Options

For

Vector Transmission

Capacity

Submission by
Maui Development Limited

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1. Introduction

Maui Development Limited (**MDL**) welcomes the opportunity to make a submission on GIC's "Options for Vector Transmission Capacity" paper (**Capacity paper**)[1] and the presentation delivered in a workshop which was held on Wednesday 9 June 2010. GIC's Capacity paper considers Vector Gas Limited's (**Vector**) options for changing its commercial arrangements for transporting gas on its transmission pipeline. In this submission, Vector's commercial arrangements for making capacity available to shippers (**users**), is referred to as Vector's "Capacity Regime".

GIC's Capacity paper was developed in response to a perceived capacity constraint on Vector's northern pipeline which was first identified by the GIC in 2006[2]. It is now considered that the situation has become more acute with Vector communicating to its users recently that it will not be accepting requests for any increased capacity reservations for the following twelve month period commencing August 2010.

2. MDL's interest in the topic

Capacity constraints on Vector's northern pipeline constrain demand on the Maui Pipeline and will exert upward pressure on per/unit costs for MDL's customers. Similarly, significant increases in capacity and demand on Vector's northern pipeline could create demands on the Maui system that could not be met without substantial additional investment.

There are a number of specific issues around the question of how increases in transmission pipeline capacity should be approached. As a pipeline owner, MDL has its own viewpoint on these issues and these are outlined in this paper. In particular MDL believes that close attention must be paid to the process and the incentives surrounding any investments required to increase the physical capacity of existing gas transmission pipelines.

3. Open access transport

At the workshop held to discuss this topic, the GIC described open access transmission, in terms of capacity, as three interacting components; regulatory arrangements, physical arrangements, and access arrangements[3]. Regulatory arrangements refer to the regulatory regime by which capacity arrangements are governed. Physical arrangements relate to the physical capacity of the pipeline. Where there is insufficient physical capacity to transfer the volume of gas that is demanded (in the timeframe required) there is said to be a "physical" capacity constraint.

Access arrangements refer to the commercial regime by which physical capacity is made available to customers. A Contract Carriage regime, in particular, may not allocate all the physical capacity on a pipeline on a given day, because the users with existing contracts for capacity may not simultaneously use all the capacity they have contracted for.

[1] Gas Industry Company, "Options for Vector Transmission Capacity", May 2010
[2] Page 4, para 2, Gas Industry Company, "Options for Vector Transmission Capacity", May 2010
[3] Page 3, Creative Energy Consulting, "Options for Vector Transmission Capacity: Presentation to Transmission Workshop", June 2010

We comment on each of these components in the sections that follow, but first we note the effects of price regulation on investment in gas transmission pipelines in New Zealand.

4. Regulation of gas pipeline tariffs

An important part of the background to this discussion is progress being made towards the regulation of gas transmission pipeline tariffs by the Commerce Commission. Regulation of the type envisaged involves the determination of a Regulated Asset Base, (RAB), which measures the investment on which the pipeline owner is allowed to receive the regulated rate of return. While the final form of gas transmission pipeline regulation in New Zealand is yet to be determined, regulators tend to take the view that only "efficient investment" can be added to the RAB, and thus be eligible to earn a return. They reserve the right to determine for themselves whether a given investment is "efficient" or not and may place obstacles in the way of any immediate addition of a completed investment to the RAB.

While this situation may be considered to be understandable in a regulatory context, it removes a great deal of the pipeline owner's discretion as to whether and when a particular investment will be made. No owner is going to make an investment which might not be judged as "efficient" and therefore earn no return. A lengthy delay in earning a return will also be unacceptable. A pipeline owner may well have a policy for investing in increased pipeline capacity if certain criteria are met, but the regulator may have a different view as to the type of investment that should be made, when it should be made or whether it should be made at all. This becomes particularly relevant when recovery of the cost of new investment may have a significant effect on tariffs charged to existing users.

We note that there is still some time to go before the regulatory provisions governing gas transmission pipelines will be fully in place in July 2012. This adds to the uncertainty around any decisions that have to be made in the meantime.

5. Spreading the cost

Investments for the expansion of pipeline capacity tend to be "lumpy" in nature. Expansion of compressor capacity is moderately expensive but on its own it can soon run into rapidly diminishing cost/benefit returns as a pipeline reaches its ultimate capacity. Looping existing pipeline or laying an alternative route is likely to cost a great deal more. Since the RAB for a given section of pipeline is depreciated each year, looping an existing pipeline that has been laid for some years may potentially lead to a very large increase in the RAB for the combined pipelines, perhaps increasing it by 100% or more. The investment has to earn a return, but it is unlikely that users increasing their demand will be able to pay all the increased return and it can be expected that existing users, or users on other sections of pipeline, will not want to pay any of it. The process of deciding who pays for the cost of any new investment will have an important bearing on decisions as to whether an investment is made at all.

6. Alternative access arrangements

The GIC study's primary objective is to establish whether a better access arrangement will allow greater or more efficient use of Vector's northern pipeline system. Currently Vector sells reserved capacity to its users for a fixed annual

"capacity reservation fee" which is based on volume reserved. Existing users have grandfathering rights which entitles them to at least the same volume rights as they held for the previous year. Where users take more gas than their reserved capacity allows them they are charged overrun fees. Users are also charged throughput fees based on volumes that are actually transported.

Vector's capacity regime is basically a contract carriage regime. One difference is that while pure contract carriage refers to provision of capacity under long term contracts, under the Vector regime the volumes of reserved capacity are effectively reviewed every year, although existing allocations may be retained from year to year.

The GIC have considered a number of capacity regimes which are listed in the table below. The focus of GIC's Capacity paper is to examine the viability of each of these alternative options and to recommend the most viable alternative.

Option	Key Aspects
Contract Carriage	Capacity is contracted to users under long term contracts
Common Carriage	Capacity is available to all users to share
Hybrid Option	Components of both Contract Carriage and Common Carriage whereby users can elect to contract for long term capacity but will otherwise share remaining available capacity
MDL Carriage	Components of both Contract Carriage and Common Carriage whereby users can elect to contract for one year capacity rights or will otherwise share remaining available capacity
Incremental Change	Incremental changes to Vector's current capacity regime

It should be noted that, in general, capacity regimes are not 100% contract carriage or common carriage regimes but normally are a mixture of both regimes. Vector's regime is generally accepted as contract carriage yet it has some components that are more common carriage in nature such as an annual review of reserved capacity volumes rather than longer term contract, and the existence of a throughput charge which fluctuates based on level of use rather that a straight fixed charge. Similarly the Maui Common Carriage regime offers "quasi" firm reserved capacity through its Authorised Quantity (AQ) facility[4].

7. Contract Carriage and Common Carriage

Under Vector's carriage regime, it annually sells reserved capacity, which is fixed for a one year period. It is difficult to determine what demand would be if capacity where allocated on a "first come first served" basis. This is because under Vector's capacity regime, capacity can be held by customers, who do not necessarily require it, while potential customers, who might utilise the pipeline's spare capacity, do not have access to it. GIC articulate this in terms of there being a disconnection between

[4] Section 7, Maui Pipeline Operating Code.

physical capacity and what is actually available to customers, which is commercial capacity. This can mean there is a disconnection between demand and what actually flows even when a physical constraint does not exist. MDL notes however that problems with the allocation of contract capacity normally do not occur until a pipeline is at or near its physical capacity limit.

There is a further issue in that Vector have announced that there is no spare reserved capacity for the next twelve month capacity reservation period. The flow on effects of there being no available reserved capacity is that it is very difficult to determine what demand could potentially be, particularly in the medium to long term. For example, if a new subdivision is built in Auckland, and there is available reserved capacity on Vector's northern pipeline, then a new subdivision may be provided with gas connections which will have a positive long term impact upon demand. If capacity is constrained, gas connections may not be installed. The point is that a capacity constraint will exert downward pressure on demand and exert downward pressure on downstream investment, which will have a negative long term impact on overall gas demand.

Under Vector's regime it is difficult to determine whether a failure to completely use reserved capacity is reducing gas supply or whether users that have increased demand for gas, but no access to further reserved capacity are unable to take gas without incurring uneconomic overrun charges.

GIC have stated that they have not been able to measure the extent to which physical capacity is a constraint on Vector's pipeline, or whether economic loss results from a disconnection between physical capacity and commercial capacity. GIC are able to confirm that requests for reserved capacity for the next twelve month capacity reservation period are above actual physical capacity.

It would be expected that as a Contract Carriage pipeline reaches physical capacity, users will attempt to hoard capacity in order to maintain their ability to make and increase their sales. This may be happening with the increase in applications for reserved capacity on Vector's northern pipeline.

In contrast the Maui Pipeline Operating Code (MPOC) provides access to the Maui Pipeline for all of its customers on a "first come, first served", or (largely a) common carriage, basis.

Because it currently has ample capacity, it is relatively simple to understand demand on the Maui Pipeline. Demand for a day, in general, equates to the amount of gas that has flowed, on a day, or the quantity of nominations made in respect of that day. If nominated demand exceeds capacity this may result in a "capacity curtailment" whereby nominations to transport gas are may be partly rejected although preference will be given to nominations made under Maui's AQ service.

Since MDL makes gas available equally to all users, it is a relatively simple process to understand whether there is a shortage of capacity. MDL simply looks at the volume of capacity curtailments which is the difference between requested nominations and final approved nominations. Notably, in terms of the Maui Pipeline, since the beginning of Open Access in October 2005, there has never been a capacity curtailment, nor are any forecast for the immediate future.

It would be expected that if demand on the Maui Pipeline grew to the point where physical capacity was exceeded, there would be a certain number of days each year over the peak demand period where non-AQ nominations would be curtailed to enable total flow to match the pipeline's capacity. If a service offering reserved capacity like Maui's AQ service was offered, users would attempt to guarantee as great a share of it as possible. If demand were to grow to a point substantially above capacity during the peak period, ordinary common carrier users without an AQ entitlement would essentially be experiencing an interruptible service during peak periods.

MDL does not believe that either a contract carriage or common carriage regime is best for all pipelines in all circumstances. Both have advantages and disadvantages. Contract carriage provides certainty of supply to users with contracts even when capacity is limited. However it may lead to situations where competition is restricted and all the physical capacity of the pipeline is not used. Further if new capacity is to be built, contracts for additional capacity may be bankable, thus allowing easier access to finance. Common carriage is fairer to new entrants, does not restrict competition and makes best use of available physical capacity but in a pure form it does not offer guaranteed capacity to users and financing new capacity may be more difficult.

8. Potential Solutions

GIC's Capacity paper offers potential solutions which effectively seek to redress the disconnection between physical capacity and commercial capacity. While MDL is of the view that some improvements might be made in this area, MDL believes that all the usual pipeline access arrangements perform badly when demand exceeds pipeline capacity and that more attention should be given to dealing with the problems involved with increasing the physical capacity available. Among other things it notes that Vector has highlighted regulatory uncertainty as a significant barrier which has prevented it from considering capacity upgrade projects at least until further light has been shed on implications of the Commerce Commission's price-quality path regulation.

MDL accepts that a review of Vector's capacity regime may provide a way in which the industry can move forward at this point, particularly while regulatory uncertainty persists, and the extent to which new regulation incentivises investment is not known. It may be difficult to determine the point at which an actual physical capacity constraint exists, as it is not just a matter of determining total daily flows. Other factors such as the hourly profile of user flows and their location on the pipeline can have a substantial effect. In addition, the advantages of any capacity regime change must be balanced against the cost of implementing this change.

9. Viability of objectives

The following summarises GIC's assessed viability of each of the six capacity regime options based on the application of the various evaluation criteria.

Evaluation Criteria	Current	Contract Carriage	Common Carriage	Hybrid	MDL Carriage	Incremental Change
Efficient Pricing	Moderate	Moderate	Good	Good	Moderate	Moderate
Efficient Allocation	Poor	Very Poor	Good	Good	Moderate	Moderate
Efficient Investment	Moderate	Very Poor	Good	Good	Good	Good
Facilitate Competition	Poor	Very Poor	Good	Good	Good	Moderate
Simplicity and Transparency	Poor	Good	Moderate	Moderate	Poor	Poor
Price Stability	Moderate	Good	Moderate	Good	Good	Moderate
Firmness	Moderate	Moderate	Moderate	Good	Moderate	Good
Transition Costs	Good	Poor	Very Poor	Moderate	Moderate	Moderate

MDL commends the GIC for utilising an evaluation process which seeks to effectively quantify the relative advantages of the various capacity regime options. In order to refine this process further, we comment on the "weighting" of each of the evaluation criteria as follows:

- **Promote efficient investment in capacity:** To the extent that there is a physical capacity constraint on Vector's pipeline, it should follow that investment efficiency, or promotion of investment in capacity upgrades, would be one of the most important evaluation criteria. Investment efficiency should be given a higher weighting, in terms of importance, than other criteria.
- However in MDL's view, the efficient investment objective will be greatly affected by the regulatory regime put in place. MDL is of the view that the Commerce Commission's price-quality regulation work stream will effectively determine whether investment is incentivised or not.
- Incentives to invest must take into account the return that will be earned by the pipeline owner and the timing of the return, all of which depend to some degree on the Regulator's decisions. The capacity regime selected may not be relevant to this process.
- **Ensure efficient pricing of capacity:** MDL agrees that efficient pricing of capacity is an important objective. However MDL advises that pricing will be determined to a great extent by the Commerce Commission's regulation work stream. MDL recommends a low weighting in terms of importance for this criterion.
- **Ensure efficient allocation of capacity:** MDL agrees that efficient allocation of capacity is an important objective. MDL understands that contract carriage regimes are designed to provide preferential rights to some parties over others and therefore they do not always achieve the most efficient allocation of physical capacity. However, this should not necessarily be viewed as market failure. Contract carriage regimes are a mutually beneficial system for both firm users and pipeline owners. Efficient allocation needs to be weighted against providing preferential service to users that provide a stable long term income to pipeline owners or financial support for a planned upgrade. Thus MDL recommends that scores in this area are not "blindly allocated" without specific attention to the unique circumstances of each case considered.
- **Facilitate competition in related markets:** Given that contract carriage regimes convey preference of some users over others, were this criterion applied it would always determine in favour of a common carriage regime or a hybrid regime. In MDL's view this criteria should be applied with caution.

- **Favour simple and transparent design and operation:** MDL sees that this is an important objective, although secondary to the primary objective of Efficient Investment.
- **Allow price stability:** Price stability is an important objective. However, transmission pipelines are subject to changing demand which is largely outside a pipeline owners control and are subject to a high portion of fixed costs which means that costs cannot always be reduced in response to lower demand levels. While contract carriage is assessed to have greater price stability than common carriage, in the case of Vector's regime, while reserved capacity price has remained stable over 5 years, the throughput charge fluctuates to smooth income volatility. Price stability is more of a consideration for the Commerce Commission whom is mandated to rule on whether a transmission pipeline will bear a price cap or a revenue cap. It should also be noted the process of allocating the charges resulting from a new investment to improve capacity may lead to substantially increased prices. To this extent, this objective can work against new investment.
- **Provide the level of service firmness that users require and are willing to pay for:** MDL feels that providing firm service to parties that require it is positive. However this must be weighted against the potential exclusion of other users which could create a barrier to market entrants. Given that this criterion will imply that contract carriage or hybrid systems is superior to common carriage, MDL recommends this criteria be applied with caution.
- **Minimise costs of transition from current arrangements:** MDL sees this as an important consideration and should be weighted accordingly. In order to implement a new regime on Vector's pipeline, a number of contractual changes would be required and this may be extremely costly to implement. MDL would advise not to undertake a regime change unless it was firmly established that the new system would be a significant improvement from the current system, particularly in terms of incentivising investment.

10. Evaluation of Current Capacity Arrangements

Efficient Allocation: If the capacity issue identified by the GIC is not a physical capacity issue but is based on commercial capacity being poorly allocated, then changes to the current allocation regime might be substantiated. However GIC have stated that they are uncertain as to the extent to which the issue is based on a physical capacity constraint. If the problem is mainly a physical capacity issue, then more efficient allocation will have limited benefit and attention should be focussed on the factors that will incentivise investment.

An assessment of the total level of requests for contract carriage capacity against actual gas demand in the area served by the pipeline seems to have concluded that the requests for firm capacity exceed total demand.

Efficient Investment: The GIC contends that the current structure entails regulatory uncertainty. However it should be noted that regulatory uncertainty is not due to the current capacity regime but is an issue that arises from the Commerce Commission work stream. Regulatory uncertainty would exist under all of the options

under consideration while Commerce Commission regulation structure remains undetermined.

GIC states that the there is a lack of an investment policy under the current system. MDL agrees that investment policies could add more clarity; however it also notes that forthcoming regulations may to some extent take investment policy out of the hands of pipeline owners.

MDL agrees with GIC's prognosis that demand uncertainty can negatively impact efficient investment. An assessment of actual demand could help resolve this question.

Transition Costs: MDL is of the view that transition costs are often underestimated. The cost of implementing change is expected to be large, although no cost estimates have been provided to date. Any attempt to change entitlements under Vector's contracts is likely to be met with resistance. Thus in MDL's view a clear case, with supporting cost estimates, for changing a capacity regime is required.

11. Evaluation of contract carriage option

Vector's current capacity regime is one of "quasi" contract carriage. It should be noted that a pure contract carriage regime is a theoretical concept and that very few pipelines are seen as "fully" contract carriage. However, pure contract carriage does provide a high degree of income stability which can be seen as an investment incentive, and long term contracts for reserved capacity can help finance capacity upgrades.

However, capacity upgrade capex requirements are lumpy, and where a pipeline operator relies on firm contracts to finance upgrading expenditure, upgrading is likely to be delayed until significant new capacity is required. This requirement can be reduced by asking existing users to bear some of the cost, although they are unlikely to be happy about the prospect.

It may be more appropriate to invest in upgrades at the point where physical capacity is reached, and not wait until demand for all of the additional capacity is under contract. If this is the option chosen, then the apparent advantages of the contract carriage regime in providing "bankable" contracts for increases in capacity may not exist.

12. Evaluation of common carriage option

Efficient Allocation: Allocation for common carriage is on a "first come first serve basis" which is seen as "fair and equitable" method for allocating capacity. Common carriage may be seen as preferable to Contract Carriage in that all physical pipeline capacity is available each day under Common Carriage, whereas under Contract Carriage, there may be spare capacity, which is reserved by a contract holder, who does not require it.

A nominations system would likely be required under a common carriage regime which would be a significant change from Vector's current system. Without a nominations system it would be difficult to determine the volumes of gas that users intended to flow. Where a capacity constraint exists, a real-time nomination system

is needed to determine who has rights to what volumes of gas, and which parties should be charged for non compliance.

Transparency: It is relatively simple to calculate whether a capacity constraint exists under a common carriage regime. Where users make nominations, the difference between requested nominations and approved nominations relates to capacity curtailed volumes. Calculation of capacity curtailment volumes directly identifies whether a capacity constraint exists. Thus in terms of transparency, MDL agrees that the common carriage option is favorable.

Efficient Investment: MDL notes that GIC provides a "good" rating for efficient investment on the basis that common carriage establishes a clear capacity planning policy. A capacity planning policy can be established without a capacity regime change. MDL does not view common carriage as a system that specifically incentivises investment apart from providing some clarity as to whether a physical constraint might exist.

Where a capacity constraint exists, it follows that some customers will lose out on receiving all of the gas they require, whether they are under a common carriage system or a contract carriage system. Implementation of a common carriage regime will not necessarily provide an incentive for a pipeline owner to invest in capacity upgrades. For this reason, capacity regime change is not seen to directly address the issue of efficient investment.

As a suggestion, efficient investment might be achieved through implementation of an incentive regime which seeks to reward pipeline owners who achieve a minimum level of service reliability, which is measured by volume of capacity curtailment. However an incentive of this type is likely to be outweighed by considerations such as the return the pipeline owner can expect on the investment, when it is received, and the effects of spreading the new investment cost onto existing users.

13. Evaluation of hybrid option

MDL views the hybrid option as being essentially similar to MDL's currently unutilized Authorized Quantities (**AQ**) facility which is provided for in the MPOC. The option provides for users to select whether they wish to have firm access or interruptible access. Thus the system has elements of both contract carriage and common carriage.

It may be argued that a mixture of both common carriage and contract carriage is ideal. However, if there were a capacity constraint under the hybrid system, MDL assesses that users would generally opt for firm capacity in an attempt to hoard capacity. The point is that although the hybrid system looks to have the best of both worlds (common and contract), if there is a capacity constraint, the users with firm contracts will get their gas and those without firm contracts will be curtailed to the extent necessary to reduce flow to system capacity. The situation of common carriage users will then be little different from that of "interruptible" users now. Where physical capacity is limited, the introduction of a hybrid regime leads to little real advantage.

Efficient Allocation: If there are no limits to the allocation of contract capacity, no secondary trading of contract capacity, and users are able to hold onto firm capacity they do not require, allocation inefficiencies between users can persist under the

hybrid solution, even though all the physical capacity of the pipeline will be used. The presence of common carriage users on the system will require the implementation of a nominations system in order to sort out common carriage entitlements.

There probably also needs to be some restriction on the amount of physical capacity of the pipeline that can be allocated to contract carriage in order to provide a viable common carriage option. In the case of Vector's northern pipeline, this may require the current allocation of firm capacity to be reduced, a step which is unlikely to be popular. In this respect there is some logic in MDL's AQ system which places a limit on the portion of the pipeline capacity that can be allocated to firm users.

Efficient Investment: MDL does not see that the hybrid regime actually does anything to directly incentivise investment. MDL sees the hybrid mechanism as being effectively neutral in this sense.

14. Evaluation of MDL carriage option

This option is seen as similar to that of the hybrid regime. The choice of regime does not actually incentivise investment in new capacity which is seen to be the main issue in terms addressing the problem of a perceived physical constraint on Vector's pipeline.

15. Evaluation of incremental change option

It is possible that some minor changes to Vector's current allocation regime might improve allocative efficiency – for instance increasing the allowance for user diversity. However such a step would have to be based on firm evidence that the required level of diversity actually exists and it might also increase the risk borne by Vector resulting from non-delivery of firm capacity.

16. Other Alternatives

Similar problems have arisen in other countries. One solution that has been adopted is to allocate capacity to end-users rather than shippers[5]. This system:

- Allocates capacity on distribution systems and at city gates to all eligible customers.
- These rights are then passed onto suppliers through "capacity certificates".
- Capacity is allocated to users on a "use it or lose it" basis.

A system of this type could improve use of physical capacity and improve competition. Implementation may be difficult and expensive however.

17. Conclusions

GIC have identified a potential capacity constraint on Vector's northern pipeline. The Associate Minister of Energy and Resource has requested that the GIC look into the issue in detail. Vector have stated that due to regulatory uncertainty relating to the

[5] See the discussion in "Trading opportunities and promotion of transparency in the internal gas market", European Commission Directorate-General for Transport and Energy (DG TREN/B3), August 2000.

Commerce Commission's price-quality regulation, that Vector is currently not incentivised to invest in potentially required capacity upgrading.

Given that the Commission are already addressing incentives to invest, the GIC have looked at other means by which improvements might be made in the area of capacity. GIC have earmarked a new capacity regime as a way to move forward on an improvement program. Nevertheless it is not clear whether the problems experienced arise from a lack of physical capacity or an allocation problem.

MDL believes that it is not sufficient to address physical capacity problems solely by requiring pipeline owners to have a capacity investment policy, or by imposing penalties when demand exceeds physical capacity. Positive steps to incentivise rather than discourage investment are needed. These include:

- Assurance that pipeline owners can obtain a return on their investment in new capacity through its inclusion in their Regulated Asset Base.
- A method of obtaining assurance that investment in increased capacity will be regarded as "efficient" before it is made.
- Recognition that the capacity allocation method adopted can affect the ability to finance investment in new capacity.
- Recognition that there is a problem in deciding whether only marginal users, or all users should bear the cost of new investment and that this may impact on price stability. Decisions in this area may also affect the timing of new investment.