Todd Energy Submission re Access to Gas Processing Facilities

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

Submission from: Charles Teichert and Rodney Deppe Todd Energy.

QUESTION		COMMENT
Q1:	Do you agree that the overall objective of any protocols should be to facilitate access to gas processing facilities where that is both economically efficient and contributes to better achievement of Government's overall policy objective, taking account of the specific outcomes it expects of the sector? If not, what should the objective be?	Yes

QUESTION		COMMENT	
Q2: Do you agree with the proposed definition of gas processing facilities for the purpose of considering access protocols?		No. The definition of gas processing facilities should also extend to ancillary facilities that, although remote from the core processing facility, are no less an integral part of the gas processing exercise. As such, liquids pipelines and storage facilities should not be excluded from the	
		definition of "gas processing facilities" for the purposes of the development of access protocols. Wellhead gas cannot be simply piped into the transmission system because it is nearly always a "wet" gas. Wellhead wet gas includes condensates (which is similar to oil) and LPG. Oil also includes solution gas. If the evacuation of liquids is blocked then this will block the production of gas.	
		If effective access protocols are to be developed that support the objectives of the Government Policy Statement as described in the first section of the discussion document, then this would be best served by the inclusion of liquids pipelines and storage facilities.	
		Economically efficient access to liquids storage has also been identified as a barrier to entry by Bridge Petroleum, Greymouth Petroleum, Contact Energy, Mighty River Power, NZ Oil and Gas, Swift Energy as noted in the discussion paper.	
		To avoid this issue would represent a failure by the GIC to address an issue that has been clearly identified as a barrier to competition in the gas market and liquids markets and most importantly is a disincentive for oil and gas exploration in New Zealand. In the long run, this is likely to result in higher energy costs for consumers, a reduction in national GDP and a lowering of standards of living. Todd Energy's response to the questions should be read together with the attached paper that was presented at a recent gas industry conference.	

QUESTION		COMMENT	
Q3: Do you agree that the framework		Any framework is a useful means of evaluating whether or not there are substantial inefficiencies.	
outline identify ineffici arrang proces alterna	outlined in section 5 is suitable for identifying whether there are substantial inefficiencies arising from current	We note that the discussion document implicitly assumes that	
		1. Significant economies of scale are the only means by which inefficiency maybe caused and	
	arrangements for access to gas processing facilities? If not, what alternative framework would provide a superior accessment?	 Difficulties gaining access to infrastructure will only cause inefficiencies in that narrow infrastructure market and never cause inefficiencies in related markets including the energy market, 	
	superior assessment:	 parties do not want or need access for their equity entitlements and/or exploration is never done within a joint venture structure 	
		 all fields are marketed jointly and/or joint venture parties never compete with each other and hence never have an incentive to create access problems for their joint venture competitors 	
		5. a party will never want or need to access their own jointly owned facilities	
		 all access circumstances relate to access gas processing facilities owned by a 3rd party who is also not a joint venture participant. 	
		In summary the report appears to take a very simplistic and naïve view of the market. In particular the report does not appear to be aware of recent developments in the market place and the central role that access infrastructure is now playing in controlling competition in the New Zealand gas and liquids markets.	
		Participants in the market are naturally reluctant to complain publicly because in the absence of alternatives they have no alternative but to continue dealing with the dominant owners of essential infrastructure, who can make life very difficult for minor parties. For example many users of storage at the port have been classified as ad hoc users for years, despite the fact that they have been users for many years. This means that they can be cut off from storage or the price or terms of storage changed at any time. It is difficult for users who are already in a precarious position, to complain publically.	
		New Zealand is a relatively small market. In small markets, controlling your competitors access to infrastructure is a good way to control your competitor and to control the amount of supply into the market. The report does not appear to appreciate this. Nor does the report appear to appreciate the extent to which this is now being used as a means to control competition in the oil and gas market in New Zealand.	
		Todd Energy's experiences historically and more recently in New Zealand and most recent examples that have been disclosed to the GIC and appear in the appendices of the discussion document are cases where Todd Energy has been denied access at economically efficient ¹ prices to gas processing facilities including liquids storage facilities that is has an equity interest in.	

Q3:	Q3: Do you agree that the framework outlined in section 5 is suitable for identifying whether there are substantial inefficiencies arising from current arrangements for access to gas processing facilities? If not, what alternative framework would provide a	Some of Todd Energy 's most recent examples have been disclosed to the GIC and appear in the appendices of the discussion document are cases where Todd Energy has been denied access at economically efficient ² prices to gas processing facilities including liquids storage facilities.
		The introduction of separate selling of gas from joint venture gas production and processing facilities (something that is relatively new) creates an incentive for parties that have a controlling interest in gas processing, liquids storage facilities and related pipelines to deny access for the purposes of:
	Superior assessment: Continued	a) extracting monopoly rents
		 reducing competition and controlling competition in the gas market given that parties separate selling from the same field are competing with each other in the wholesale/retail market
		Some parties have argued that the appropriate mechanism for protecting parties from such anti- competitive behaviour is the Commerce Act.
		Unfortunately, in NZ, while the Courts can grant access to monopoly infrastructure, they cannot set prices under the Commerce Act and the controlling party is free to charge a price that results in super profits (Baumol-Willig Rule).
		As a result in NZ, parties that control monopoly assets do not need to deny access to reduce competition, all they need do is charge a high price that prevents the other party from competing with it. As a result, the incentives for exploration and development is reduced as parties are unable to access essential infrastructure at a reasonable cost that will allow them to compete.
		The only party who has any authority to implement controls that mitigate the anti-competitive behaviour of a party that abuses a monopoly position is Minister of Commerce who can impose price control. While the Government has expressed the view that it disagreed with the Baumol-Willing decision, the government also prefers only to regulate an industry as opposed to specific parties.
		This provides the opportunity for parties that control essential infrastructure to charge prices that result in monopoly rents, disincentives for investment in E&P and reduced competition in the gas market.
		Private parties in other first world economies generally have more than one means of gaining access to essential or dominant infrastructure at a reasonable tariff. In NZ a private party has no means of obtaining access at a reasonable tariff. (see attached presentation)

Q4:	Do you agree with the	No.
	technical/economic assessment presented in section 6?	We do not agree with the conclusions of the technical assessment for the same reasons as noted in Question 3.
		The assessment does not contemplate joint venture parties being denied access to gas processing plant at economically efficient prices where they have an equity interest.
		In such circumstances, the distance argument falls away as the issue is access to facilities that have been built specifically for the purpose of processing gas from the field in question. Additional transportation is not required.
		A key purpose of providing a means of gaining access to infrastructure is to give explorers confidence to drill more wells and smaller or more difficult structures. The drilling decision requires the calculation of the possible reward from drilling. If there is the likelihood of delay and or high cost duplicate infrastructure has to be built then the value of the reward from drilling decision declines and fewer wells and smaller structures are not economic to drill.
		The access protocols should be an attempt to provide new entrants with a means of becoming a competitor; lower the risk and cost of access (ie. make it more efficient); and lower cost.
		An explorer cannot assume that it will discover a sweet gas that requires little treatment.
		The report though assumes that an explorer can assume
		no CO2, no LPG and
		 that the field will definitely be large (at least above 50 PJ) and therefore the economies of scale above this are less marked (gradient of the curve in figure 4) and
		 that even though the field is large that no separate selling will be required. Therefore it is the field size that is all that needs to be considered and not the size of the parties equity entitlement to product that is the key factor.
		An explorer though cannot and does not make these assumptions. An explorer has to assume that it may discover a gas that requires significant treatment. Therefore figure 4 the no CO2 and no LPG in not the relevant reference perspective for an explorer.
		An explorer has to abide by the law of the land, which includes the Commerce Act, and is therefore likely to have to sell separately if it discovers a field that is larger than 50 PJ pa. In this event its JV competitors or the operator may attempt to use access to infrastructure as a means to control you as a competitor. Therefore its is the size of the equity entitlement and not the field that is relevant. Therefore the relevant range for an explorer is most often less than 25 PJ pa and in this range there are significant economies of scale even for sweet gas.

GIC report

explorer's need access for their *equity* shares and explorers cannot assume that they will discover gas that needs little treatment



Source: GIC Report "Access to Gas Processing Facilities" August 2006

Q5:	Do you agree with the conclusion that there do not appear to be substantial inefficiency problems with access to gas processing facilities?	No. For the reasons stated above and the examples that were provided during the interviews. Attached to this submission is a paper with the details of specific examples where access to gas processing and liquids storage facilities has resulted in significant inefficiencies in both the particular infrastructure market and in the related energy markets and that ultimately reduces the incentives for E&P investment in New Zealand.
Q6:	Do you agree that alternatives to the status quo that may meet the objective are limited to low cost, light-handed measures?	No. Todd Energy has provided evidence that substantial inefficiencies are occurring that reduces incentives for E&P investment and competition. Further light handed information disclosure measures such as those suggested will not address the issues that have been identified. Information disclosure as a means of addressing these inefficiencies has been tried for over a decade in NZ and has comprehensively failed and been replaced with heavy handed regulation. Other first world countries have also found that light handed regulation does not work. There is no reasonable basis for expecting information disclosure to have any a remote chance of enabling a party to gain access at a reasonable cost. Todd for example has a high level of information disclosure in respect of its own gas processing facilities and other third party essential infrastructure such as tanks and pipelines but this is of no assistance in giving it access at a reasonable cost. Instead of adopting a method of addressing the inefficiencies that has not only failed already but has no prospect of succeeding because it fails to address the problem of enabling a party to gain "access at a reasonable cost". The oil and gas industry is an industry in which it takes many years from discovery to development (Maui and Kapuni each took 10 years). There is no time left to adopt failed methods. Electricity and gas pipelines have gone from light handed information disclosure straight to heavy handed and industry wide price control. The process envisaged in the Gas Act is a halfway house. The Gas Act proposes the "setting reasonable terms and conditions for access to, and use of, gas processing facilities" Why is the Gas Act not being implemented ?

Q7:	Do you agree with the assessment and	No.
	that information disclosure is the preferred means of meeting the objective? If not, why not?	Information disclosure by itself in insufficient to prevent parties from extracting monopoly rents and inhibiting competition.
objective? If not, why not?	The decisions to regulate electricity and gas lines companies is a good example of the failure of information disclosure regimes.	
		There is no reasonable basis for expecting information disclosure to have any a remote chance of enabling a party to gain "access at a reasonable cost". Todd and others in the industry for example has a high level of information disclosure in respect of its own gas processing facilities and other third party essential infrastructure such as tanks and pipelines but this does not give it access at a reasonable cost.
		Todd Energy believes that the Gas Act should be implemented by "setting reasonable terms and conditions for access to, and use of, gas processing facilities" (Gas Act 43F) and for these terms to be effective the backstop of compulsory arbitration (should commercial negotiations fail) is necessary.
		This will remove the incentive for parties to engage in behaviour that is inefficient and anti- competitive.
		So long as the price that is set under compulsory arbitration is referenced to a long run marginal costs and owners of infrastructure receive a price that includes an adequate capital contribution then such a mechanism should not unreasonably interfere with property rights of infrastructure owners.
		We note that most international jurisdictions provide some form of regulatory mechanism for ensuring access to essential infrastructure at economically efficient prices. Such mechanisms include:
		- anti trust legislation,
		- essential facilities doctrine
		- protocols for access at competitive prices
		[see EXAMPLES in the attached paper]

Q8:	Do you concur with Gas Industry Co's assessment that the industry be invited to adopt a voluntary information disclosure regime? If not, please give your reasons.	No. A voluntary disclosure regime will be of no benefit in resolving the problem of gaining access at a reasonable cost. Information is only useful if a party can do something with the information. Without a means of gaining access at a reasonable cost, information on what one cannot get access to is effectively a waste of time, effort and resources.
		Information disclosure whether it is voluntary or compulsory does not meet the terms of the Gas Act which states that for processing facilities, the purposes are: "setting reasonable terms and conditions for access to, and use of, gas processing facilities" (Gas Act 43F) Information disclosure does not in any way set reasonable terms and conditions for access.



4th Annual Gas Industry Summit 25 September 2006





- Objective:Encourage explorers to drill for NZ oil and gas
- How:From an explorer's perspective, one of the basics is
 - Economic access to infrastructure in NZ
 - examples
- Access to infrastructure in other first world countries compared to NZ

Why encourage exploration ? Answer: Increase Reserves coverage



P50 Reserves Remaining	Re produc	emaining reserves ing and not-producing	
	Demand *	Implies Gas	Until**
Own use/losses	5.5 PJ pa	337 years left	2342
Residential Demand	7.0 PJ pa	162 years left	2167
Commercial Demand	7.6 PJ pa	107 years left	2112
Industrial Demand	31.0 PJ pa	43 years left	2048
Electricty Cogen Demand	21.0 PJ pa	30 years left	2035
Electricity Demand (current)	53.0 PJ pa	17 years left	2022
Total (excl Petrochemicals)	125.1 PJ pa	17 years left	2022

Source:Reserves MED Energy Data file

Excludes enhanced recovery

While there is no immediate urgency, more reserves coverage would be ideal

How ? A Basics from an explorer's perspective

- New Zealand competes in an international exploration market
- New Zealand exploration has to contend with numerous disadvantages such as higher costs, without creating additional artificial barriers to exploration
- For New Zealand to compete, we need to ensure that explorers have efficient access to essential infrastructure.

What is essential oil and gas infrastructure ?



- To an explorer essential infrastructure includes:
 - liquids storage and loading infrastructure at the port
 - gas pipelines, especially pipelines to customers
 - gas processing, particularly where the gas discovered requires extensive treatment

What is efficient access ?



- Efficient access is:
 - quick
 - certain and
 - at a reasonable price
- Access to infrastructure in New Zealand is
 - not quick: delays of 2 years or longer are common,
 - highly uncertain even with a long term contract and
 - at prices that tend to be unreasonable and
 - an opportunity for an essential infrastructure owner to control the new competitor/explorer

Access to infrastructure in other first world countries



- For example: Australia, UK, Canada and US all have multiple means of gaining access to monopoly infrastructure at a reasonable cost
 - essential facilities doctrine or legislation
 - protocols that grant access at a competitive market price
 - anti-trust legislation
- The legal environment thus gives a private party
 - access options and
 - hence provides certainty of access at a reasonable cost

In New Zealand a private party has no means of gaining Efficient Access to essential infrastructure Todd Energy

- In New Zealand a private party has NO means by which to gain access to monopoly infrastructure at a competitive price
 - Court can only grant access and cannot set a competitive price
 - monopolist is free to charge a super monopoly profit /rent (Baumol-Willig rule)
 - monopolist is careful not to deny access; instead it achieves the same effect by charging a super monopoly profit /rent
 - this creates an inefficient economy with high prices, weak competition and a lower incentive to explore/invest

NZ Commerce Act - allows monopolies to control competition by monopoly pricing



- Only the Minister can impose price control
- Government and officials have previously said that they are reluctant to impose price control and then only on an industry
- At the time of the Telecom (Baumol/Willig) decision the Government stated that it does not agree with the decision but had decided not to correct it
- Sent a message to business: dominance/monopoly infrastructure can be used to control competition
 - common knowledge and practice in the oil and gas industry



Example 1



- Joint Venture: parties A, B and C
- A, B and C are separately selling and competing from the same field
- Party C has an ability to take high volumes but parties A and B do not
- Parties A and B are worried that they will be left with the reserves risk at the end of field life
- Parties A and B have an incentive to control C ??

Party A and B decide to build their own pipeline to control competitor C



As a condition of access to the pipeline A & B demand that C agree to have its equity product entitlement controlled by A and/or B, its JV competitors



- Impact on C
 - equity entitlement and return is reduced
 - C cannot process its full entitlement through its own shared facilities
 - C's ability to compete is controlled by competitors
 - C's ability to deliver into its gas contracts is effected
- Gas market impact
 - Reduced competition
 - Reduce gas supply
 - Increased gas price
 - market forced to take more from other fields
- Exploration disincentive, because gas markets are controlled by the operator or infrastructure owner

What is C's reaction?



What is C's reaction?

C is forced to build its own duplicate bypass gas and liquids pipelines in an attempt to preserve its entitlement and ability to compete





- C's decision to bypass means that access to pipelines is no longer an effective means of controlling C
- A & B then pass a majority JV resolution giving the operator A the right to
 - limit yearly field production below the capacity of the plant to a level effectively set by A and B (their sale contracts), and
 - then the right to cut off a party if it exceeds this the arbitrary limit



- they can refuse to allow C to connect its pipelines to the JV gas processing facilities, and
- A and B can make access to their essential downstream infrastructure (such as liquids storage tanks or port infrastructure) difficult, slow, uncertain or expensive
 - this might be very effective as wellhead gas contains liquids and blocking the ability to evacuate liquids blocks C from taking its share of gas
 - this will also give A or B leverage to force C to sell C's product to them at a low price
-next infrastructure access hurdle



Example 2

Example 2





• Field 2

- A and B who sold to customer Z jointly for many years begin separate selling and competing from field 2
- Party A quickly contracts all its remaining reserves to a new customer Y
- B wants to continue selling to Z and
- B needs to use the non-open access pipeline owned by A and B and is prepared to pay a reasonable tariff
- Field 1: owned by A has a lot of unsold gas

party A wants to sell gas from field 1 to customer Z

Party A can increase the price of transmission of Field 2's untreated pipeline to make the delivered price of B's gas to customer Z higher than party A's delivered price from field 1





Example 3



- Joint Venture consists of Party A that is also the operator with a large interest and other smaller parties B and C
- Party A has a joint venture veto on access to joint venture infrastructure which includes gas processing facilities
- gas processing facilities are significantly underutilised
- joint sales are low



- One or both of B and C wish to separately sell their entitlement
- Party A simply veto's access for separate entitlement to the facilities
- Conclusion: Protocols are needed for joint venture parties to gain access to infrastructure, including their own jointly owned infrastructure

Systemic failure economic access to infrastructure



- A pattern of behaviour is emerging in the larger fields in New Zealand, where separate selling is relevant;
 - Operators and/or joint venture competitors have discovered that controlling access to infrastructure is the key to controlling competition and market supply
 - Even gaining access to your own processing facilities and gas entitlements can be a major problem
- The absence of access protocols creates incentives for operators and/or joint venture competitors to use infrastructure market dominance as a means to control competition



- The Gas Act requires "setting reasonable terms and conditions for access to, and use of, gas processing....."
- The purpose of the protocols is to provide greater commercial confidence to explorers *before* they drill so that
 - smaller plays are economic
 - improves the downside risk reward of discovering small fields or sour gas that maybe otherwise uneconomic to treat
 - joint ventures (JV) can still be used to share exploration risk without creating later access risks during production for their separate *equity* share (which may be small)



- New Zealand discoveries are typically small and equity shares of explorers even smaller therefore protocols are needed for:
 - small equity shares e.g. less than 25 PJ pa; and
 - efficient access to your **own** facilities
- But GIC/Transfield Worley report implicitly assumes:
 - JVs always act jointly, whereas the reality now is focused on separate equity entitlement;
 - equity share volumes are very large (100-250 PJ pa), whereas in reality they are less than 25 PJ pa; and
 - no significant treatment is required
- GIC report effectively assumes that there are no problems and then concludes that there is no problem

GIC report

explorer's need access for their equity shares and

explorers cannot assume that they will discover gas that needs little treatment



Source: GIC Report "Access to Gas Processing Facilities" August 2006



- The asset owners of essential facilities are arguing that:
 - the definition of "gas processing facilities" excludes essential facilities such as port facilities, port pipelines tanks and loading facilities
 - access to infrastructure at an economic price is not a problem and
 - protocols are not necessary (particularly protocols that include a backstop of compulsory arbitration)
- This means that access for explorers to essential infrastructure remains a problem



- Despite the escalation of infrastructure access problems, the GIC has not recommended that protocols be developed for access to any infrastructure.
- It has only recommend information disclosure as a solution to economic access to infrastructure.
- The experience with gas pipelines and electricity lines is that reliance on information disclosure to control dominance and monopoly pricing has comprehensively failed and belatedly required regulation.

Getting the basics right still elude us; systemic failure access to infrastructure



Systemic Failure to gain economic access to infrastructure quickly and with certainty remains a major disincentive for exploration and production

Getting the basics right to increase oil and gas exploration in New Zealand

Rodney Deppe of Todd Energy

Abstract

New Zealand wants to increase its domestic gas and oil reserves. This means we need to attract explorers in an international market. We therefore need to look at New Zealand through the lenses of the typical explorer. What will attract them and what will discourage them? An explorer can deal with the high technical sub-surface risk but once they make a discovery they expect to be able to have no barriers in gaining access to their equity product. Their equity product thus needs to gain economic access to essential infrastructure quickly and with certainty. In most other first world counties this is assured. In New Zealand gaining access to essential infrastructure such as port storage, and ship loading infrastructure takes years and economic access is highly uncertain. Examples of development problems is reviewed and found to be wanting in this area.

P50 Reserves1.1ReRemainingProducing a		Remaining reserves g and not-producing
	Demand*	Implies Gas Unti
Own use/losses	5.5 PJ pa	337 Years left 234
Residential Demand	7.0 PJ pa	162 Years left 216
Commercial Demand	7.6 PJ pa	107 Years left 211
Industrial Demand	31.0 PJ pa	43 Years left 204
Electricty Cogen Demand	21.0 PJ pa	30 Years left 203
Electricity Demand (current)	53.0 PJ pa	17 Years left 202
Total (excl Petrochemicals)	125.1 PJ pa	17 Years left 202

1. New Zealand domestic gas and oil reserves

Data Source for reserves: Ministry of Economic and Development Energy Data File January 2006, Latest data, year to September 2005 (gross calorific value)

The reserves-demand ratio indicates that on the basis of the current level of demand there is 17 years of reserve coverage. As this excludes enhanced recovery this should be a conservative estimate. This has increased modestly with the recent Maui reserves increase and suggests that in the immediate future there should be no production shortfall.

Nevertheless, ideally New Zealand would like to have increased reserves coverage.

Contrary to popular perception, the supply of gas and reserves is responsive to changes in price. Recovery of remaining reserves is an economic issue and improved prices can frequently allow the application of technology to enhance recoverable reserves.

2. New Zealand Oil and Gas exploration competes in the international market

If we want more exploration in New Zealand then we need to look at New Zealand through the eyes of a typical explorer. As with any market it is important to understand the target market. What will attract them and what will discourage them?

Although the international exploration market has grown at double digit rates in recent years NZ has only received a tiny fraction of the billions of dollars of this increased expenditure on exploration.

The most important thing to an explorer is prospectivity. After an exciting start to New Zealand exploration in the 1950's and 60's with the discovery of Kapuni (1 tcf) and Maui (5 tcf), the size of the discoveries has tended to decline significantly. Today unfortunately New Zealand is not thought of as one of the most prospective parts of the world. For this reason the majors have over the years tended to drift away from New Zealand. The majors are attracted to the prospect of discovering "elephant" fields, very large discoveries, and New Zealand has not managed to sustain the discovery pattern of large fields of the 1950's and 60's. The major's absence though has been filled by numerous small to medium sized oil and gas companies. A medium sized oil and gas production company by international standards however is a very large company by NZ standards. The oil and gas majors make up the largest companies in the world and have revenues three to four times the GDP of New Zealand. A medium sized international oil and gas company would by New Zealand standards be large and would be comparable in size to the top 5 NZ companies.

Other than for frontier regions, such as the Great South Basin, New Zealand's target market is therefore likely to comprise the medium to smaller sized oil and gas companies who are happy to target the more numerous but smaller sized exploration targets that tend to dominate the more prospective regions in New Zealand.

3. The difficulties exploring in New Zealand

There are many difficulties for an explorer in New Zealand. Some problems are caused by distance from other exploration regions such as the high cost of drilling in New Zealand. This has been aggravated in recent years by the international surge in demand for drill rigs and offshore drilling equipment.

There are however other areas where New Zealand lags behind the rest of the world and which can be quickly and easily rectified. A key area where New Zealand rates particularly poorly and which is relatively easy to remedy is economic access to infrastructure.

4. What is essential infrastructure for a petroleum development ?

To an explorer essential infrastructure includes:

- liquids storage and loading infrastructure at the port,
- gas pipelines to customers, other than open access pipelines
- gas processing

Economic access to all these facilities are essential for any development to proceed. At present none of these assets are subject to price control or open access. Major transmission gas pipelines are regarded as open access pipelines but the pipelines from the fields direct to customers or to the transmission pipelines are not regarded as being open access pipelines.

5. In New Zealand gaining economic access to essential infrastructure is highly uncertain

In New Zealand, a private party has no means of gaining access to monopoly infrastructure at a competitive price because although a court can grant access it cannot set a competitive price under the Commerce Act. The monopoly is thus free to charge a super monopoly profit (Baumol-Willig rule).

Monopolies are smart enough to never deny access, and instead they achieve the same effect by charging a super monopoly profit. This creates an inefficient economy with high prices, weak competition, and a lower incentive to explore and invest.

While the Minister of Commerce can impose price control, government and officials have previously said that they are reluctant to impose price control and then only on an industry wide basis. At the time of the Baumol/Willig decision the government stated that while it did not agree with the decision, for the time being it had decided not to correct it. This has unfortunately sent a message to businesses that dominant or monopoly infrastructure, that is not subject to industry wide price control, can be used to control competition. This has become common knowledge and practice in the oil and gas industry.

6. Economic access to infrastructure

Petroleum developments are particularly sensitive to barriers preventing efficient access to infrastructure because exploration companies require a higher rate of return to compensate them for the high exploration risk. Barriers significantly reduce the return on high risk exploration capital by causing delays, increasing costs, and reducing the ability to receive a market price for equity product.

6.1 Delays

In exploration not all wells are successful. Therefore the successes need to repay the losses accumulated from the string of failures as well as earn a return on capital. This means that the successes have to earn an extraordinarily high rate of return, just to stay in business. Substantial delays have a particularly severe impact on projects that need to earn a high rate of return. An unnecessary delay of only two years between discovery and first production requires nearly twice the revenue to return the same rate of return. This means that twice the price of the produced product is required to compensate for the inefficiency created by an unnecessary two year delay. Exploration is not unique in this regard, all high risk capital projects tend to be extremely sensitive to development delay.

An explorer can deal with the high technical sub-surface risk but cannot tolerate a high development risk as well. After taking the high exploration risk an explorer expects to be able to quickly market its equity share of product. This means economic access to essential infrastructure for the explorers equity share of product needs to be quick and have a high level of certainty.

6.2 Separate marketing provides a major incentive to utilise access terms as a means to control competition

The recent introduction of separate selling in New Zealand has escalated what was already a difficulty into a major problem for explorers. Because separate selling from joint developments has so recently been introduced in New Zealand the problem is poorly understood.

The historical lack of an adequate means to gain economic access to infrastructure in New Zealand means that there is plenty of scope for joint venture competitors to use control of assets as a means of controlling competition. The separate sellers expect to be able to use the same joint assets to process the liquids and pipe the liquids and gas to market. However if any one of the competitors has control of essential assets in this chain then this will effectively allow them to control their competitors. Because most gas is "wet" it contain liquids, and unless the liquids recovered from the gas are continuously evacuated the sale of gas is effectively bottlenecked. This significantly broadens the scope and ability to control competition. Control of liquid's infrastructure will for example allow control of a competitor's gas sales. Similarly control of gas infrastructure, will allow control of a competitor's liquids marketing and/or allow the asset owner to purchase the liquids at less than a competitive market price as part of the negotiation of access.

6.3 Cost Increases

Instead of denying access to a competitor, which would probably be a breach of the Commerce Act, all an asset owner in New Zealand has to do is demand an unreasonable tariff. This not only earns a monopoly rent for the assets owner but the added cost makes it harder for the competitor to compete in the energy market.

Successful explorers are learning that in New Zealand access to essential infrastructure is slow, difficult and high cost. They then factor this into their decision making before exploring. Consequently they will tend to explore less in New Zealand than they otherwise would, and/or need a higher price to pay for the higher costs and delays. Over time this inevitably translates into higher prices for consumers.

6.4 Market Impact in New Zealand

Whereas in a large market with plenty of participants such control of assets might have a minimal effect on market supply, in a small market like New Zealand, with relatively few large fields, control of a competitor will have a significant effect on competition and on supply into the market.

From the dominant party's point of view the advent of separate marketing within joint ventures has increased the incentive to utilise control of infrastructure as a means of controlling both market supply and their joint venture competitors.

To a new explorer it is an extremely unattractive prospect to find that, after spending millions of dollars, including on a string of unsuccessful wells, that it is at the mercy of operators and owners of infrastructure. This is aggravated by the further difficulty that access to your own facilities may be restricted by the operator who is also a competitor and has an incentive to control your ability to compete with them in the market. Having invested hundreds of millions of dollars into a gas processing plant only to find that a joint venture competitor then limits your access to this plant is a major unresolved uncertainty for explorers in New Zealand at present.

7. Example 1

In this example the Joint Venture consists of three parties: party A, B and C. The three parties A, B and C are separately selling and competing from the same field.

Party C has an ability to take and market high volumes but parties A and B do not. Consequently parties A and B are very worried that C will take its entitlement to reserves ahead of them and will leave A and B with the reserves risk at the end of field life. If reserves water out sooner than expected they fear that they may not receive all their entitlement to reserves. Parties A and B therefore have an incentive to try to control their competitor party C.

7.1 Party A & B begin their plan to control competitor C

Party A and B come up with a plan to try to control their competitor. A and B decide to build their own pipeline and as a condition of access to the pipeline demand that party C agree to have its equity product entitlement reduced by one or both of its JV competitors and that as a consequence the field would produce at less than its capacity.

Party A and B decide to build their own pipeline to control competitor C



7.2 Impact on C

C has just spent hundreds of millions of dollars on its share to develop the field and build production facilities. It desperately needs to obtain a return on this high capital outlay. If it does not agree it could be potentially prevented

from gaining access to its equity share entitlement and not obtain a return on its investment of hundreds of millions of dollars. The alternative however of falling under the control of one's competitors and then having a high risk that C would not receive its full entitlement and would not be able to sell the gas it needed or planned to supply customers is equally unpalatable. Party C is placed in a dilemma. The stakes are high. What does party C do?

7.3 Gas market impact

What is the impact on the market. NZ has relatively few fields. Withholding capacity from the market and depriving competitors of gas not only limits those competitors ability to compete in the market but also reduces the gas supply into the market. The market price for gas like any market is set at the margin by the last incremental amount of gas supply. Therefore even the reduction of a modest amount of gas supply can have a relatively big impact on the gas price.

It further forces customers to take gas from other fields. In NZ, where there are only a couple of fields with spare capacity at any one time, holding gas production back at one field inevitably result in increased production at the other. This in itself can be a powerful incentive to control production from different fields.

But by far the longest term impact is the insidious effect it has on exploration. If the legal-social environment has a high tolerance for such market manipulation then rational explorers will inevitably factor this into their decision making when it comes to drilling wells. It means that explorers have to deal with a higher risk that they will be able to obtain the necessary return on their high risk capital. They will drill fewer wells and small gas structures will not be drilled because the uneconomic size cut-off increases.

7.4 C's response

Faced with this dilemma C is forced to build its own duplicate bypass gas and liquids pipelines at significant additional expense, in an attempt to preserve its entitlement and ability to compete.

But that is not the end of the game. Party C's decision to bypass means that access to pipelines is no longer an effective means of controlling C.

7.5 What can A and B do now ?

What can A and B control C now? A & B though pass a majority JV resolution to limit yearly field production to the level that delivers their entitlement for their own sales contracts. They then cut off supply to a party if it exceeds this the arbitrary limit. Because party A and B set the level of

production at a level that suits their contracts they ensure that they will never be cut-off and in any event they can change this level arbitrarily. This then means that party C is effectively the party that is exposed to being cut-off from its gas supply entitlement.

7.6 What else can A and B do ?

Given that in NZ, unlike other first world countries, there are no enforceable access protocols, there are plenty of other ways in which A and B can potentially continue the "infrastructure access game".

For example, parties A and B can connect their own pipeline but refuse to allow C to connect its pipelines to the JV gas processing facilities.

Alternatively, if A or B have dominant control of any down stream liquids storage tanks or port infrastructure they make access to this infrastructure difficult, slow, uncertain or expensive. This would potentially be a very effective means of controlling competitors because wellhead gas contains liquids and blocking the ability to evacuate liquids blocks C from taking its share of gas. This will also provide leverage to force C to sell C's product to them at a low price.

8. Example 2

In this example the Joint Venture at Field 2 consists of two parties A and B. Parties A and B sold jointly from field 2 to customer Z for many years through a dedicated untreated gas pipeline. Everything ran well for A and B for many years, until one day when A and B began separate selling and competing from the same field. Party A can increase the price of transmission of Field 2's untreated pipeline to make the delivered price of B's gas to customer Z higher than party A's delivered price from field 1



Party A quickly contracts all its remaining reserves from field 2 to a new customer Y and has no field 2 gas left to sell to customer Z. Party B wants to continue selling to Z and needs to use the non-open access pipeline owned by A and B for this purpose. B is prepared to pay a reasonable tariff.

However party A does have another more distant field 1 which has a lot of gas to sell to customer Z. This would be transmitted through the open access transmission pipeline.

Because party A wants to sell gas from its other field 1 to Z it has an incentive to tilt the table by charging a very high tariff for B to transmit B's field 2 gas to customer Z. The customer wants the lowest delivered price. By requiring a high tariff for B to transmit B's gas from field 2 gas to customer Z, party A increases B's delivered price and makes the delivered price from A's remote field 1 more attractive.

9. Example 3

In this example the Joint Venture consists of Party A that is also the operator with a large interest and other smaller parties B and C.

Party A has a joint venture veto on access to joint venture infrastructure which includes gas processing facilities, pipelines and tanks at the port. The gas processing facilities are significantly under-utilised.

One or both of the smaller parties (B and C) wishes to separately sell their entitlement. Because of the field's enormous spare deliverability this will potentially unleash large deliverability onto the market which could depress the market.

Party A does not wish to allow B or C to sell separately and simply veto's access for separate entitlement to the joint venture processing facilities.

This example shows yet again that protocols are needed for joint venture parties to gain access to not only other party's essential infrastructure but also their own jointly owned infrastructure.

10. New Zealand

Operators and/or joint venture competitors in New Zealand can potentially control competition and market supply by controlling access to infrastructure.

The absence of any protocols or other means of gaining economic access creates incentives for operators and/or joint venture competitors to use essential infrastructure as a means to control competition in the energy market. Even gaining access to your own processing facilities and gas entitlements can be a major problem.

11. Learning from the First World

First world countries place a high priority on efficient access to essential infrastructure at a reasonable price, because this significantly affects the allocative and dynamic efficiency of the economy and hence the standard of living of its citizens.

The absence of an effective means of gaining quick economic access in New Zealand is in sharp contrast with the regimes established in other first world countries.

For example, Australia, UK, Canada and US all have multiple means of gaining access to monopoly infrastructure at a reasonable cost (long run marginal cost). These include:

- essential facilities doctrine or legislation;
- protocols that grant access at a competitive market price;
- anti-trust legislation.

Interestingly, officials within the New Zealand government are apparently acutely aware of the importance of access to infrastructure. At a recent APEC SMEs Working Group Meeting, a paper written by New Zealand officials stated,

Among many factors, firms rely on high quality infrastructure to produce goods and services, maintain contracts, and get products to markets on time and at the lowest possible cost. Enterprise development within New Zealand is therefore dependent on well-managed, well-functioning and appropriately located infrastructure. This minimises costs and ensures a reliable supply of energy, telecommunications and transport services now and into the future.

Paragraph 49, 16th APEC, SMEs Working Group Meeting, February 24th - 25th, 2003, Genting Highlands, MALAYSIA; Theme: 'Strengthening APEC Entrepreneurial Society'; POLICIES FOR GROWTH & ENTERPRISE DEVELOPMENT - DEFINING EVALUATION PARAMETERS by Dr Amir PIRICH, Manager and Ms Amanda TULLETT, Research Advisor Research, Evaluation and Monitoring Team, Ministry of Economic Development, NEW ZEALAND

While clearly aware of the importance of access to infrastructure this has yet to translate into an efficient means of gaining access to essential infrastructure.

11.1 Gas Act and the GIC

The recently amended Gas Act 1992 recognises the shortcomings and difficulties of gaining economic access to key infrastructure in New Zealand compared to other countries by proposing a regime of protocols for access.

However the asset owners of essential facilities are opposing this, arguing that:

- access to infrastructure at an economic price is not a problem;
- protocols are not necessary (particularly protocols that include a backstop of compulsory arbitration);
- "gas processing facilities" is not defined in the Act and that this should be interpreted narrowly and should exclude the most important essential facilities such as port facilities, port pipelines, tanks and loading facilities; and
- the Act only requires that the protocols apply to new fields yet to be developed and do not apply on an ongoing basis or to existing projects. If this were the case the protocols would not provide the ongoing necessary security. New developments would be forced to build duplicate facilities to gain the necessary security. If existing fields cannot utilise the protocols them their continuity of supply could be affected.

In a recent GIC industry survey on access to gas processing facilities, of the nine parties that responded, six spontaneously said that access to liquids storage on reasonable terms is a higher priority (Bridge, Contact, MRP, NZOG, Todd and Swift). Of the three other respondents, two where joint owners of storage infrastructure.

It is a concern that even after having identified that liquids storage is a key infrastructure problem the GIC report ¹ has not recommended any action on

GIC report access is needed for EQUITY share explorers cannot assume they will discover gas that needs little treatment (no CO2, no LPG) NZ Gas Plant capex NZ\$kk 250 200 su 150 100 100 equity 50 0 50 100 150 200 250 Access protocols 25 PJ/a essential

this issue.

The report appears to be out of touch with recent developments in the gas market. The report does not appear to be aware that explorers have to market their own equity share of product and therefore access issues arise in relation to the equity share of product which is typically quite small. The report further does not appear to be aware that control of access to infrastructure is now being used as a primary means of controlling competition in the NZ gas market. Nor does the report appear to be aware the explorers are having trouble gaining access to their own jointly owned infrastructure.

Source: GIC Report "Access to Gas Processing Facilities" August 2006

The GIC report claims that there are not major economies of scale for volumes above 40-50 PJ pa. Clearly they believe that in NZ entitlements to gas are all large, and that most gas discovered requires little treatment and therefore is cheap to treat. The real NZ world however is quite different. With the exception of one field, Maui, all equity product shares are substantially less than 40-50 PJ pa. In fact most equity shares are less than 25 PJ pa. Even the GIC Transfield Worley graphs which are predicated on gas that needs little treatment (see graph), show that there are substantial economies of scale for equity gas in the range less than 25 PJ pa.

In summary the report appears to be out of touch with what is going on in the market place and separate selling is now prevalent in NZ and that hence equity shares of product are therefore small. Nor does the report reflect an

¹ Access to Gas Processing facilities, August 2006

awareness that there is now a major incentive and ability to use control of infrastructure as a means of controlling competition.

Consequently, information disclosure is recommended as a solution to economic access to infrastructure. The experience in the gas pipelines and electricity lines is that reliance upon information disclosure to control dominance and monopoly pricing has comprehensively failed and belatedly required regulation in pipelines and lines.

12. Conclusion

The inability to gain access to infrastructure quickly, with certainty and at a reasonable cost thus remains a major disincentive for exploration and development.

The apparent inability to adopt even one of the standard access options available in most first world countries, means that "getting the basics right to increase oil and gas exploration in New Zealand" still alludes us.