efficient outcomes too.
Information availability : Does the approach ensure high-quality information is equally available?	No. Probably result in short- term gas market through a trading platform not being viable.	It does not ensure the information is high quality <i>per se.</i> without auditing and a penalty regime there could be some very low quality information.	Yes. It will also lead to information being available on the costs of insuring various forms of credit risk.	Yes. It will also lead to information being available on the costs of insuring various forms of credit risk
Contract availability and competitive effects : Does the approach affect the volume and types of contracts offered?	Yes. See response above under efficiency.	Yes. See above for comments under efficiency.	Yes. Leads to credit risk contracts available. Will also encourage parties like new entrants that have no or few limits to put up offers and bids to seek parties willing to accept exposure to them.	Yes. Leads to credit risk contracts available. Will also encourage parties like new entrants that have no or few limits to put up offers and bids to seek parties willing to accept exposure to them.

Evaluation criteria	Minimum prudential standard	Frosted glass	White-list	Augmented white-list
Regulatory certainty : To what extent does the proposed approach meet the objectives of the GPS and so limit the risk of future regulatory changes?	Does not meet requirement of GPS in regard to availability of trading and risk management opportunities as market not likely to be viable.	Unlikely to meet requirements of GPS in regard to availability of trading and risk management opportunities as market not likely to be viable as a blind market.	Should meet the GPS requirement in regard to availability of trading and risk management opportunities.	Should meet the GPS requirement in regard to availability of trading and risk management opportunities.
Administrative and compliance costs: To what extent does the proposed approach increase or reduce the costs associated with trading?	Costs of administering credit ratings would be small. Costs of administering net trading limits could be high.	The arrangements necessary to ensure the information provided by participants about themselves is accurate will be time consuming and expensive.	Costs should be small as mostly automated.	Costs should be small as mostly automated. However, software will have to be slightly more complex than for the standard white-list approach.
Practicality : Is the proposal able to be implemented?	Very difficult to implement in practice. Getting agreement on prudential standards will be very difficult.	Difficult to implement in a way that makes information acceptable.	Very practical. Participants set own requirements.	Very practical. Participants set own requirements.
Equity : Will the proposed approach treat participants equally	No. See comments above under efficiency.	No. See comments above under efficiency.	Not exactly as parties with different credit grades will still be treated differently, but there will tend to be competition in doing so.	Not exactly as parties with different credit grades will still be treated differently, but there will tend to be competition in doing so.

Evaluation criteria	Minimum prudential standard	Frosted glass	White-list	Augmented white-list
Scalability : Is the approach appropriate to the current market size and able to expand if necessary?	Yes.	Yes.	Yes.	Yes.

Appendix H: Assessment of Indicative Costs and Benefits of Matching Platform

Benefits

The benefits of the matching platform were estimated as follows:

PV (\$m)	Low	Medium	High
Pricing efficiency	0.17	0.34	0.51
Reduced search cost	-	-	-
Productive efficiency	0.38	0.76	1.15
TOTAL	0.55	1.10	1.65

Pricing efficiency benefits³⁷

The assumptions made to estimate the benefits from pricing efficiency in the "medium" scenario are:

- initial inefficiencies are estimated by calculating deadweight loss in a short-term market with a clearing price (P₀) of \$6.50/GJ, and a volume of 6PJ per annum (5% of total market volume of 119PJ). Variability in prices that is not captured by the current (informal) short-term market is estimated at \$0.50/GJ of the market-clearing price;
- demand and supply are straight lines, with elasticities of demand (ed) and supply (es) of -1 and 0.5 respectively at equilibrium. The figure of -1 for the demand elasticity compares with figures in the MMA report of -0.8 for residential gas demand, -1.5 for industrial gas demand, and -1.0 for demand from gas-fired electricity generators. The MMA report uses a figure of 0.5 for the elasticity of gas supply;³⁸
- existing deadweight loss is calculated as \$0.344m per annum using the formula provided in the MMA report; and
- DWL = $\frac{1}{2} (P_1 P_0)^2 ed^{2*}Q_0/P_0 (-1/ed + 1/es).$

³⁷ This estimation approach is an approximation because a uniform average price distortion (P₁-P₀) has been assumed. Simulating the results through time would probably increase the estimate.

³⁸ Page 37 of the MMA report refers.

 the introduction of the matching platform is assumed to enhance trading and the accuracy of pricing signals, and this enhancement is assumed to be represented by an improvement in price accuracy of \$0.04/GJ. The remaining deadweight loss is \$0.291m per annum. This means the trading platform reduces deadweight loss by \$0.053m per annum, which has a present value of \$0.340m (assuming a term of 10 years and a discount rate of 9%).

The "low" estimate of pricing efficiency is 50 percent lower, and the "high" estimate 50 percent higher than the medium estimate.

Productive efficiency

The savings from improved productive efficiency, for the medium scenario, are estimated as follows:

- it is assumed that 5 percent of gross market volume (that is, 6 PJ per annum) is affected by cost reductions (arising from improved productive efficiency) of \$0.02/GJ; and
- savings are \$119,000 per annum, with a present value of \$764,000.

In the "low" benefit scenario, the cost reduction is assumed to be \$0.01/GJ, and in the "high" benefit scenario it is assumed to be \$0.03/GJ.

Costs

PV (\$m)	Low	Medium	High
Planning and consultation	0.03	0.05	0.08
Government processes	-	-	-
IT development	0.06	0.13	0.19
Participant cost	0.09	0.19	0.28
TOTAL	0.18	0.37	0.55

The incremental costs of the matching platform were estimated as follows:

The costs of planning and consultation, government processes, and IT development have been estimated directly. The "low" scenario figures are 50 percent lower and the "high" scenario figures 50 percent higher than the medium scenario figures.

Participant costs under the medium scenario have been modelled as follows:

- costs to each participant are made up of consultation costs (one-off) and an ongoing annual cost. We assume there are 10 participants;
- 60 percent of participants are engaged in the consultation process. The process involves 2 rounds of consultation, each requiring 25 hours input from 2 people for each participant. Time is valued at \$100/hour;
- ongoing costs are \$20,000 per annum (about 20 percent of IT development costs); and

• this gives a total present value for participant costs of \$190,000.

In the "low" cost scenario, it is assumed that only 40 percent of participants participate in the consultation. In the "high" scenario, it is assumed that 80 percent participate.

Net benefits

The net benefits arising from the matching platform are therefore estimated as:

NPV (\$m)	Low benefit	Medium benefit	High benefit
Low cost	0.37	0.92	1.47
Medium cost	0.19	0.74	1.29
High cost	0.01	0.56	1.11

Appendix I: Assessment of Indicative Costs and Benefits of Trading Platform

Benefits

The benefits of the trading platform were estimated as follows:

PV (\$m)	Low	Medium	High
Pricing efficiency	1.1	2.1	3.2
Productive efficiency	2.5	7.5	12.4
Curtailment management	0.5	2.6	10.5
Better capacity utilisation ³⁹	-	-	-
Reduced search costs ³⁹	-	-	-
TOTAL	4.1	12.2	26.1

Pricing efficiency benefits

The benefits from pricing efficiency in the "medium" scenario are calculated as follows:

- an initial level of market inefficiency is assumed as for the analysis of the matching platform. This is calculated based on an average price inaccuracy of \$0.50/GJ. The initial inefficiency is calculated as \$0.344m per annum; and
- the introduction of the trading platform is assumed to increase the accuracy of observed prices so that average inaccuracy is reduced to \$0.10/GJ. The remaining deadweight loss is \$0.014m per annum. This means the trading platform reduces deadweight loss by \$0.330m per annum, which has a present value of \$2.1m.

The "low" estimate of pricing efficiency assumes this benefit is reduced by 50 percent. The high estimate increases it by 50 percent.

Productive efficiency

Productive efficiency benefits in the "medium" scenario are calculated as a cost reduction of 1.5 percent (\$0.10/GJ) on 10 percent of total industry volume of 119 PJ.

The "low" scenario uses a cost saving of 0.5%, while the "high" scenario uses a saving of 2.5%.

³⁹ Not quantified at this point.

Better curtailment of load

The benefits from improved curtailment of load during a significant outage are calculated by assuming:

- on average, one significant outage event occurs each year. 5% of load is affected for a day, which is a curtailment of 16 TJ each year;
- the inefficiency cost of curtailment is \$25/GJ. This compares with a figure of A\$86/GJ used in the MMA report in an Australian context; and
- this gives an annual cost equivalent of \$408k, and a present value of \$2.6m.

In the "low" cost scenario, the length of curtailment is assumed to be half a day, and the inefficiency cost is reduced to \$10/GJ. In the high cost scenario, the length of curtailment is 2 days and the inefficiency cost is \$50/GJ.

Costs

The incremental costs of the trading platform were estimated as follows:

PV (\$m)	Low	Medium	High
Planning and consultation	0.3	0.5	0.8
Government processes	0.1	0.1	0.2
IT development	3.0	6.0	8.9
Participant cost	1.5	3.0	4.5
TOTAL	4.8	9.6	14.3

The costs for the medium-cost scenario are estimated directly. The costs for the low-cost scenario are 50% lower. The costs for the high-cost scenario are 50% higher.

Net Benefits

The net benefits from the trading platform are estimated as:

NPV (\$m)	Low benefit	Medium benefit	High benefit
Low cost	-0.7	7.4	21.3
Medium cost	-5.5	2.6	16.5
High cost	-10.2	-2.1	11.8

Appendix J: Pipeline balancing arrangements

Relationship between balancing and trading

Balancing encompasses the set of arrangements to ensure that linepack does not exceed its upper or lower operational limits. This includes mechanisms to ensure a high level of compliance between nominations and actual gas injections/receipts (e.g. imbalance penalties), and arrangements to restore balance where a divergence arises between planned activity and actions on the gas day.

Potential mechanisms in the latter category include:

- operational flow orders (OFOs) where the system operator can direct actions to reduce injections or receipts; and
- provision of a balancing service where a party or parties are contracted by the system operator to buy or provide additional gas.

Because balancing arrangements already provide many of the core elements to support trading (albeit in a very basic form), evolving these arrangements might provide the least cost path to facilitate trading that is close to real time.

Current arrangements

Balancing arrangements in New Zealand are undergoing change and current mechanisms have only been in place for a short time. At present, Vector acts as system operator for the Maui and Vector transmission (VT) lines, and current arrangements provide for four⁴⁰ separate balancing "pools" – the Maui line and the three main Vector pipelines.

Vector's Information Memorandum⁴¹ states that it will seek to minimise the cost of balancing its three pipelines by using the least costly sources available. Sources include:

- operational imbalance available at a welded point (effectively linepack on a distinct but connected pipeline);
- gas purchased or sold on short term tender; and
- gas purchased or sold under a longer term (back-up) contract.

Vector has published buy and sell mismatch prices – these are currently listed as \$4.00/GJ to buy and \$8.00/GJ to sell.

⁴⁰ The Southern, Bay of Plenty and Northern Pipelines. It has other minor pipelines which will also be separately balanced.

⁴¹ See section 4, Transmission System Information Memorandum, October 2005. References to NGC in that document are taken to be interchangeable with references to Vector (NGC's parent company).

The arrangements for the Maui pipeline are set out in the Maui Pipeline Operating Code. If a party has an imbalance that is outside the acceptable limits, the system operator can rectify that imbalance by buying gas from or selling gas to that party at pre-defined mismatch prices. At present, MDL has indicated it will buy at \$3.30/GJ and sell at the greater of \$15.20/GJ or a price derived from spot electricity prices. MPOC also provides for the system operator to issue operational flow orders.

However, it should also be noted that no charges have yet been levied on either pipeline: indeed, charges are unlikely for some time, possibly until the end of the Maui legacy period.

Importance of balancing prices

The price attached to balancing 'trades' should reflect the resource cost associated with those sales or disposals of gas. Ensuring that prices are cost reflective is important for a number of reasons:

- significant price divergence will encourage inefficient behaviour:
 - too low a price will make it harder to maintain balance, (and in other jurisdictions have given rise to concerns for pipeline operating security⁴²) because users of balancing gas will be incentivised to make excessive use of balancing gas and providers of balancing gas will not be rewarded adequately for their services;
 - too high a price will divert resources wastefully by encouraging users to avoid imbalances excessively and encourage providers to providing unnecessary balancing capacity;
- balancing will be facilitated when parties make reasonably accurate nominations; and where production or consumption plans change (following submission of nominations) balancing will be facilitated by reasonably accurate renominations – a cost reflective price should facilitate these outcomes; and
- balancing must occur in 'real time', and good pricing information will assist the pipeline system operator to achieve the best overall outcomes – i.e. add/curtail supply or curtail load in a way that reflects the relative value of gas to different parties.

In short, the provision of soundly-based balancing prices is important for efficient system operation, as well as for trading arrangements.

⁴² Reform of pipeline balancing arrangements in the UK were triggered by instances where gas fired generators were acting to utilise linepack in a manner which raised concerns about security of the pipeline.

How might balancing evolve?

For the balancing arrangements to support short term trading, the key aspect that would need to evolve is the frequency with which balancing prices are reset to reflect changing market conditions.

Present arrangements are essentially static, based on periodic tenders or administratively determined prices. Imbalance prices are reset infrequently, and don't appear to vary with the amount of imbalance gas that might be required. There are also sizeable spreads between the buy and sell prices, which could reflect either a lack of contestability by providers, or a large perceived risk in providing an option to buy/sell for an extended period.

There is also an issue as to what quantity of short term balancing gas the system operator should contract for including what allowance it makes for contingency events. While the system operator has an obvious interest in this issue, it is not clear whether that decision should be made by the system operator alone, especially as the cost is presumably met by the participants.

A more dynamic and responsive pricing arrangement could be introduced in a number of ways:

- the period between tenders could be shortened allowing more frequent resetting of prices;
- procurement of balancing capacity could be segmented into different tranches, which could provide more scope for competing suppliers, and differentiation on price; or
- the nomination process could be broadened to allow parties to signal the value that they attach to their planned injections and withdrawals – this would provide the system operator with information to 'stack' planned injections and withdrawals in priority order. The imbalance price for gas would be determined by the most expensive source of gas required to meet demand that day. Parties who are in balance would be neutral to the price, and parties who are out of balance would either pay or receive that price. This is the approach that has recently been proposed for the New South Wales and South Australian gas markets.

Possible timeframe for evolution

The degree of flexibility required in future, and hence the design of balancing arrangements should be determined by an economic and commercial assessment of a range of underlying physical⁴³ factors. In the short term these include:

• production - the extent and pricing of, any flexible production swing- this has been the key balancer in the past, but is clearly in transition. A key issue is the physical ability and commercial arrangements for provision of flexibility by any remaining Maui gas after June 2009 and other production sources;

⁴³ Commercial issues can mean that some of the options may not be available.

- linepack flexibility the characteristics of the pipeline system greater length, diameter, injection pressures and compression generally means more linepack flexibility and less need for other balancing;
- demand variability the need for loads to flex in real time in a manner that is difficult or very costly to control – for example, residential demand has significant weather induced peaks;
- interruptible load the amount of demand that can be curtailed in an orderly manner, and the likely position of this demand in the 'merit stack'; and
- system wide risk management the nature of the major risk contingencies, the assessed probability with which they are likely to occur, and their economic consequences.

In the long term efficient balancing will require commercial decisions about matters such as whether to maintain, develop or reconfigure existing assets, invest in new assets or services or invest in new systems (e.g. load interruption capability).

These decisions can be made by producers, the pipeline owner, or major gas users and gas retailers. If the efficient solution is one (or a few) large scale solutions, then there may need to be a high level of cooperation and coordination within the industry.

The evolution of future balancing arrangements should take into account the need for appropriate incentives and forward price signals to encourage the industry to identify and invest in or arrange for, the most efficient solutions.

Appendix K: Assessment of the Preferred Option Against Gas Act and GPS Objectives and Outcomes

Gas Act and GPS Objectives and Outcomes	How the option affects achievement of objective/outcome
To ensure that gas is delivered to existing and new customers in a safe, efficient, fair, reliable, and environmentally sustainable manner.	Both the standard contract and the IT platform options would reduce transaction costs and contribute to increasing efficiency. The increased transparency arising from a matching platform will also assist in achieving the other objectives.
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.	Improves competitive market arrangements at wholesale level. Information from an IT platform would increase levels of pricing transparency which would be expected to enhance achievement of this outcome. This, in turn, will be expected to have positive flow-on effects for greater competition and improved consumer outcomes.
Energy and other resources are used efficiently.	It is considered that the improvements in productive efficiency and pricing efficiency will flow through to improved resource usage.
Barriers to competition in the gas industry are minimised to the long- term benefit of end-users.	Achievement of this outcome will be positively affected by virtue of increased transparency in the wholesale market.
Incentives for investment in gas processing facilities, transmission and distribution, energy efficiency and demand-side management are maintained or enhanced.	The promotion of energy efficiency and demand-side management are likely to be facilitated when information on wholesale pricing is transparent.
The full costs of producing and transporting gas are signalled to consumers.	Increased transparency in pricing at the wholesale level is not inconsistent with improved end-user price-signalling.
Delivered gas costs and prices are subject to sustained downward pressure.	It is considered that increased transactional efficiency will enhance pro-competitive effects and this, in turn, may lead to some reduction in price at the wholesale level.
The quality of gas services and in particular trade-offs between quality and price, as far as possible, reflect customers' preferences.	the trade-offs between quality and price for consumers are better achieved when prices are formed in an efficient manner.

Gas Act and GPS Objectives and Outcomes	How the option affects achievement of objective/outcome
Risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties.	Improved wholesale market performance will be expected to have a positive effect on emergency management processes.
Consistency with the Government's gas safety regime is maintained.	The option is not inconsistent with the Government's objectives in respect of safety.
The gas sector contributes to achieving the Government's climate change objectives by minimising gas losses and promoting demand- side management and energy efficiency.	More efficient and transparent pricing will be expected to assist better decision-making in respect of trade-offs with respect to climate change objectives. Similarly, the promotion of energy efficiency and demand-side management are likely to be facilitated when information on wholesale pricing is more transparent.

Appendix L: NZIER Survey of Short Term Trading Activity


Short-term gas trading questionnaire

Summary of responses

Report to the Gas Industry Company

24 August 2006



Preface

The New Zealand Institute of Economic Research (NZIER) is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice to clients in the public and private sectors, throughout New Zealand and Australia, and further afield.

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NZIER was established in 1958.

Authorship

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1. Purpose

The Gas Industry Company commissioned NZIER to design and implement a survey of market participants to inform assessment of the potential effects of introducing a more formal platform for short-term bilateral trading of gas in New Zealand. In this report, we summarise the responses received (within the constraint of protecting the confidentiality of individual responses).

2. Method

We designed a comprehensive set of questions seeking information on current short-term trading as well as impediments to and potential for future growth. The draft questionnaire was reviewed by the Gas Industry Company, pre-tested with a small number of market participants and revised accordingly before implementation. We emailed this questionnaire to a broad sample of organisations identified by the Gas Industry Company. A week later we telephoned these organisations to collect their answers. The questionnaire is attached as Appendix A.

3. Summary of responses

We obtained responses from 14 of 15 organisations (93 per cent response rate), listed in Appendix B.

3.1 Characteristics of respondents

Figure 1 shows the distribution of the 14 respondents according to their main areas of operation. Note that several respondents operate in multiple areas. The responses reported below derive from a broad range of market participants, albeit with greater representation of gas wholesalers, gas retailers and major industrial users of gas.



Figure 1 Distribution of respondents by area of operation

Notes: Several respondents operate in multiple areas. Source: NZIER

Of the 14 respondents:

- five (36 per cent) have not been party to any short-term bilateral trades in the last 12 months (three of the five major industrial users and one of the five gas retailers);
- two have been active buyers;
- three have been active sellers; and
- four have been active as both buyers and sellers.

3.2 Magnitude of short-term trades

The volume of gas bought and sold under short-term bilateral trades over the last 12 months ranged from around 2,000 to 23,000 terajoules per respondent. Five respondents traded up to 7,000 terajoules each and three respondents traded over 15,000 terajoules each. Responses to this question totalled around 80,000 terajoules, which includes double-counting of gas sold from one respondent to another, but implies average short-term bilateral trading of around 10,000 terajoules per respondent per year.

In reporting trade volumes, some respondents highlighted that the questionnaire did not allow explicitly for joint selling.

For confidentiality reasons few respondents were willing to report also the value of gas traded.

3.3 Contract counterparties

Figure 2 shows the types of counterparties to these short-term bilateral trades. The main counterparties were gas producers, gas wholesalers and electricity generators.



Figure 2 Type of contract counterparties by area of operation

3.4 Characteristics of trades

3.4.1 Time period

For confidentiality reasons, some respondents were not willing to quantify their trades, in either volume or number. For those who were, Figure 3 shows the approximate total volume of gas bought and sold under shortterm bilateral trades by duration.



Figure 3 Duration of short-term bilateral trades

Source: NZIER

3.4.2 Type of transaction

The dominant type of transaction was simple buy/sell. Four respondents reported all their short-term bilateral trades to be simple buy/sell. One respondent reported most of its trades to be simple buy/sell, with a few swaps, some put/call options and an increasing number of "other" transactions in the form of back-up contracts. For respondents willing to report trade numbers, in total around 75 per cent of transactions were simple buy/sells, 15 per cent were swaps and 10 per cent were "other" transactions specified as pipeline imbalance trades and sales of swap imbalances.

3.4.3 Firm or interruptible

Five respondents reported all firm transactions. One respondent reported all interruptible transactions. The remaining three respondents had a mix of mostly firm and a few interruptible transactions. Of the total trade numbers reported, around 80 per cent of transactions were firm and 20 per cent were interruptible.

3.4.4 Delivery points

Delivery points were identified as Rotowaro (three respondents), Tikorangi (one respondent), Oanui (one respondent), Bertrand Road (one respondent), delivery straight from pipeline (three respondents), at pipeline injection point (one respondent) and at the field (one respondent).

3.4.5 Standard contracts

Five respondents use their own standard contract for short-term bilateral trades, at least as a starting point for negotiation. One respondent sometimes uses its own standard contract, according to counterparty, and three respondents never use their own standard contract. Conversely, six respondents never use a counterparty's standard contract, two do sometimes according to counterparty and one does always. These differences stem from whether the respondent is acting as a buyer or seller, given that sellers are required to offer a contract.

3.4.6 Prudential risk

To manage prudential risk, four respondents use credit ratings, one uses credit limits and two use parent company guarantees, but most simply rely on their established working relationships with known, often large, companies. No respondents suffered default by a counterparty in the last 12 months.

3.5 Staffing/resources used in short-term bilateral trading

For respondents able to quantify resources used in negotiating, documenting and settling short-term bilateral trades, staffing needs ranged from less than 0.1 to 2.0 FTE per year, averaging around 0.85 FTE. Associated legal fees ranged from \$5,000 to \$100,000 per year, averaging around \$50,000.

3.6 Perceptions

With regard to the ease of finding counterparties to short-term bilateral trades, there were three broad types of response:

- relatively easy due to a small number of known potential counterparties (60 per cent of respondents answering this question);
- becoming easier as sellers recognise opportunities (two respondents, neither of whom are currently active in short-term trading); and
- difficult a market would make it easier to identify potential counterparties, in greater numbers, and the volumes they are interested in trading (two respondents).

All respondents considered it generally relatively easy to agree contract terms once a counterparty has been found.

3.7 Potential for short-term bilateral trading in the future

As shown in Figure 4, 36 per cent of respondents considered the opportunities to increase short-term trading in the future likely to be low, due to the small number of market participants, market structure (large operators limit supply to the market; "right of first refusal" limits competition) and current market conditions. An equal number thought the opportunities likely to be moderate.



Figure 4 Opportunities to increase short-term trading from current levels

Four respondents (29 per cent) considered their ability to increase shortterm trading to be limited by access to transmission pipeline capacity; the remaining ten respondents did not.

Figure 5 shows the reported impediments to respondents increasing their own short-term trading. Difficulty finding counterparties constituted one quarter of identified impediments. "Other" impediments identified were current contractual obligations, capacity based transmission and having to book capacity on an annual basis, Maui pipeline operating code (no provision for trades at injection welded points), size of trades (small by industry standards, but significant to individual respondent), current market conditions (a reasonably balanced market, in which there is not much demand for more short-term trading) and the need for a standardised trading process.



Figure 5 Impediments to greater short-term trading by respondents

Source: NZIER



Figure 6 Impediments to greater short-term trading across the market

Source: NZIER

Respondents suggested similar impediments to greater short-term trading by the market in general, as shown in Figure 6. Additional "other" impediments identified were the limited availability of gas from producers and the shortterm market's small size and relatively small number of large interested participants.

3.8 Potential for the market if unconstrained

Respondents were asked how much they thought the total market volume of short-term bilateral trading might change with removal of the impediments they had identified. Seven respondents thought some increase likely over two years. Six respondents thought some increase likely over five years, whilst one respondent thought some decrease possible over this period (due to reduced volumes available to be traded after exhaustion of excess Maui gas). The remaining seven respondents were unsure whether volumes would increase or decrease.

Quantified responses were few (only four respondents) and very tentative, but ranged from 10 to over 100 per cent increase over two years and 10 to over 200 per cent increase over five years, although most responses were skewed towards the lower end of these ranges (10 to 40 per cent increases).

Associated comments were that the potential for growth depends on the nature of gas finds in the next two to three years (whether a large number of small, unpredictable fields or one or two major fields), changes to open access arrangements and scalability of trades, including ease and cost-effectiveness of making small trades.

3.9 Other comments

Other comments made by respondents on short-term gas trading were:

- for the gas market to operate efficiently requires short-term trading of some sort;
- the trading system needs to be designed according to need, so it is fit for purpose and not excessive;
- system design should include standardisation of trading process, contracts and delivery points;
- for trades to occur requires management of transmission capacity issues; some respondents thought capacity reservations an impediment, others not; most market participants are still trying to understand how the new transmission access arrangements will work, before they can determine their additional trading needs; and
- there is strong resistance to breaking up joint selling arrangements, which limit the market participants gaining access to entitlements.

Appendix A Questionnaire

Characteristics of respondent

- 1. Select the area in which your organisation operates (you may tick more than one)
 - \Box Gas producer
 - □ Pipeline operator
 - \Box Gas wholesaler
 - □ Electricity generator
 - \Box Gas-fired co-gen operator
 - \Box Gas retailer
 - \Box Major industrial user of gas
 - □ Other (please specify)
- 2. Has your organisation been a party to a short term bilateral trade of gas in the last 12 months?" (you can indicate your organisation has been both a buyer and a seller) *A short term trade is one for a period of 12 months or less*
 - \Box Active buyer
 - \Box Active seller
 - \Box Not active

Magnitude of short term trades

(A contract for 12 months or less is short term)

3. What volume of gas has your organisation traded by short term bilateral contracts in the last 12 months?

TJ

4. What value of gas has your organisation traded by short term bilateral contracts in the last 12 months?

\$

Contract counterparties

- 5. Identify the number of **different** counterparties your organisation has traded gas with using short-term bilateral contracts in the last 12 months. Please identify by using the categories provided e.g. 2 retailers, 3 major users.
 - □ Gas producer
 - □ Pipeline operator
 - \Box Gas wholesaler
 - □ Electricity generator
 - \Box Gas-fired co-gen operator
 - \Box Gas retailer
 - □ Major industrial user
 - □ Other (please specify)_____
- 6. Identify the number of **new** counterparties your organisation has traded with for the first time using short term bilateral contracts in the last 12 months.

Characteristics of trades

7. For each of the short term bilateral trades undertaken by your organisation in the last 12 months, please identify the period of time the trade covered the volume traded in TJs.

< 1 week	Volume	TJ
1 week – 1 month	Volume	TJ
1 month – 6 months	Volume	TJ
6 months – 1 year	Volume	TJ

8. For each of the short term bilateral trades undertaken by your organisation in the last 12 months, please identify the type of transaction.

Swap	Number
Simple buy/sell	Number
Put/call option	Number
Other (please describe)	Number

9. For each of the short term bilateral trades undertaken by your organisation in the last 12 months, please identify whether the transaction was firm or interruptible.

Firm	Number
Interruptible	Number

10. Please identify the delivery points (on the Maui or NGC pipelines) of the short term bilateral trades undertaken by your organisation in the last 12 months?

- 11. Does your organisation use its own standard contracts/agreements when undertaking short term bilateral trading?
 - \Box Yes always
 - \Box Sometimes depends on the counterparty
 - □ Sometimes depends on factors other than counterparty
 - \square No

- 12. Does your organisation use its counterparty's standard contracts/agreements when undertaking short term bilateral trading?
 - \Box Yes always
 - \Box Sometimes depends on the counterparty
 - □ Sometimes depends on factors other than counterparty
 - \square No
- 13. How does your organisation account for prudential risk in the short term bilateral trades it undertakes? (you can indicate more than one method)
 - \Box It doesn't
 - \Box Credit limits
 - \Box Credit ratings
 - □ Other (please specify)
- 14. How many times in the last 12 months has a counterparty to one of your organisation's short term bilateral trades defaulted?

- 15. How was this default rectified? (you can select more than one)
 - □ Physical compensation
 - □ Financial compensation
 - □ Litigation
 - \Box Not rectified as yet
 - □ Other (please specify)_____

Staffing/resources used in short term bilateral trading

16. How much staff input, in FTE terms, did your organisation use to negotiate, document and settle short term bilateral trading of gas in the last 12 months?

FTEs

17. What other costs (approximate \$ per year) were incurred by your organisation in short term bilateral trades of gas in the last 12 months?

\$ per year (for each category)

Perceptions

18. What are your perceptions of the ease with which counterparties to trading short term gas **can be found**?

19. What are your perceptions as to the ease with which contracts for the trading of short term gas **can be agreed**?

Potential for short term bilateral trading in the future

- 20. In your view, are the opportunities to undertake increased short term trading from current levels?
 - □ High
 - \Box Moderate
 - \Box Low
 - □ Non-existent

21. In your view, would access to transmission pipeline capacity limit your organisation's ability to expand its short term trading if it so desired? – please explain.

22. In your view, which of these factors are significant inhibitors to more short term trading in the market by your organisation? (You can indicate more than one item). □ Finding counterparties \Box Agreeing delivery location \Box Credit risk \Box Costs negotiating contract \Box s.41 requirements \Box Other (please specify)

- 23. In your view, which of these factors are significant inhibitors to more short term trading in **the market in general**? (You can indicate more than one item).
 - □ Finding counterparties
 - \Box Agreeing delivery location
 - \Box Credit risk
 - \Box Costs negotiating contract
 - \Box s.41 requirements
 - \Box Other (please specify)

Potential for the market if unconstrained

24. In the absence of the constraints that have been identified, what are the likely outcomes for volumes of short-term trading in the market in general over the next **two years**?

Increase by%Decrease by%

25. In the absence of the constraints that have been identified, what are the likely outcomes for volumes of short-term trading in the market in general over the next **five years**?

Increase by	%
Decrease by	%

Other

26. Are there any other comments you wish to make on the topic of short term gas trading?

Appendix B Respondents

New Zealand Steel (Dick Whitelaw) Carter Holt Harvey (James Flexman) Contact Energy (Liz Kelly) e-gas (Syd Hunt) Fonterra (Philip Taylor) Genesis Energy (Roger Johnston) Greymouth Petroleum (Steve Cross) Methanex (Phil Watson) Mighty River Power (Duncan Jared) NGC (Paul Hodgson, Jim Seagram, Sharon Rae) Shell Oil (Murray Jackson) Swift Energy (Tony Bissell) TPM (Rodney Deppe) Wanganui Gas (Jim Raybould)

Appendix M: Glossary of Terms

EDF	Energy Datafile published by the Ministry of Economic Development and available through its website at www.med.govt.nz.
FM	Force majeure
GPS	Government Policy Statement on Gas Governance (October 2004), published on the Ministry of Economic development's website at www.med.govt.nz.
MDL	Maui Development Limited
MMA	McLennan Magasanik Associates
MMA Report	The report titled <i>Gas Market Options Cost Benefit Analysis</i> (13 June 2006), prepared by McLennan Magasanik Associates for the Gas Market Leaders Group, Australian Ministerial Council on Energy
MPOC	Maui Pipeline Operating Code
NPV	Net present value
OFOs	Operational flow orders
PV	Present value
VT	Vector transmission